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THE

CYCLOPÆDIA;

OR,

Universal Dictionary

OF

ARTS, SCIENCES, AND LITERATURE.

VOL. XXVI.

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THE

CYCLOPÆDIA;

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UNIVERSAL DICTIONARY

OF

Arts, Sciences, and Literature.

BY

ABRAHAM REES, D.D. F.R.S. F.L.S. *S. Amer. Soc.*

WITH THE ASSISTANCE OF

EMINENT PROFESSIONAL GENTLEMEN.

COLLEGE OF PHYSICIANS

ILLUSTRATED WITH NUMEROUS ENGRAVINGS,

BY THE MOST DISTINGUISHED ARTISTS.

IN THIRTY-NINE VOLUMES.

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ARTS and SCIENCES.

P, A labial conſonant, formed by a ſlight compreſſion of the anterior part of the lips, and retaining an uniform ſound, and the fifteenth letter in the Engliſh alphabet.

When the P is followed with an H in the ſame word, it has the ſound of an F; thus *Ph*iloſophy is pronounced *F*iloſophy: and this is generally the caſe in words derived from the Greek.

P and B are ſo like each other, that Quintilian declares, that in the word *obtinuit*, his reaſon required him to put a *b*, but that his ears could hear nothing but a *p*, *optinuit*: hence in ancient inſcriptions, and old gloſſaries, it appears, that theſe two letters have often been confounded.

Several nations ſtill pronounce one for the other, the Welſh and Germans particularly, who ſay, *ponum vinum* for *bonum vinum*.

Plutarch obſerves, it was uſual for thoſe of Delphi to ſay βαλειν for παλειν, βικρον for πικρον; and among the Latins, as often as an *s* followed, the *b* was changed into a *p*, as *ſcribo*, *ſcripſi*.

P is ſometimes mute before *t*, as *accompt*; but in modern orthography it is uſually omitted.

P, in *Muſic*, is the initial of *piano*, ſoft, for which it ſtands; and *p p*, by abridgment, for *pianiſſimo*, very ſoft.

P. M. among *Aſtronomers*, is frequently uſed for *poſt meridiem*, or *afternoon*; and ſometimes for *poſt mane*, *after the morning*, i. e. *after midnight*.

P was alſo uſed among the ancients as a numeral letter, ſignifying the ſame with the G, *viz.* a hundred; according to the verſe of Ugutio.

> " P ſimilem cum G numerum monſtratur habere."

Though Baronius thinks, it rather ſtood for ſeven.

When a daſh was added a-top of $\overline{P}$, it ſtood for four hundred thouſand.

St. Jerom obſerves, on Daniel, that the Hebrews had no P; but that the *ph* ſerved them inſtead of it; adding, that there is but one word in the whole bible read with a P, viz. *apadno*.

The Greek π ſignified 80. The Latins uſed P as an abbreviature. Thus P. ſtood for Publius, pondo, &c. in S. P. Q. R. or Senatus populuſque Romanus, for populus; R. P. denoted reſpublica; P. C. patres conſcripti; PR. S. prætoris ſententia, &c. On the French coins, P denotes thoſe that were ſtruck at Dijon.

P. in *Medicinal Preſcription*, is uſed for *pugil*, or the eighth part of a handful.

P. Æ. ſignifies *partes æquales*, equal parts of any ingredient: otherwiſe denoted by ā or ana.

P. P. ſignify *pulvis patrum*, *i. e.* Jeſuit's powder, or the cortex Peruvianus in powder; which is ſo called, becauſe firſt brought into Europe by thoſe fathers; and *p. p. t. præparatus*, *prepared*.

PA, in *Geography*, a town of Thibet, 450 miles E. of Laſſa. N. lat. 28° 18′. E. long. 98° 34′.

PAA, a town of the iſland of Ceram, and capital of a diſtrict abounding in ſago.

PAAKOLA, a town of Sweden, in the government of Ulea; ſix miles N. of Kemi.

PAALAVANKA, a town of Hindooſtan, in Golconda; 30 miles N.W. of Damapetta.

PAARDEBERG, or the *Horſe Mountain*, ſo called from the number of wild horſes or zebras, that formerly frequented it, a mountain of the Drakenſtein diſtrict, in Southern Africa, which is a continuation of *Paarl* mountain to the northward. The produce of the farms is chiefly confined to wheat, which, with a ſprinkling of manure, or a couple of years' reſt, or by fallowing, will yield from 15 to 20 fold. They cultivate, alſo, barley and pulſe, but have few horſes or cattle beyond what is neceſſary for the purpoſes of huſbandry.

PAARL, a village in the diſtrict of Drakenſtein, in Southern Africa, ſituated at the foot of a hill that ſhuts in

Strahan and Preſton.

to execute every conquerable difficulty, he ſtudied with ſuch unremitting diligence and aſſiduity as have enabled him to execute, at ſight, in all clefs, and in every ſtyle of compoſition, the moſt difficult ſongs that have been compoſed, with ſuch facility, preciſion, and expreſſion, as if he had long peruſed and prepared them for public performance. This we have often ſeen him do in original ſcores, that it was impoſſible for him ever to have ſeen before. He was the only modern ſinger that of late years we had found able to enter into the ſtyle of compoſers and performers of paſt times; but being an excellent mimic, he ſeems never to have heard a ſinger of great abilities without remembering the particular traits, inflexions, tone of voice, and expreſſions, which rendered him or her famous. Though he ſeemed to have a particular zeal for the ſucceſs of his friend Bertoni's compoſition at the opera; yet we never perceived a want of ardour in his performance of Sacchini's muſic, particularly in "Rinaldo," where he ſung with as much energy, taſte, and expreſſion, as ever it was poſſible for him to manifeſt on any occaſion. And in concerts he treated the audience with a greater variety of maſters, in the ſongs he ſelected, than any ſinger of our time had ever done. At the Haymarket he was uſually obliged to lower his performance, particularly duets, to the level of a firſt woman of very moderate abilities: we except madame Le Brun, who was however ſo cold and inſtrumental in her manner of ſinging, that they did not well accord together. We know there were many frequenters of concerts, who called themſelves lovers of muſic and judges of ſinging, and yet diſliked both his voice and manner, and did not ſcruple to ſay, that he had never ſung a note in tune during his reſidence in this country; which was ſuch an inſult upon the ears and feelings of his admirers, that they, in revenge, flatly denied their claims to ſuperior knowledge, taſte, or experience in ſuch matters.

Almoſt every great ſinger unites himſelf in intereſt and friendſhip with ſome particular compoſer, who writes to his peculiar compaſs of voice, talents, and ſtyle of ſinging. Thus Manzoli and Peſcetti, Guarducci and Sacchini, Millico and Gluck, the Agujari and Colla, and Pacchierotti and Bertoni, were cloſely connected.

In the ſummer of 1779, Pacchierotti returned to Italy for a year, when he was ſucceeded by Roncaglio, but returned again in 1780, and remained here till after the Commemoration, in 1784.

The airs in which the natural ſweetneſs of his voice, taſte, expreſſion, and general powers of pleaſing, ſeem to have made the deepeſt impreſſion, were, "Miſero pargoletto," by Monza, in Demofoonte; "Non temer," by Bertoni, in the ſame opera; "Dolce ſpeme," by Sacchini, in Rinaldo; and "Ti ſeguirò fedele," in Olimpiade, by Paeſiello.

After retiring from England, Pacchierotti ſeldom ſung in public, except at Venice, in which ſtate, at Padua, he eſtabliſhed himſelf in an elegant houſe, wholly fitted up with Engliſh furniture, and an excellent library of well-choſen Engliſh books, of which he was very fond, and was able to read with fluency and taſte.

During the Revolution he was much haraſſed and plundered both by the French and Auſtrians; and, we fear, was a great loſer by the breaking of the bank of Venice, and by other failures where he had inveſted or lent his property. He is, however, ſaid ſtill to retain the low notes of his voice, which is ſunk into a full and rich counter-tenor, and in which he ſtill ſings to his friends with more ſtrength and firmneſs than ever.

PACCHIONI, Antonio, a learned phyſician and anatomiſt, was born at Reggio in 1664. His early education he obtained in his native place, but he repaired to Rome for the purpoſe of completing his medical ſtudies, and attended the celebrated Malpighi, who ſubſequently introduced him into practice at Tivoli, where he reſided ſix years, and obtained conſiderable reputation. He was therefore invited to return to Rome, where he obtained the friendſhip of Lanciſi, who united him as an aſſociate with himſelf in the work which he was proſecuting, an explanation of the plates of Euſtachius. Pacchioni, from his connection with theſe two able anatomiſts, was led into ſimilar purſuits, and now devoted himſelf to anatomical reſearches, occupying much of his time in diſſection, particularly in the examination of the membranes of the brain. His firſt work, which obtained ſome temporary celebrity, was entitled "De Duræ Matris Fabricâ et Uſu Diſquiſitio Anatomica," Romæ, 1701; but his obſervations were not confirmed by other anatomiſts. In this treatiſe, he advanced an opinion concerning the muſcular and contractile nature of the dura mater, which he ſuppoſed, by means of its connection with the tentoria, to act by alternate compreſſion upon the brain and cerebellum. This doctrine, however, was confuted by Baglivi, Fantoni, and ſome other anatomiſts. His ſecond publication was upon a ſimilar ſubject, and entitled "Diſſertatio Epiſtolaris de Glandulis conglobatis Duræ Meningis humanæ, indeque ortis Lymphaticis ad Piam Meningem productis, ad clariſſ. Virum Lucam Schroeckium," Romæ, 1705. The aſſerted diſcovery of glands in the neighbourhood of the longitudinal ſinus, involved him in controverſies with other anatomiſts, which produced other publications of his own. In his "Diſſertationes binæ ad ſpectatiſſimum Virum Joannem Fantonum datæ, &c." Rome, 1713, he defended this hypotheſis of the glandular ſtructure of thoſe parts; and in his "Diſſertationes Phyſico-Anatomicæ de Dura Meninge humana, novis experimentis et lucubrationibus auctæ et illuſtratæ," ibid, 1721, he publiſhed his final notions on his favourite ſubject, and continued to maintain the muſcular nature and action of the dura mater. Although his opinions have not been received by later anatomiſts, they were ſupported with ingenuity, and the inveſtigations, to which the controverſy led, contributed to a more accurate knowledge of the parts concerned. Pacchioni died at Rome in 1726. He was a member of the academies of Bologna and Sienna, and of the Society Naturæ Curioſorum. An edition of all his works, with figures, was publiſhed at Rome, in 4to., in 1741; in which, among other additions, were the following papers, *viz.* "Epiſtola ad Ludovicum Teſti de novis circa ſolidorum et fluidorum Vim in viventibus, ac Duræ Meningis Structuram et Uſum Obſervationibus;" "Veſicantium damna in Multis Morbis;" and "Prolapſi Cordis Hiſtoria." Eloy Dict. Hiſt. Gen. Biog.

Pacchioni *Glandulæ*, in *Anatomy*, ſmall white and rounded bodies, connected with the membranes of the brain, and named after an Italian anatomiſt, who deſcribed and delineated them. Bichat calls them granulationes cerebrales. See Brain, and Nervous *Syſtem*.

PACCIAUDI, Paolo Maria, in *Biography*, an hiſtorian and antiquary, was born at Turin in the early part of the eighteenth century. He entered into the order of Theatines, and became librarian to Philip, duke of Parma. He died in 1785. He had paſſed a ſtudious and retired life, almoſt entirely occupied in the duties of his ſtation. His principal works are, "De cultu S. Joannis Bapt. Antiquitates Chriſtianæ," 1755; "Monumenta Peloponneſiaca," in two vols. 4to.; "Memorie de Gran Maeſtri dell ordine Geroſolimitano," three vols. 4to.; and ſeveral diſſertations on particular objects of antiquity.

PACE, or **Paice, Richard**, a learned prieſt and conſiderable ſtateſman, who flouriſhed in the ſixteenth century, was probably born at or near the city of Wincheſter, about the year 1482. He was educated at the expence of Thomas Langton, the biſhop of that dioceſe, who employed him in early life as an amanuenſis. His proficiency in learning, and his genius for muſic, recommended him ſtrongly to his patron, who determined to afford him the beſt advantages in his power, for the acquirement and cultivation of literature. With this view he ſent him to the univerſity of Padua, at that time the moſt famous ſeminary of literature in Europe, with a handſome allowance to defray his expences. Here he was aſſiſted in his ſtudies by Cuthbert Tonſtall, afterwards biſhop of Durham, and William Latimer. On his return to England he entered himſelf of Queen's college, Oxford, of which his patron, biſhop Langton, who was now dead, had been provoſt. He was almoſt immediately taken into the ſervice of Dr. Bainbridge, the new provoſt, who was ſoon promoted to the archbiſhopric of York, and afterwards being made a cardinal, Pace accompanied him to Italy. In this land of aſſaſſination Bainbridge was poiſoned by a prieſt, out of revenge for having received a blow from him in the moment of paſſion. Of the manner of the cardinal's death, of the circumſtances attending it, and the meaſures taken to diſcover thoſe concerned in it, Pace tranſmitted an account to king Henry VIII. Upon his return home he was ſent for to court, where his talents and accompliſhments recommended him ſo powerfully to the king, that he appointed him ſecretary of ſtate, and employed him in ſeveral important negociations. His political character did not prevent him from entering into holy orders; and in the year 1514 he was made prebendary of the cathedral of York, and afterwards an archdeacon. In 1515, Henry VIII. being alarmed at the progreſs which the arms of Francis I., king of France, were making in Italy, ſent the archdeacon on an embaſſy to the court of Vienna, for the purpoſe of engaging the emperor Maximilian to attempt the expulſion of the French from the duchy of Milan. Having ſucceeded in his miſſion, he next went into Switzerland, where he induced ſome of the cantons to furniſh Maximilian with troops. In the year 1519, upon the death of the emperor, when the kings of France and Spain declared themſelves candidates for the imperial throne, Henry determined to become their competitor, and ſent Pace his ambaſſador into Germany, to watch over his intereſts at the diet of the empire. His ſervices on this occaſion, though not ſucceſsful, were rewarded, in the ſame year, with the deanery of St. Paul's, London, as ſucceſſor to Dr. Colet, and very ſoon after he was made dean of Exeter. In 1521 he was preſented to a prebendal ſtall in the church of Sarum, and on the death of pope Leo X., in the ſame year, cardinal Wolſey ſent him with proper inſtructions to Rome, for the expreſs purpoſe of endeavouring to obtain for the cardinal the papal chair. The election had, however, taken place before he could arrive at Rome, and Adrian, biſhop of Tortoſa, had been choſen pope. On the death of Adrian, in 1523, Pace was employed a ſecond time to negociate on Wolſey's behalf, but with no better ſucceſs than before. Unable to obtain the grand object of his ambition, the cardinal employed Pace in ſoliciting from the pope an enlargement of his powers as his holineſs's legate, which he obtained. After this he was ſent ambaſſador to Venice, where he acquitted himſelf with much talent; but notwithſtanding the abilities by which he ſuſtained his character as ambaſſador, Wolſey conceived a prejudice againſt him, of which he experienced the dire effects. For two years he received no inſtructions relative to the object of his appointment, nor any remittances for the ſupport of his expences, notwithſtanding the almoſt inceſſant applications which he made to England. At the ſame time intelligence was imparted to him, that the cardinal, who had been his friend, had become inveterately hoſtile to his intereſts. This uſage had ſuch an effect upon Pace, that he fell ſick and loſt his intellects. Information of his condition having been brought to the king, he inſtantly gave directions for his return home, where he was ſo carefully attended by phyſicians, at the king's command, that his faculties and health were ſo far reſtored, as to be able to direct his attention to literary purſuits. Soon after this, Pace was introduced to the preſence of the king, who expreſſed much ſatisfaction and pleaſure at his recovery, and admitted him to a private audience, in which he took the opportunity of remonſtrating againſt the cardinal's unjuſt treatment. Wolſey was called upon by the king to vindicate himſelf againſt this charge: this he found no difficulty in performing, and in his turn attacked the complainant with ſuch vigour, as to get him ſent to the Tower, where he was detained a priſoner for the ſpace of two years, till he was at length diſcharged by the king's command. The rigour of this treatment was more than Pace could ſuſtain; he was again bereaved of his ſenſes, and never recovered the uſe of them, except at ſhort intervals, when he was able to read and to enjoy the converſation of his friends. He reſigned his church preferments a little before his death, and retiring to Stepney, he died in 1532, before he had completed his fiftieth year. He had paſſed an active life, and devoted all his leiſure from public buſineſs to ſtudy, the fruit of which he publiſhed in ſeveral learned works. Of theſe the firſt was entitled "De Fructu qui ex Doctrina percipitur Liber:" which was written while Mr. Pace was at Conſtance, and in the courſe of which the author took an opportunity of inveighing againſt drunkenneſs, a vice very general at that place. The inhabitants conſidered the attack as levelled againſt themſelves, and an anſwer was written, apologizing for themſelves, and their cuſtoms in drinking. Pace's next printed work was "Oratio Pace nuperrime compoſita et Fœdere percuſſo inter Henricum Angliæ Regem, et Francorum Regem Chriſtianiſſimum in Æde Pauli Londini habita." He was author alſo of "De lapſu Hebraicorum Interpretum;" of "Epiſtles," and of ſeveral other pieces; and of ſome tranſlations, one of which was a ſermon of Fiſher, biſhop of Rocheſter, of which he gave a Latin verſion, which had been preached on the day when the writings of Luther were publicly burnt. Pace was held in high eſteem by the learned men of his time. Eraſmus denominates him "utriuſque literaturæ calentiſſimus," and addreſſed to him more letters than to any one of his correſpondents. He had an extraordinary facility in learning languages, and not only ſpoke ſeveral modern tongues, but underſtood the Latin, Greek, Hebrew, Chaldee, and Arabic. Eraſmus was attached to him on account of his candour, the mildneſs of his temper, and his literary acquirements, and could never forgive the perſons who had been the cauſe of his misfortunes.

Pace, *Paſſus*, *Step*, a meaſure taken from the ſpace between the two feet of a man in walking.

The *ordinary* pace of a man is two feet and a half; though many reckon it a yard; the *geometrical* or *German* pace, called alſo the *greater* pace, is five feet.

The ancient Roman and modern Italic mile conſiſts of a thouſand paces, *mille paſſus*. The French league is 3000 paces, and the German 4000.

Pace *of the Horſe*, in the *Manege*, a term ſignifying the particular manner of his going on the road, or when at work. It is alſo applied to the ſtep or progreſſion of other animals of different kinds. The moſt common paces, and thoſe which are natural to the horſe, are the walk, the trot, and the gallop. There is likewiſe another pace which is acquired by horſes, called the amble, but which in ſome appears to be almoſt natural to them. In ſome caſes it is not uncommon for horſes to mix their different paces, and by this means to go in a ſort of ſhuffle betwixt the walk, trot, amble, and gallop; but horſes which make uſe of this kind of motion are rarely of any great utility or value to their owners.

This bad mode in the progreſſion of the horſe may proceed from different circumſtances, as habit, a fretful diſpoſition; and perhaps, in ſome inſtances, from debility in the back or loins, as well as in the legs or other parts.

Where the horſe has a good and proper pace, he moves with ſteadineſs in theſe ſeveral modes of progreſſion without mixing them in any degree whatever.

Paces, in *Surgery*. See Tooth-*Drawing*.

PACHA. See Bashaw.

PACHACAMA, or Pachacamac, in *Geography*, a pleaſant and fruitful valley in the audience and juriſdiction of Lima, about 12 miles S. from Lima, and celebrated before the conqueſt of Peru, on account of a famous temple dedicated to the creator of the univerſe, called by the Incas "Pachacamac."

PACHACAMAC, in *Mythology*, the name which the idolaters of Peru gave to the Sovereign Being whom they worſhipped, together with the ſun and other imaginary deities. The principal temple of this deity was ſituated in the valley above-mentioned, and was founded by the Incas of Peru. This idol was held in the greateſt veneration: and it is ſaid that their kings and prieſts entered this temple with their backs towards this altar, and came out again without daring to turn about. Pizarro derived great riches from the temple of Pachacamac, to the amount of 900,000 ducats, although 400 Indians had taken away as much as they could carry, and the Spaniſh ſoldiers had pillaged it before he came. The ruins that ſtill remain furniſh a very high notion of its magnificence.

PACHAMACLI, in *Geography*, a town of European Turkey, in Romania; 40 miles S. of Filippopoli.

PACHAMAMA, in *Mythology*, the name of a Peruvian goddeſs.

PACHEA, in *Geography*, a ſmall iſland in the bay of Panama. This is one of the Pearl or King's iſlands, low and woody, about 12 leagues from Panama.

PACHECO, John de, in *Biography*, marquis Villena, the favourite and prime miniſter of Henry IV., king of Caſtile. By his inſinuating manners and talents he obtained ſo great an authority, that he diſpoſed, at pleaſure, of all places in the kingdom. Lewis XI. of France corrupted him by a penſion, and he perfidiouſly betrayed his maſter's intereſts in the peace of 1443, by agreeing to many articles prejudicial to the kingdom of Caſtile. Henry, having diſcovered his treachery, reproached him with it, which ſo provoked Pacheco, that he actually conſpired againſt the power of his ſovereign, and proclaimed prince Alphonſus king of Caſtile in 1465. Shortly after this, Alphonſus diſpleaſed his miniſter, and fell a victim to his treachery. Pacheco cauſed the young king to be poiſoned, and was reconciled to Henry, who continued him in his authority and favour till his death, in 1473.

Pacheco, Francisco, a painter, who owes his celebrity more to the ingenuity and talents of his ſcholars Cano and Velaſquez, and to his theory and writing, than to his ſuperiority as an artiſt. He was the pupil of Luis Fernandez, but though partial to the great ſtyle, does not appear to have ſtudied it in Italy. With ſufficient correctneſs of outline, judgment in compoſition, dignity of characters, propriety of coſtume, obſervance of chiaroſcuro, and perſpective, Pacheco diſpleaſes by want of colour, timidity of execution, and dryneſs of ſtyle. Seville poſſeſſes the beſt of his hiſtoric performances; of his numerous portraits, thoſe of his wife and Miguel Cervantes were the moſt praiſed. As a man of literature, he poſſeſſes conſiderable erudition; and wit and humour as a writer of epigrams. Fuſeli's Pilkington.

PACHELBET. At the latter end of the laſt century there were ſeveral famous organiſts of this name in Germany: of theſe, John of Nuremburg, born 1651, is ſaid to have been the firſt who introduced the overture ſtyle into Germany. He was ſucceſſively organiſt of the principal cities of the empire, and greatly improved both vocal and inſtrumental church muſic, by his numerous compoſitions; all which were ſtill held in great eſteem, according to Walther, in 1732, when he publiſhed his dictionary.

PACHEQUE, in *Geography*, a ſmall iſland on the S.W. ſide of the bay of Panama, on the coaſt of the N. Pacific ocean, and one of the beautiful iſlands within the ſemicircular bay from Panama to point Mala. Theſe iſlands yield wood, water, fruit, fowls, hogs, &c., and afford excellent harbour for ſhipping.

PACHERRY, a town of Meckley; 90 miles S.S.E. of Munnypour.

PACHETE, a circar of Bengal, bounded on the N. by Currackdeagh, on the E. by Burwan and Biſſanpour, on the S. by Midnapour, and on the W. by Sillee, Tamar, and Ramgur; about 70 miles long and from 12 to 40 broad. The capital is Rogonatpour. It derives its name from a fort, ſix miles N.E. from the capital.

PACHI, or Pagi-houtoc, a town of Thibet; 70 miles S.E. of Hami.

PACHICA, a town of Peru, in the government of Buenos Ayres, ſeated on this coaſt, S. lat. 22°.

PACHIRA, in *Botany*, Aublet's name for the Cayenne tree which the French call *Cacao ſauvage*, or Wild Chocolate. Nothing is to be diſcovered of its etymology or meaning. See Carolinea, which is indubitably the ſame plant.

Pachira, in *Geography*, a town of Peru, in the dioceſe of Truxillo; ſix miles N. of Payta.

PACHITEA, a river of South America, which joins the Maranon at 8° 26′, and is eſteemed the moſt beautiful of all its tributary ſtreams. It riſes in 10° 46′, firſt running E., then N., and in the early part of its progreſs it is called the Pozuzu, eſpecially at its confluence with the Mayro, where it forms a noted haven, from which there is an open navigation to the Maranon.

PACHODECARHOMBIS, in *Natural Hiſtory*, the name of a genus of foſſils, of the claſs of the ſelenitæ.

The word is derived from the Greek παχυς, *thick*, δεκα, *ten*, and ῥομϐος, *a rhombus*, and expreſſes a thick rhomboidal body, compoſed of ten planes.

The characters of this genus are, that the ſelenitæ of it conſiſts of ten planes; but as the top and bottom in the leptodecarhombes, or moſt common kind of the ſelenitæ, are broader and larger planes than any of the reſt, the great thickneſs of this genus, on the contrary, makes its four longer planes in all the bodies of it, meeting in an obtuſe angle from its ſides, its largeſt planes. Of this genus there are four ſpecies.

PACHOMIUS, in *Biography*, a ſaint in the calendars of the Greek and Latin churches, who flouriſhed in the fourth century, was a native of Thebais or Upper Egypt, and born of Gentile parents, who brought him up in their religion. When he was twenty years of age, he was forced to bear arms in the war of Conſtantine againſt Maxentius, by which means he had the firſt opportunity of meeting with any Chriſtians who ſhewed him hoſpitality and kindneſs, and to whoſe faith he avowed himſelf a convert, as ſoon as he was relieved from military ſervice. He immediatly began to practiſe all the auſterities of that ſuperſtition of which St. Anthony had lately proved himſelf the parent. He now formed the deſign of eſtabliſhing a community of perſons ſubject to the ſame rules of an aſcetic life, and fixed his abode at Tabenna in Upper Egypt, on the banks of the Nile, where he built a monaſtery, and eſtabliſhed rules of diſcipline, which it was reported had been dictated to him by an angel. In a ſhort time the fame of his ſanctity drew to him ſuch numbers of diſciples, that his houſe overflowed, and he was obliged to erect new ones, from time to time, till the Upper Thebais was almoſt filled with monaſteries of his order. He died in the year 350, or, according to others, in 360. In his life, written by an ancient Greek author, and tranſlated into Latin by Dennis le Petit, many miracles are aſcribed to him; and in Benedict of Aniana's "Codex Regularum," there are preſerved eleven of his "Letters," written with great ſimplicity, and addreſſed to the ſuperiors of the monaſteries founded by him. In the life already referred to, are preſerved the rules of diſcipline, pretended to have been divinely communicated to him, and in the fourth volume of the "Bibl. Patr." a larger collection of rules, concerning the diet, the habits, the employments, and the diſcipline of monks, which is ſaid to have been tranſlated from Pachomius' original in the Egyptian language into the Greek, and from Greek, into Latin by St. Jerome. Moreri.

PACHORE, in *Geography*, a town of Hindooſtan, in the circar of Gohud; 10 miles N.N.E. of Ahar.

PACHUCO, a town of Mexico, famous for the ſilver mines in its vicinity. It is ſaid, that of theſe there are not leſs than 1000. One of them, called Trinity, is ſuppoſed to be as rich as any in Mexico; 45 miles N.N.E. of Mexico. N. lat. 20° 45′. W. long. 100° 42′.

PACHUNTICA, formed of *παχυνω*, *I incraſſate*, a term uſed by ſome medical writers to expreſs incraſſating medicines.

PACHYMER, or PACHYMERUS, GEORGE, in *Biography*, a Greek hiſtorian, was born at Nicæa, of a Conſtantinopolitan family, in the middle of the 13th century. He entered into the church, and was likewiſe employed in offices of importance in the ſtate under Michael Palæologus and Andronicus. At the age of nineteen he accompanied the former, when he took poſſeſſion of Conſtantinople in 1261. He died in the year 1310. He was author of a valuable portion of the hiſtory of the Eaſt, which is inſerted in the collection of the Byzantine hiſtorians, and was publiſhed at Rome in 1669. It conſiſted of thirteen books, and contained an account of the reign of Michael, and that of Andronicus, down to his twenty-third year. The ſtyle is ſaid to be harſh and obſcure, yet it is not wholly deficient in eloquence, and the author diſplays a more free and enlightened ſpirit than moſt of his countrymen. This hiſtory was tranſlated into French by the preſident Couſin. To Pachymer is attributed a paraphraſe on the epiſtles of Dionyſius the Areopagite, and a treatiſe on the proceſſion of the Holy Ghoſt; a compendium of the Ariſtotelian philoſophy was publiſhed from his MS. at Oxford in 1666. Moreri.

PACHYSANDRA, in *Botany*, a genus of Michaux, was thus named from *παχυς*, *thick* or *clumſy*, and *ανηρ*, *a man*, in alluſion to the thickneſs of the ſtamens. Michaux Boreali-Amer. v. 2. 177. Willd. Sp. Pl. v. 4. 339.—Claſs and order, *Monoecia Tetrandria*. Nat. Ord. *Tricoccæ*, Linn. *Euphorbiæ*, Juſſ.

Gen. Ch. Male, *Cal.* Perianth of three oval, concave, upright leaves, one of them external, and rather the ſmalleſt. *Cor.* Petals two, oval, concave, rather larger than the calyx. *Stam.* Filaments four, erect, thrice as long as the petals, very thick, compreſſed, and ſomewhat club-ſhaped; anthers incumbent, oblong, of two cells, finally curved.

Female, *Cal.* Perianth of three cloſe-preſſed, oblong, acute leaves, one of them external. *Cor.* Petals four, oval, ſmaller than in the male, cloſely preſſed to the germen. *Piſt.* Germen ſuperior, rather globoſe, with three furrows; ſtyles three, recurved, with a longitudinal furrow above; ſtigmas linear, flattiſh. *Peric.* Capſule nearly globular, three-lobed, crowned with three ſpreading horns from the permanent ſtyles, of three cells. *Seeds* two in each cell, oblong, ſmooth, pendulous from the ſummit of the cell.

Eſſ. Ch. Male, Calyx of three leaves. Petals two. Stamens thrice as long as the petals.

Female, Calyx of three leaves. Petals four. Styles three. Capſule with three horns, and three cells. Seeds two in each cell.

1. P. *procumbens*. Michaux v. 2. 178. t. 45.—Gathered by Michaux on the weſtern ſide of the Alleghany mountains in North America. The *root* is fibrous and perennial. *Stem* herbaceous, procumbent in the lower part, then aſcending, round, ſmooth, leafy above, about a ſpan high, ſcarcely branched. *Leaves* alternate, ſtalked, ovate, about two inches long, ſmooth, veiny, and ribbed; entire at the baſe, bluntly and broadly toothed in the upper part. *Spike* ſimple, ſolitary? from the baſe of the ſtem, erect, rather lax, two inches long, compoſed of about two female *flowers*, and four times as many male ones above them. *Corolla* finely fringed. *Capſule* ſomewhat downy.—Michaux remarks, that the character of this genus is almoſt the ſame as that of *Buxus*, but the habit totally different. We have preſumed to alter his deſcription a little with the *Buxus* before us, in order to compare and contraſt them, as well as we could without examining his plant.

PACIAN, in *Biography*, a ſaint in the Roman calendar, and biſhop of Barcelona in the fourth century, was deſcended from a noble Spaniſh family, and flouriſhed towards the cloſe of the fourth century. He had been a married man previouſly to his entering the religious community of which he was a member. He died at an advanced age, leaving behind him a ſon, named Flavius Dexter, who was the perſon to whom Jerome inſcribed his catalogue, and at whoſe requeſt it was drawn up. Pacian wrote many books, among which, one was entitled "Cervus," or *The Stag*, a ſatirical piece, written againſt the Pagans, and abounding, it is ſaid, in wit and eloquence; but no part of it has reached modern times. There are ſtill extant, attributed to Pacian, "Three Letters to Sempronian, a Novatian," which are probably the treatiſes mentioned by Jerome; alſo "An Exhortation to Repentance," and "A Diſcourſe concerning Baptiſm," addreſſed to the Catechumens. They were edited by John de Tilly, at Paris, in 1538; by Paul Manutius, at Rome, in 1564, and they are inſerted in the fourth volume of the Bibl. Patrum. A more correct edition of the whole, excepting the "Diſcourſe on Baptiſm," collated with a MS. of the year 800, was afterwards given by cardinal d'Aguirre, in the ſecond volume of the Spaniſh Councils, illuſtrated with numerous learned notes. The writings of Pacian are panegyrized by Dupin: "His exhortations," ſays the eccleſiaſtical hiſtorian, "are lively and perſuaſive; his thoughts well weighed; his proofs ſolid; his manner of writing pleaſant; his ſtyle elegant, and the periods ſhort. In a word, theſe little tracts may paſs for maſter-pieces in their kind, and the two exhortations, or diſcourſes, may be looked upon as perfect models of popular preaching." Dupin. Lardner, vol. iv. 8vo. edit. 1788.

PACIFIC, peaceful, or free from troubles, tumults, &c.

Pacific *Age* is a denomination given to that period in which our Saviour was born, on account of the general peace which then prevailed through the Roman empire.

Pacific *Letters*, *Literæ Pacificæ*, in the *Ancient Church*, was a denomination given to all ſorts of letters teſtimonial, given by the biſhop or chorepiſcopus to their prieſts, when they had occaſion to travel abroad; certifying that the bearer was a Catholic, and in communion with the church.

The life of pope Sixtus I. taken from the pontifical of pope Damaſus, mentions that pope as the firſt who introduced thoſe letters called *Formatæ*, *Canonicæ*, *Commendatitiæ*, *Communicatoriæ*, *Eccleſiaſticæ*, *&* *Pacificæ*.

Pacific *Ocean*, or *South Sea*, in *Geography*, that vaſt ocean which ſeparates Aſia from America: it is called *Pacific*, from the moderate weather which the firſt mariners, who ſailed in it, met with, between the tropics; and it was called the *South Sea*, becauſe the Spaniards croſſed the Iſthmus of Darien from north to ſouth. It is properly the weſtern ocean, with regard to America.

Geographers call the South ſea, *Mare Pacificum*, the *Pacific Ocean*, as being leſs infeſted with ſtorms than the Atlantic. Mr. Frezier affirms, it does not deſerve that appellation; and that he has ſeen as violent tempeſts therein as in any other ſea: but Magellan happening to have a very favourable wind, and not meeting with any thing to ruffle him, when he firſt traverſed this vaſt ocean, in 1520, gave it the name which it has retained ever ſince. Maty, however, adds, that the wind is ſo regular there, that the veſſels would frequently go from Acapulco to the Philippine iſlands, without ſhifting a ſail.

This ocean fills the grandeſt concavity of the globe, occupying nearly half of its ſurface from the eaſtern ſhores of New Holland to the weſtern coaſt of America; and it is diverſified with ſeveral groups of iſlands, which ſeem, as it were, the ſummits of vaſt mountains emerging from the waves. Separately conſidered, this immenſe concavity receives but few rivers; the chief being the Amur from Tartary, and the Hoanho and Kian-ku from China, while the principal American rivers run towards the eaſt. This ocean, conſidered as the boundary of the Ruſſian empire, waſhes the ſhores of the government of Irkutſk, from Tſchukotſkoy Noſs, or Cook's Straits, to the frontiers of China; or, in other words, from the mouth of the river Aimakan, that is, from 65° to 45° N. lat. It is divided into two great parts. That lying eaſtwards from Kamtſhatka, between Siberia and America, is eminently ſtyled the Eaſtern, or the Pacific ocean; that on the W. ſide from Kamtſhatka, between Siberia, the Chineſe Mongoley, and the Kurilly iſlands, is called the ſea of Okhotſk. From the different places it touches, it aſſumes different names: *e. g* from the place where the river Anadyr falls into it, it is called the ſea of Anadyr; about Kamtſhatka, the ſea of Kamtſhatka; and the bay between the diſtricts of Okhotſk and Kamtſhatka, is called the ſea of Okhotſk, the upper part of which is termed Penjinſkoye mare, that is, the Penjinſkian ſea, as it approaches the mouth of the river Penjina.

PACIFICATION, the act of reſtoring or re-eſtabliſhing the public peace and tranquillity.

The word is applied to many ordinances of the kings of France, deſigned to pacify the troubles that occurred in the kingdom, with regard to religion, during the 16th century, and particularly appropriated to the periods put to the religious broils raiſed in France in the year 1598, by the edict of Nantz; and the civil commotions, between the Engliſh and Scots, ending in 1638.

PACIFICATOR is commonly underſtood in the ſame ſenſe with mediator; *viz.* one who endeavours to reconcile princes or powers at variance.

Wicquefort makes a difference between mediator and pacificator. The peace being concluded between France and England in 1621, the inſtruments on each ſide were put in the hands of certain ambaſſadors, who had been employed as pacificators, not as mediators, to be kept till ſuch time as the ratification had been exchanged. So the archbiſhop of Piſa, the duke of Tuſcany's ambaſſador at Madrid, was never eſteemed a mediator, though the French ambaſſadors allowed him to be preſent at the conferences held with the commiſſioners of Spain, to act as a pacificator of the differences between them. The grand duke had not offered his mediation, nor would France have accepted it. Wicquefort, part ii. ſect. 11.

Pacificators, in *Church Hiſtory*, a name given to thoſe who, in the ſixth century, followed the Henoticum of Zeno.

PACIFICUS, in *Mythology*, an epithet of Jupiter, ſynonimous with Salamines among the Syrians, derived from the Hebrew "Salman," which generally ſignifies *pacatus fuit.*

Pacificus Maximus, in *Biography*, a Latin poet, was born at Aſcoli, of a noble family, in 1409: the time of his death is not known, but his poems were printed at Florence in 1489, under the title of "Heccateligiam ſive Elegiæ:" this edition is now very ſcarce. That of Parma, with his other works, in 1691, is purged of many licentious paſſages that occur in the former. He mentions the venereal diſeaſe in his poems before the diſcovery of the new world by Columbus.

PACINISCO, in *Geography*, a town of Naples, in Lavora; 11 miles E.S.E. of Sofa.

PACIO, Giulio, in *Biography*, a diſtinguiſhed juriſt and philoſopher, was born at Vicenza in the year 1550. From an early age he was diſtinguiſhed for his proficiency in letters, and being deſtined for the ſtudy of the law, he was ſent to Padua, where he ſtudied under the ableſt maſters that could be obtained. On his return to Vicenza, his propenſity to enquiry led him to peruſe the writings of the Reformers, for which he was accuſed to the biſhop, who gave orders for his apprehenſion. He accordingly took refuge at Geneva, where, being deſtitute of other means of ſupport, he opened a ſchool for children. In 1578 he was choſen profeſſor of juriſprudence in that city. He married a lady of Lucca, who was alſo a refugee, by whom he had ten children. In 1585 he was invited to a profeſſorſhip at Heidelberg, and on his acceptance of that office he delivered an oration, "De juris civilis difficultate ac docendi Methodo," which he afterwards printed, ſigning himſelf Beriga, from a country-houſe belonging to his family. He remained at Heidelberg till 1595, when he quitted it for Sedan, where the duke of Bouillon had eſtabliſhed a new academy. In this he held the logical chair till the war broke out, which obliged him to return to Geneva. Soon after he was elected principal of the college of Niſmes, thence he removed to the profeſſorſhip of civil law at Montpelier, where he had as a domeſtic pupil the celebrated Peireſc. It was the great object of the pupil to bring back his maſter to the Catholic faith; and for this purpoſe he wiſhed to fix him, with a large ſtipend, at the univerſity of Aix. But Pacio's wife, more zealous than himſelf for the new principles, could not be brought to reſide in a Catholic city. At length, however, he refuſed a flattering invitation from the univerſity of Leyden, becauſe he had again become a Catholic. In 1616 he removed to Valence in Dauphiné, where he occupied the chair of the celebrated Cujas, with a very high ſalary. About the year 1619, he publiſhed a work concerning the dominion of the Adriatic ſea, on account of which he was honoured by the republic of Venice with the order of St. Mark; it alſo procured him a preſſing invitation to a profeſſorſhip at Padua, which he accepted for a very ſhort time; after this, in 1621, he returned to Valence, where he continued his profeſſional labours till his death, in 1635. The works of this writer are numerous, and chiefly on legal or philoſophical topics, in both of which ſciences he was profoundly verſed. He publiſhed new and accurate verſions of ſeveral of Ariſtotle's works, which have ranked as models of tranſlations. The great honours and emoluments which he received, and the conteſts which ſubſiſted among the moſt famous univerſities to obtain poſſeſſion of him, ſufficiently prove that he was one of the moſt conſiderable ſcholars of that period. The titles of his moſt important works are, "De Contractibus;" "Synopſis Juris;" "De Jure Maris Adriatici;" "Corpus Juris Civilis." He wrote a treatiſe on arithmetic at the age of thirteen.

PACK, in *Commerce*, denotes a quantity of goods, made up in loads, or bales, for carriage. A pack of wool is a horſe's load, containing ſeventeen ſtone and two pounds, or 240 pounds weight. See Wool.

PACKAGE, a duty ſet and rated in a table taken of goods and merchandiſes; and all goods not ſpecified in the table are to pay for package duties, after the rate of one penny in the pound, according as they are valued in the book of rates.

PACKERS are really, what their title expreſſes, packers as well as preſſers of all ſorts of bale goods (intended for exportation), for the great trading companies and merchants, for which they are anſwerable, if they ſhould happen to receive any damage through bad package; beſides this, ſeveral of them are conſiderable dealers.

PACKERSFIELD, in *Geography*, a townſhip of New Hampſhire, Cheſhire county, E. of Keene, on the head branches of Aſhuelot river, containing 977 inhabitants; 86 miles W. of Portſmouth.

PACKET, or Packet-boat, a veſſel appointed by government to carry the mails of letters, packets, and expreſſes, from one kingdom to another, by ſea, in the moſt expeditious manner. Thus, the packet-boats under the direction of the poſt-maſter-general of Great Britain carry the mails from Dover to Calais, in time of peace; from Falmouth to Liſbon, Gibraltar, Malta, the Weſt Indies, and America; from Harwich to Helvoetſluys, or Gottenburgh and Heligoland; from Weymouth to Guernſey and Jerſey; from Parkgate and Holyhead to Dublin; and from Milford to Waterford. See Post.

PACK-HORSE, in *Agriculture*, ſuch a horſe as is employed in carrying heavy loads on the back in the manner of a pack.

For this uſe, horſes ſhould be cloſe, well made, and ſtrong.

PACKMOTE Bay, in *Geography*, a bay on the eaſt coaſt of the iſland of Martinico.

PACO Caatinga, in *Botany*, a coniferous ſpecies of Braſilian canna. Margr.

There is a ſecond ſpecies of this plant, which is diſtinguiſhed by the ſweetneſs of its leaves underneath, and by its red flowers; and a third ſpecies, known by its ceruleous tetrapetalous flowers. Ray.

Paco *Seroca*, Marg. *piſo*, a ſpecies of Braſilian canna, which bears its fruit in cluſters at the bottom of the ſtalk. The freſh leaves, as well as the ſtalk and fruit, before it is ripe, being rubbed, give a ſmell like ginger, which is very grateful, and therefore ſerves inſtead of ſpices. They are alſo uſed in hot-baths. Ray.

PACOLET, in *Geography*, a ſmall river of America, in South Carolina, which unites with Broad river, 30 miles above Tyger river, and 24 S. of North Carolina line. On this river are the famous Pacolet ſprings; 17 miles above its confluence with Broad river.

PACORUS, in *Biography*, ſon of Orodes, king of Parthia, ſignalized himſelf by the defeat of Craſſus, whoſe army he nearly cut to pieces, in the year 53 B. C., and whom he made priſoner. He took Syria from the Romans, ſupported the republican party of Pompey, and that of the murderers of Julius. After ravaging Syria and Judea, Ventidius defeated him, and Pacorus was ſlain in battle in the year 39 B. C.

PACOS, in *Zoology*. See Camelus *Paco*.

PACOURIA, in *Botany*, a genus in Aublet, t. 105, who names it thus from the Caribean appellation *Pacouri-rana*, Juſſieu retains it, Gen. 148, expreſſing a doubt of its being diſtinct from *Ambelania* of the ſame author, t. 104. Both are united by Schreber and Willdenow, under the name of Willughbeia; ſee that article.

PACOURII, De Laet. a vaſt tree growing in the iſland of Maragnan, belonging to Braſil; it bears leaves like thoſe of the apple-tree, a white flower, and a fruit of the bigneſs of two fiſts. The rind or peel of this fruit, which is about an inch thick, being boiled or preſerved in ſugar, is reckoned a delicacy. Ray.

PACOURINA, one of Aublet's unexplained names. See Haynea.

PACQUING, in *Ornithology*, a name given by the people of the Philippine iſlands, to a ſmall bird of the ſparrow kind, but very beautifully variegated. It feeds on the ſeeds of graſs.

PACK-RAG Day, in *Rural Economy*, a provincial term, ſignifying the day after Martinmas-day, the time of changing farm-ſervants.

PACK-SADDLE, a ſaddle adapted to the carriage of heavy packs or burdens.

PACK-WAY, in *Rural Economy*, a provincial word, ſignifying a bridle-road, or horſe-path.

PACT, Pactum, or *Paction*, in *Law*, a covenant or convention between two or more parties.

Ulpian derives the word from the Latin verb *paciſci*, *to bargain*, *agree*, *contract*: others, with more probability, from *paco*, *I appeaſe*, or *pacify*: or from *pango*, *I fix*, *eſtabliſh*.

The civil lawyers, after Ulpian, define the word pact, the conſent of two or more parties to the ſame thing. "Duorum aut plurium in idem conſenſus," lib. iii. ſect. 2. *ff. de pactis*.

There are two ſpecies of conventions, *viz.* the *pact*, and *contract*. A pact againſt good manners, againſt public or natural equity, is null. It is a maxim in law, *Ex nudo pacto non oritur lex*.

PACTA Conventa, in Poland, are the articles agreed on between the king and the republic, and which they mutually oblige each other to obſerve.

Theſe ſtipulations were introduced after the demiſe of Sigiſmund Auguſtus, in 1572, when all title to the crown, from hereditary right, was formally abrogated, and abſolute freedom of election eſtabliſhed. At this era a charter of immunities was drawn up at a general diet, to be ratified by the new ſovereign before his election. The groundwork of this charter, termed in the Poliſh law "pacta conventa," was the whole body of privileges obtained from Louis and his ſucceſſors, with theſe additions: 1. The king to be elective, and his ſucceſſor never to be appointed during his life;

2. The diets to be aſſembled every two years: 3. Every noble or gentleman in the whole realm to have a vote in the diet of election: 4. Should the king infringe the laws and privileges of the nation, his ſubjects were abſolved from their oaths of allegiance. From this period, the "pacta conventa," occaſionally enlarged, have been confirmed by every ſovereign at his coronation.

PACTOLUS, in *Ancient Geography*, a river of Aſia, which had its riſe on mount Emolus, in Lydia, watered the plain adjoining to Sardis, traverſed that town, and ran into the Hermus, which diſcharged itſelf into the gulf of Smyrna. This river is ſaid to have contained a quantity of gold. As to the fable related concerning it, we refer to MIDAS. The kings of Perſia obtained poſſeſſion of the Pactolus and its treaſures, by Cyrus's conqueſt of Lydia. Xerxes I. drew gold from the Pactolus, and this valuable metal was furniſhed by it in the time of Herodotus: but it afterwards failed long before the time of Strabo. The gold of the Pactolus was derived from the mines of mount Emolus; and when theſe were exhauſted, the ſupply of the river was diſcontinued. This river was, according to Varro and Chryſoſtom, the chief ſource of the wealth of Crœſus.

PACUVIUS, MARCUS, in *Biography*, a Latin tragic poet, was a native of Brunduſium, and is ſaid to have been the ſiſter's ſon of Ennius. He flouriſhed about the year 154 B.C., and is renowned as the friend and gueſt of C. Lelius. In the rude ſtate of the Roman theatre, he obtained a high reputation; and his tragedy of Oreſtes is mentioned by Cicero in his "De Amicitia," as having been heard with thunders of applauſe. He was the author of ſome ſatires, and had a talent for painting. In advanced life he retired from Rome to Tarentum, where he died, having nearly reached his ninetieth year. The fragments of his work, which ſtill remain, have been publiſhed in the "Corpus Poetarum Latinorum" of Mattaire. Moreri.

PACY in *Geography*, a town of France, in the department of the Eure, and chief place of a canton, in the diſtrict of Evreux, ſeated on the Eure, and formerly ſurrounded with walls; 11 miles E. of Evreux. The place contains 1750, and the canton 9930 inhabitants, on a territory of 165 kiliometres, in 32 communes.

PACZANOW, a town of Poland, in the palatinate of Sandomirz; 28 miles E.S.E. of Sandomirz.

PAD, in *Rural Economy*, a term applied to a ſort of ſtuffed cuſhion, a foot-path, and alſo to an eaſy paced horſe.

PAD-*Saddle*. See SADDLE.

PADA, in *Geography*, a town of Hindooſtan, in the circar of Gangpour; 30 miles E. of Gangpour. N. lat. 21° 58′. E. long, 84 39′.

PADANG, a ſea-port town on the W. coaſt of the iſland of Sumatra. This was the principal ſettlement of the Dutch, who eſtabliſhed themſelves here becauſe it was in the vicinity of Menaycabow, the richeſt ſeat of gold; and it was under the government of a director and council. The fort is ſituated within 40 yards of the north bank of the river, and is of a ſquare form, having four baſtions of ſtone, and walls about nine feet high. On the ſouth ſide of the river are high mountains, which extend to the ſea-coaſt. The water is very good; and both cattle and fruit are plentiful and cheap. Padang, before its capture by the Engliſh, in 1781, uſed to draw to itſelf about a third part of the whole quantity of gold procured at the ſeveral ports on the W. coaſt of Sumatra, which has been eſtimated at about 10,000 ounces annually. In this place there has been a conſiderable manufacture of filagree. (See FILIGRANE.) S. lat. 0° 40′. E. long. 99° 48′.

PADANG, a ſmall iſland in the Eaſt Indian ſea, near the W. coaſt of Borneo. S. lat. 0° 33′. E. long. 109° 21′.

PADANG-*Goochie*, a river of Sumatra, which divides the Lampoon country, or a portion of the ſouthern extreme of the iſland, from Paſſumnah, near the ſea-coaſt.

PADASJOKI, a town of Sweden, in Tavaſtland; 36 miles N.E. of Tavaſthus.

PADATO, a town of Mexico, in the province of Culiacan; 40 miles N.W. of Culiacan.

PADBERG, a town with a citadel, in the kingdom of Weſtphalia; 5 miles E. of Brilon.

PADDA, or RICE-BIRD, in *Ornithology*. See LOXIA *Oryzivora*.

PADDA. See RICE.

PADDINGTON, in *Geography*, a pariſh and village in the hundred of Oſſulſton, and county of Middleſex, England, is ſituated at the north-weſtern extremity of London. The pariſh, which extends about two miles in length, is bounded by Kenſington, St. Margaret's, Weſtminſter, and St. George's, Hanover-ſquare, on the ſouth; by Wilſdon on the north; by Mary-le-Bone on the eaſt; and by Kenſington, and a detached part of Chelſea, on the weſt. According to a ſurvey, its area compriſes 1197 acres, 3 roods, and 30 perches, of which about one hundred acres are laid out as garden-ground, and the remainder is occupied by houſes, and appropriated to paſturage.

The village of Paddington ſtands about a mile to the north of Tyburn turnpike. Like moſt of the other villages connected with the metropolis, it has increaſed greatly in extent of late years, and, ſince the opening of the canal in 1801, has become a place of conſiderable commercial importance. This canal, which derives its name from the pariſh, branches off from the Grand Junction canal near Norwood, and paſſing through the pariſhes of Ealing, Northall, Greenford, Perivale, Harrow, Acton, Fulham, Twyford, and Wilſdon, as well as the detached parts of Chelſea and Kenſington, terminates at this village in a large baſin, on the ſides of which are convenient wharfs and warehouſes, belonging to the Paddington canal company. The advantages of this cut muſt be obvious to every one at all acquainted with the inland navigation of this country. By entering the Grand Junction canal, it affords to Paddington, directly or indirectly, a navigable communication with almoſt every trading or manufacturing town in the kingdom. The New, or Regent's canal, which is to connect the Paddington canal with the river Lea, and conſequently with the Thames below London, is now in rapid progreſs of execution; and this may likewiſe be regarded as a meaſure which promiſes much commercial benefit, not only to the capital but to the country at large.

Paddington manor in ancient times conſtituted part of the poſſeſſions of Weſtminſter Abbey; at the diſſolution it was annexed to the biſhopric of Weſtminſter; and when that ſee was aboliſhed, ſoon after its eſtabliſhment, Edward VI. transferred it to Ridley, biſhop of London, and his ſucceſſors, along with the advowſon of the church, which is ſuppoſed to have firſt become parochial about the ſame time. The church, ſince that period, has been twice erected; firſt by ſir Joſeph Sheldon, leſſee of the manor, little more than a century ago, and again in 1791, by the pariſh, under the authority of an act of parliament. It is a ſquare building, with a projecting wing on each ſide, and a portico of the Doric order, fronting the ſouth. Several perſons of note lie buried, both in the church and in the ſurrounding cemetery, among whom are John-Henry, marquis of Lanſdown, Dr. Geddes, and the celebrated ſtatuary Banks. In Lyſſon-Green is a ſmall chapel of eaſe, called the "Bentinck-chapel;"

chapel;" and cloſe to the Mary-le-Bone turnpike is another place of worſhip, erected within the laſt few months, and denominated the "Paddington chapel."

In this pariſh are the hamlets of Bayſwater, and Tyburn. Contiguous to the former are large public tea-gardens, formerly appropriated as phyſic-gardens by the late ſir John Hill. Here is alſo the Queen's Lying-in hoſpital, originally inſtituted in 1752, in St. George's Row, near Tyburn turnpike, but removed hither in 1791. It is an excellent eſtabliſhment, and is much indebted for its preſent proſperity to the active exertions of their royal highneſſes the dukes of Suſſex and Cambridge. Tyburn is noted for having been the place of execution for the malefactors of London and Middleſex, till the year 1783. Here were likewiſe nine of the city conduits, and a banquetting-houſe, belonging to the lord mayor, which was demoliſhed in 1737. None of the conduits now remain, but there is a large reſervoir newly conſtructed, at a ſhort diſtance to the weſtward of the canal baſin, whence a conſiderable diviſion of the weſt end of the town is ſupplied with water.

Paddington pariſh, according to the late parliamentary returns of 1811, contains 935 houſes, and a population of 4609 perſons. A charity-ſchool, eſtabliſhed here in 1802, for thirty boys and the ſame number of girls, is ſupported by voluntary contributions; and there are ſeveral alms-houſes for the accommodation of the poor, the gifts of various benefactors. Lyſons's Environs of London, &c. vol. iii. edit. 1795. Supplement by the ſame author, 4to. 1811.

PADDLE, a term uſed for a ſmall ſluice; ſuch are thoſe that fill and empty the locks of a canal. See Lock.

Paddle-*hole* is the crooked arch *e e* (*Plate* V. *Canals*, *fig.* 36.) which gives a paſſage for the water from the upper pound to fill the lock.

Paddle *Weirs*. See Lock-*Weirs*.

Paddle, a ſort of oar uſed by the natives of Africa, America, and ſome of the iſlands in the South Sea. They are made of light wood of various ſhapes, but moſtly ſhorter and broader in the blade than our oars, and inſtead of rowing with them horizontally like an oar, they manage them very dextrouſly, in a perpendicular manner, either for rowing or ſteering.

Paddle, in *Glaſs-making*, a name of an inſtrument with which the workman ſtirs about the ſand and aſhes in the calcar.

Paddle-*Staff*, in *Agriculture*, an implement uſed by ploughmen to free the ſhare from ſtubble, earth, clay, &c. which impede its action.

PADDOCK, or Paddock *Courſe*, a piece of ground, generally taken out of a park, ordinarily a mile long, and a quarter of a mile broad, encompaſſed with pales or a wall, for the exhibiting of races with greyhounds, for wagers, plates, or the like.

At one end of the paddock was a little houſe, where the dogs were to be entered; and whence they were ſlipped; near which were pens to encloſe two or three deer for the ſport.

The deer, when turned looſe, ran all along by the pale; and the ſpectators were placed on the other ſide.

Along the courſe were ſeveral poſts; *viz.* the law-poſt, 160 yards from the dog-houſe and pens; the quarter of a mile poſt; half-mile poſt; and pinching poſt; beſide the ditch, a place made to receive the deer, and preſerve them from farther purſuit. Near the ditch were placed judges, or triers. For further particulars, ſee the article Coursing.

Paddock, in *Agriculture*, a ſmall field or incloſure. It alſo ſignifies a large toad.

PADENS, in *Commerce*, a ſort of bitter almonds from Perſia, which are uſed at Surat for money, about 60 of which paſs for one pice.

PADEPATNAM, in *Geography*, a town of Hindooſtan, in the Carnatic; 35 miles S.S.E. of Tanjore.

PADER, a river of Weſtphalia, which riſes near Paderborn, and about three miles from the town is joined by two other ſtreams, and forms the Lippe.

PADERBORN, a city of Weſtphalia, and capital of a biſhopric of the ſame name. The biſhopric or principality is bounded on the N. by the county of Lippe, on the E. by Heſſe and Calenberg, on the S. by the duchy of Weſtphalia and the principality of Waldeck, and on the W. by the counties of Reitberg and Lippe, in the duchy of Weſtphalia; its greateſt length being about 44 miles, and its greateſt breadth 36. The greateſt part of it is fertile, and produces a good breed of cattle; but ſome part of it is an extenſive heath. It has ſome good iron-mines, ſalt and medicinal ſprings, and ſeveral rivers that abound in fiſh: the principal of which are the Weſer, Dimel, Nette, Lippe, Alm, and Pader. In 1802 this biſhopric was given to the king of Pruſſia, and by the peace of Tilſit, it became a province of the new kingdom of Weſtphalia.

The city was choſen by Charlemagne as a place of abode, when he wiſhed to put an end to the Saxon war of 30 years' duration; accordingly he fixed his camp here, and erected it into a biſhopric, which was confirmed by pope Leo. Hence the town became conſiderable, and ſeveral diets were aſſembled here. It enjoyed imperial privileges, carried on a great trade, and was reckoned one of the Hanſe-towns. At preſent it has much declined, and its trade is become inſignificant. Beſides the cathedral, it has a collegiate and two pariſh churches; 42 miles S. of Minden. N. lat. 51° 40′. E. long. 8° 54′.

PADERNA, a town of Portugal, in the province of Algarve; 9 miles N. of Silvas.

PADEW, a town of Poland, in the palatinate of Sandomirz; 32 miles W. of Sandomirz.

PADILLA, Don Juan de, in *Biography*, the leader of a popular inſurrection in Caſtile againſt the miniſters of Charles V., was the eldeſt ſon of the commendator of Caſtile. When the cortes, or parliament of Spain, aſſembled in Gallicia, and had voted the emperor a free gift, without obtaining the redreſs of grievances under which the nation laboured, the citizens took up arms, gained poſſeſſion of the caſtle, eſtabliſhed a popular form of government, and choſe Padilla as their leader. He was well qualified for the duties impoſed upon him, and his zeal was animated by that of his wife, Maria de Pacheco, a lady of noble birth, great abilities, and unbounded ambition. The regent, cardinal Adrian, having ſent a body of troops under Ronquillo for the reduction of the revolted citizens, Padilla came to their aſſiſtance with a conſiderable reinforcement, and gave Ronquillo a defeat. He then, in concurrence with the other leaders, appointed a general convention of the malcontents, to be held at Avilla. In this aſſembly, deputies appeared from almoſt all the cities entitled to repreſentation in the cortes, and formed a ſolemn league of mutual defence, under the title of the junta. They placed the dowager queen Joanna, who was almoſt in a ſtate of mental debility, at the head of the government, renounced the authority of the regent, and carried on all their operations in her name. Padilla next proceeded to Valladolid, where he reduced Adrian to the condition of a private perſon, and ſeized upon the archives and ſeals of the kingdom. The junta then drew up a remonſtrance, containing a ſtatement of grievances, with demands for redreſs, which ſtruck no leſs at the privileges of the nobility than at the prerogatives of the crown; and thereby produced an union of the nobles with the royaliſts. The junta, at firſt, jealous of the popularity of Padilla, ſubſtituted at the head of a large army Don Pedro de Giron, a nobleman high in rank, but wholly unequal to the truſt committed to him. Through his unſkilfulneſs the perſon of the queen was recovered by the royaliſts, together with the ſeals and public archives, and ſeveral of the members of the junta were made priſoners. Padilla was now raiſed to the chief command, and to procure the neceſſary ſupplies of money, Donna Maria went with her train to the cathedral of Toledo, in which was contained a vaſt treaſure of eccleſiaſtical wealth. She entered it in ſolemn proceſſion, with all the marks of the deepeſt ſorrow and contrition, and her train, after much ceremony, proceeded to the pillage which afforded a rich booty. Padilla was for a time ſucceſsful in various ſmall encounters, but at length the royal army advanced upon them, in April 1521, and put them to flight almoſt without reſiſtance. Padilla attempted, but in vain, to rally them, and reſolved not to ſurvive the ruin of his party. He ruſhed among the thickeſt of the foe, was wounded and made priſoner, together with his principal officers. On the next day, without the form of trial, he was led to execution. He viewed the inſtruments of death without terror or diſmay, and having written two manly and eloquent letters to his wife, and to the city of Toledo, he quietly ſubmitted to his fate. When the ſentence was read proclaiming them as traitors, one of his fellow ſufferers betrayed emotions of indignation, but Padilla reſtrained him, obſerving, "that yeſterday was the time to have acted with the ſpirit of gentlemen; to day that of dying with the meekneſs of Chriſtians." After his death, his widow Donna Maria ſupported the ſinking cauſe, and to revenge his fate, ſhe raiſed freſh forces, and uſed every art to animate the citizens of Toledo to a vigorous reſiſtance. She marched through the ſtreets with her ſon, in deep mourning, ſeated on a mule, before whom a ſtandard was borne repreſenting his father's execution. At length, however, the city was inveſted by the victors, and though ſhe defended the citadel, to which in an early period of the ſiege ſhe retired, with great reſolution for four months, ſhe was at laſt under the neceſſity of eſcaping in diſguiſe, and fled to her relations in Portugal, where ſhe ended her days. Robertſon's Hiſt. of Charles V.

PADILLA, LORENZO DE, one of the hiſtoriographers of Charles V., is celebrated on account of his great eminence as a Spaniſh antiquarian. He took great pains in preſerving Roman inſcriptions, and aſcertaining the claſſical geography of Spain. Among other works, he left a general hiſtory of Spain, in four parts, a few ſheets of which have been preſerved, a proof that it had been committed to the preſs, though the impreſſion was probably never completed. The manuſcript is ſtill in the Dominican library of St. Paul's at Cordova. Padilla was one of the earlieſt genealogical writers among the Spaniards. Gen. Biog.

PADLEE, in *Geography*, a town of Hindooſtan, in Guzerat; 10 miles S. of Durrampour.

PADMA, or PEDMA, in *Mythology*, is an attribute of the Hindoo deity of Viſhnu, and in pictures and ſtatues is generally ſeen in one of his four hands, in the form of a lotos or lotus, for which lovely aquatic padma, or pedma, is a Sanſcrit name. (See LOTOS.) As there noticed, Pedma is a name of Lakſhmi, conſort of Viſhnu, as is alſo Pedmala, and Pedmalaya. Pedma-devi, meaning goddeſs of the lotos, or perhaps queen of beauty, is a name likewiſe given to Lakſhmi, and ſometimes to Parvati, the conſort of Siva. Pedma-nabha, and Pedmakſha, denoting lord or poſſeſſor of the Pedma, or of Lakſhmi, are other names of Viſhnu. Kamala is another Sanſcrit word for the lotos, and for the goddeſs named after it, ſimilar to Pedma. (See KAMALA and LAKSHMI.) One of the eighteen ſacred mythological poems is named Padma Purana. See PURANA.

PADOBE' *of Senegal*, in *Ornithology*. See TURDUS *Erythropterus*.

PADOGI, a ſpecies of puniſhment uſed in Ruſſia. In this puniſhment the body of the criminal is ſtripped to the waiſt, and then laid upon the ground; one ſlave holds the head between his knees, and another the lower part of the body; then rods are applied to the back, till ſome perſon gives notice to deſiſt, by crying out enough.—This puniſhment is conſidered in Ruſſia merely as a correction of the police, exerciſed on the ſoldier by military diſcipline, by the nobility on their ſervants, and by perſons in authority over all ſuch as are under their command.

Ever ſince the acceſſion of Elizabeth to the throne of Ruſſia, the puniſhments were reduced to two kinds, *viz*. the padogi and knout.

PADOLA, in *Geography*, a town of Italy, in the Cadorin; 12 miles N.N.E. of Cadora.

PADONGMEW, a town of the Birman empire, on the Irawaddy; 6 miles S.W of Prone.

PADOR, a town of Africa, in Damel, on the Senegal. N. lat. 16° 40'. W. long. 14° 20'.

PADOUCAS, a weſtern branch of the river Miſſouri. The inhabitants of its banks are called Padoucas, and are ſaid to have been of Welſh origin.

PADRAMA, a ſmall iſland near the coaſt of Sardinia. N. lat. 40° 38'. E. long. 9° 53'.

PADRAN BAY, a bay on the S.E. coaſt of Cochinchina. N. lat. 11° 24'. E. long. 108° 40'.

PADREAH, a town of Hindooſtan, in Guzerat; 10 miles N. of Baroach.

PADROENS, a town of Portugal, in the province of Alentejo; 13 miles W. of Mertola.

PADRON, EL, a town of Spain, in Galicia, ſituated on the Ulla; anciently called "Iris Fluvia;" 15 miles S. of Santiago.

PADRON, *Cape*, a cape on the W. coaſt of Africa. S. lat. 6°. E. long. 12° 20'.

PADSHAWPOUR, a town of Hindooſtan; 30 miles S. of Delhi.

PADSTOW, or PETROCSTOW, a market and ſea-port town in the hundred of Pyder, and county of Cornwall, England, is ſituated on the weſt ſide of Padſtow haven, near the mouth of the river Camel or Allan, which falls into the Briſtol channel. It is diſtant 243 miles W S.W. from London, and 30 miles W. by S. from Launceſton. This town is of conſiderable antiquity, and is ſaid to be the ſpot where St. Patrick founded the firſt religious houſe in Cornwall, when he arrived from Ireland in the year 432. It was firſt called Lodenick, and afterwards Adelſtow, from king Athelſtan, who, according to tradition, conferred many privileges on the inhabitants. The market-day here is on Saturday, weekly, and here are two fairs during the year. The harbour is among the beſt on the north coaſt, though much obſtructed by ſand, except in the middle channel, by which veſſels of large burden may enter, and find a commodious anchorage. Padſtow is governed by a portreeve, aſſiſted by a certain number of the moſt reſpectable inhabitants. Its chief ſupport is derived from the ſhare it poſſeſſes in the pilchard fiſhery, and the cuſtom of the numerous ſmall veſſels which reſort to the harbour in the event of contrary winds, or ſtreſs of weather. Humphrey Prideaux, the learned dean of Norwich, author of the "Connexion of the Old and New Teſtaments," was a native of this town. According to the parliamentary returns of 1811, the pariſh of Padſtow contains 237 houſes, and a population of

1498 perſons. Beauties of England and Wales, vol. ii. by E. W. Brayley, and John Britton, F.S.A.

PADUA, a city of Italy, and capital of the Paduan, on a ſmall river, which runs into the Brenta. The right of citizens was granted to it by the Romans, and they allowed it to chooſe a ſenate. It was deſtroyed by Attila, repaired by Narſes, and again deſtroyed by the Lombards; it was often ravaged, and as conſtantly re-eſtabliſhed. In 1406, it was taken from the dukes of Milan by the Venetians, and the territory annexed to their republic. Padua is a place of conſiderable extent, containing 26 pariſhes, 4 hoſpitals, 41 convents, 7 gates, 7 ſtone bridges, 9 ſquares, and a great number of beautiful edifices or palaces: nevertheleſs it is poor, and the ſtreets are in general narrow, dark, dirty, and ill paved. The univerſity was founded by Charlemagne, and much enlarged by the emperor Frederic II, and pope Urban IV., but it has lately declined much from its former reputation. Padua is the ſee of a biſhop, ſuffragan of Udina. The cathedral is well-built. The church of St. Antony, the patron of the city, is large and beautiful. The town-houſe was built on the ruins of the ancient ſenate-houſe, and is a grand ſtructure. This city is fortified and governed by a podeſtat. The number of inhabitants is eſtimated at 38,000. This is an ancient town, and ſome have pretended that it was built by Antenor, after the deſtruction of Troy; 22 miles W. of Venice. N. lat. 45° 24′. E. long. 10° 52′.

PADUAKANS, in *Sea Language*, a name given by the Macaſſars to their proas. See Proa.

PADUAN, in *Geography*, a country of Italy, bounded on the N by the Treviſan, on the E. by the Dogado of Venice, on the S. by the Poleſino, and on the W. by the Vicentin; about 35 miles from N. to S., and 28 from E. to W.; being formerly a part of Lombardy. The air is ſalubrious, except in a few places ſituated near the ſalt marſhes. The land is flat, and the eminences are hillocks rather than mountains, and produce grapes of excellent flavour, oranges, and other fruit, excluſively of corn, hemp, rice, various fruits, and all kinds of vegetables. The aſpect of the country preſents plantations of vines. Here are alſo commons for the rearing of cattle, and mulberries for the culture of ſilk, which yields a conſiderable trade. Upon the whole we may obſerve, that this country has been denominated a ſecond paradiſe, and the garden of Europe. The number of inhabitants has been eſtimated at 300,000. The rivers Adige, Brenta, Bachiglione, and Muſona, though they ſometimes do injury by overflowing their banks, contribute to the enrichment of the country, particularly by promoting navigation and commerce, and by giving motion to a number of mills. This country, which in 1405 became ſubject to the dominion of Venice, followed its fate, under the new arrangement of the French revolution, in being annexed to the kingdom of Italy. The principal places are Padua, Anguilara, Arqua, Campo S. Pietro, Cittadella, Eſte, and Monſelice.

Paduan, among *Medaliſts*, a modern medal made in imitation of the antique; or a new medal ſtruck with all the marks and characters of antiquity.

The name is taken from *Paduan*, *Paduanus*, a famous Italian painter, who ſucceeded ſo well in the impoſture, if it may be ſo called, that the beſt judges are at a loſs to diſtinguiſh his medals from the genuine ones.

This Paduan was thus called from the place of his birth, Padua; his proper name was Giovanni Cavino; others ſay, Lewis Lee; he flouriſhed in the ſeventeenth century. Gotheb Rink adds, that he had an aſſociate in this forgery, called Alexander Baſſianus. His ſon Octavian, though born at Rome, was alſo called the *Paduan*.

Paduan is properly applicable to thoſe medals only, which are ſtruck on the matrices of the elder Paduan; which are ſtill preſerved. Though it is frequently uſed in the general for all medals of this kind.

Joubert obſerves, that there have been a Paduan and Parmeſan in Italy, and a Carteron in Holland, who had the knack of imitating the antique in perfection. The Parmeſan was Laurentius Parmeſanus. We may alſo add another Italian who excelled in this way, *viz.* Valerius Bellus Vicentinus; but his medals are not ſo common as thoſe of the reſt.

PADUANINO, Dario, in *Biography*. His real name was Dario Varotori, but he is better known under the one by which we have deſignated him. He was born at Verona in 1539, and at firſt attached himſelf to the ſtudy of architecture; but afterwards received inſtructions in painting from Paul Veroneſe, and became a very ſkilful artiſt. His fame reſts principally upon the pictures he painted for the churches in Padua and in Venice, but there are many very graceful and agreeable productions of his upon a ſmaller ſcale ſcattered about, and ſome few are found in this country. They indicate a lively and brilliant, though not a profound genius, and exhibit the gay effect of the Venetian ſtyle, which he adopted in a pleaſing manner.

He was renowned for his piety as well as for his ingenuity; and in the act of returning thanks at the ſhrine of the Virgin, in Padua, for having been miraculouſly preſerved when a ſcaffolding had broken and fell with him, he was ſmitten with apoplexy, and died at the age of 57, anno 1596. He left a ſon, Alexander Varotori, called alſo Paduanino, who was not ſo ſucceſsful as his father, though he was not without merit. He died in 1650, at the age of 60.

A daughter alſo of Dario's excelled in portraiture. Her name was Chiari, and ſhe is highly praiſed by Rodolfi.

PADULA, in *Geography*, a town of Naples, in the province of Otranto; 4 miles N. of Nardo.—Alſo, a town of Naples, in Principato Citra; 14 miles N. of Policaſtro.

PADUS, in *Botany*, a name borrowed from Theophraſtus, who gives no other account of his παδος, than that it greatly delights in a ſhady ſituation, like the Yew, and another plant which he denominates θραυπαλος, and which ſome have gueſſed to be the Guelder-roſe, *Viburnum Opulus*. *Padus* is now applied to the Bird Cherry, *Prunus Padus* of Linnæus; a tree to which the above account is hardly ſuitable, but which is nevertheleſs conſidered as the plant of Theophraſtus by his recent commentator Mr. Stackhouſe.

Padus, in *Ancient Geography*, the *Po*, a river of Gallia Tranſpadana, commencing towards the W. at mount Veſalus and running eaſtwards, ſo as to diſcharge itſelf into the Adriatic gulf by many mouths, in which caſe the Greeks called it "Eridanos" or "Eridan." The origin of the name has been traced by etymologiſts to a corruption of the Celtic "boden," whoſe root is "bod" or "pot," and refers to its height and depth. According to Pliny the Po received 30 rivers; but Cluvier reckons as many as 40; under which number they muſt have comprehended many torrents, which become dry in ſummer.

PADUTI, in *Geography*, a town of Naples, in Calabria Citra; 4 miles E. of Roſano.

PÆAN, ϖαιαν, in *Antiquity*, a hymn in honour of Apollo, or ſome other of the gods; chiefly uſed on occaſion of victory and triumph. They were ſung in the proceſſion at the Panathenaia.

Feſtus derives the word απο του ϖαειν, *ferire*, *to ſmite*, *ſhoot*: but Heſychius rather takes Apollo to have been denominated *Pæan*, from παιω, θεραπευω, *I heal*; in alluſion to his being the deity of medicine.

The Pæan took its name from Apollo himſelf; who was denominated *Pæon;* becauſe in his combat with the ſerpent Python, his mother Latona encouraged him to make uſe of his arrows, by crying frequently, *ιη ϖαι, ιη ϖαι, do boy, bravely boy.*

Pæan or *Pæon* is alſo a name of a foot in the ancient poetry; ſo called, as commonly ſuppoſed, becauſe appropriated to the hymn Pæan; though Quinctilian derives the name from its inventor *Pæon*, a phyſician. There were four kinds of feet called Pæans.

The firſt Pæan conſiſts of four ſyllables, one of which is long, and the reſt ſhort, as *colligere;* the ſecond is compoſed of a ſhort, a long, and two ſhorts, as *reſolvere;* the third of two long, a ſhort, and a long, as *communicant;* and the fourth of three ſhort and one long, as *temeritas*

PÆCILIA, in *Ichthyology*, a name given by Schoneveldt, and ſome others, to the fiſh called by moſt authors the *muſtela foſſilis.* It is properly a ſpecies of *cobitis*, and is called by Artedi the *blueiſh cobitis*, with five longitudinal black lines on the body. See Cobitis *Foſſilis.*

PÆDARTHROCACE, from *ϖαις, a child, αρθρον, a joint*, and *κακον, an evil*, in *Surgery*, a ſcrofulous ſwelling of a joint; a diſeaſe to which children are particularly ſubject.

PÆDERIA, in *Botany*, appears to have been ſo called by Linnæus from *Paderos*, an opal, in alluſion to the tranſparency and changeable colour of its berry. Linn. Mant. 7. Schreb. 161. Willd. Sp. Pl. v. 1. 1219. Mart. Mill. Dict. v. 3. Ait. Hort. Kew. ed. 2. v. 2. 63. Juſſ. 205. Lamarck Illuſtr. t. 166.—Claſs and order, *Pentandria Monogynia.* Nat. Ord. *Rubiaceæ*, Juſſ.

Gen. Ch. *Cal.* Perianth ſuperior, of one leaf, turbinate, with five teeth, permanent. *Cor.* of one petal, funnel-ſhaped, hairy internally; limb in five ſmall ſegments. *Stam.* Filaments five, awl-ſhaped, various in length, from the middle of the tube; anthers oblong, incumbent. *Piſt.* Germen roundiſh, inferior; ſtyle capillary, cloven, the length of the corolla; ſtigmas ſimple. *Peric.* Berry ſmall, ovate, inflated, brittle. *Seeds* two, ovate.

Eſſ. Ch. Corolla funnel-ſhaped, hairy within. Berry inflated, brittle, with two ſeeds. Style cloven.

1. P. *fœtida.* Stinking Opal-berry. Linn. Mant. 52. Banks Icon. Kæmpf. t. 9. Lamarck f. 1. (Convolvulus fœtidus; Rumph. Amboin. v. 6. 436. t. 160.)—Leaves ovato-lanceolate, or ſomewhat heart-ſhaped. Panicles cymoſe. Germen ſmooth. Corolla externally downy.—Native of China, the Eaſt Indies, and the iſland of Mauritius. A climbing *ſhrub*, with long, ſmooth, ſlender, twining, compound, leafy *branches*, ſpreading to a great extent over the neighbouring buſhes and trees. *Leaves* oppoſite, on long roughiſh ſtalks, lanceolate, pointed, entire, various in breadth, more or leſs ovate or rounded at the baſe, ſometimes heart-ſhaped. *Stipulas* within the *footſtalks*, ſhort, triangular, deciduous. *Panicles* axillary, compound, forked, cymoſe, ſlender, more or leſs downy. *Bracteas* ſmall, membranous, jagged. *Germen* and *calyx* ſmooth and ſhining, ſmall. *Corolla* about half an inch long; externally downy and greyiſh, internally of a deep purpliſh brown, lined with hairs. *Berry* the ſize of a currant, globoſe or oblong, crowned with the calyx, ſmooth, ſhining, very brittle, pale green and ſemitranſparent, finally yellowiſh. Rumphius ſays the leaves are very fœtid when rubbed, or when the ſun ſhines upon them, inſomuch that thoſe who paſs by where the plant grows, are greatly annoyed with the ſmell. This odour is of a ſtercoraceous kind, like that of another plant of the ſame natural order, *Ernodea montana*, Sm. Prodr. Fl. Græc. Sibth. v. 1. 98. (See Ernodea.) We have ſeen the *Pæderia* in the ſtoves at Paris in 1786, and have perceived this ſmell. This plant is ſaid to have been brought to Kew in 1806, but has not yet flowered. One of Linnæus's ſpecimens from China, on which the ſhining berries though dried are very beautiful, has heart-ſhaped *leaves*, exactly like Kæmpfer's plate, with very downy *ſtalks* both to the leaves and flower. Moſt ſpecimens accord with the figures of Rumphius and Lamarck; yet we do not ſee ſufficient grounds to diſtinguiſh theirs as a ſpecies, from that of Kæmpfer.

2. P. *fragrans.* Fragrant Opal-berry. Lamarck Dict. v. 2. 260. Illuſtr. t. 166. f. 2. Willd. n. 2.—Leaves elliptical. Panicles corymboſe. Germen downy. Tube of the corolla ſmooth. Gathered in woods in the iſland of Mauritius, by Commerſon, who taking it for a new genus, named it *Danais* in alluſion to the hiſtory of the *Danaides* who murdered their huſbands, "becauſe," ſays he, "where the flowers of this plant are luxuriant, the male or the female organs are rendered abortive." This is abundantly diſtinct from the firſt ſpecies, in its more elliptical and brighter-coloured *leaves;* but more eſpecially in its corymboſe downy *panicles*, downy *germen* and *calyx*, and longer, more ſlender, *corolla*, whoſe tube is quite ſmooth, even though the limb be ſometimes ſlightly hairy at the back. The *flowers* are ſaid to have the ſcent of a *Narciſſus*, but even more delightful; their colour is red. Commerſon deſcribes the *fruit* as globular.

PÆDEROTA. See Hemimeris and Wulfenia. The name is ancient, and has been applied by ſome to a ſpecies of *Teucrium*, by others to the *Acanthus ſpinoſus.*

PÆDO-BAPTISM, a compound of ϖαις, ϖαιδος, *infant*, and βαπτισμος, *baptiſm*, infant baptiſm, or that conferred on children. See Baptism.

PÆDO-BAPTISTS, formed of ϖαις, ϖαιδος, *infant*, and βαπτιζω, *I baptize*, are thoſe who maintain that baptiſm ſhould be adminiſtered to infants. In ſupport of this opinion, they plead, that if infants, under the Chriſtian diſpenſation, were excluded from the privilege of baptiſm, the Chriſtian inſtitution muſt appear, in this reſpect, to be leſs complete and perfect than that of the Jews: and it is not likely, by arguing *à priori*, that God would appoint an external ſign of peculiar diſtinction and benefit for children under the patriarchal and Jewiſh conſtitution, without any ſimilar appointment under the Chriſtian diſpenſation; more eſpecially as the firſt proſelytes to Chriſtianity, and thoſe in particular who were converted from among the Jews, would naturally expect ſome token of diſtinction and privilege, comprehending their children, and reſembling in its deſign, though milder in its nature, that which Chriſtianity had abrogated. This expectation was farther encouraged by the very condeſcending and affectionate manner in which our Lord expreſſes himſelf concerning infants; particularly when he ſays, Mark x. 14. "Of ſuch is the kingdom of God;" which ſome underſtand to ſignify, that the rights and privileges of the Chriſtian church belong to ſuch. With theſe views, it is eaſy to conceive to what ſubjects they would apply the general charge to baptize proſelytes, unleſs they had been directed and reſtricted by ſome expreſs order.

An order of limitation was abſolutely neceſſary to prevent their miſtaking the proper ſubjects of baptiſm, and miſapplying this ordinance, if infants were to be excluded. This would be the more likely, as they would explain the precepts of Chriſt, concerning baptiſm, by the cuſtom prevailing among the Jews, in his time: and as it was the practice, when proſelytes came over to the Jewiſh religion, to baptize the children with the parents, the apoſtles would naturally conclude, that children were included in the general commiſſion. Matt. xxviii. 19.

Mr. Wall has endeavoured to ſhew, from the books of the Jews themſelves, and thoſe of others, that underſtood the Jewiſh cuſtoms, and have written concerning them, that it was the cuſtom of the Jews before our Saviour's time, and, as they affirm, from the beginning of their law, to baptize as well as circumciſe any proſelyte that joined them from other nations, and with him, at his deſire, his infant children likewiſe.

Moreover, the advocates for infant baptiſm urge more directly the argument from circumciſion after this manner: the covenant made with Abraham was a covenant of grace, by which ſpiritual and eternal bleſſings were promiſed to him (ſee Matt. xxii. 31, 32. Heb. xi. 6. Rom. iv. 11—17. Gal. iii. 6.—18. 29.) and as ſuch comprehended both Jews and Gentiles, and their ſeed. Circumciſion was inſtituted by God as a token of that covenant, and as ſuch, he commanded that it ſhould be adminiſtered to the infant offspring of his covenant people. Gen. xvii. 1—4. And yet, though the covenant endureth, that ancient token of it is aboliſhed; nor is there any external ſign or ſeal of it, under the Chriſtian diſpenſation, except baptiſm. We have, therefore, reaſon to think, that this ordinance was intended to ſucceed circumciſion, as it reſembles it in many reſpects, and ſeems to be called the circumciſion of Chriſt, by the apoſtle Paul, Col. ii. 11, 12. And inaſmuch as circumciſion was adminiſtered to infants, in token of this covenant, baptiſm, being its ſubſtitute and antitype, ought to be adminiſtered to infants likewiſe. Conſult Acts, ii. 39. Rom. xi. 17, &c.

Another argument for infant baptiſm is deduced from the words of the apoſtle, 1 Cor. vii. 14. which are ſuppoſed to have a direct reference to infant baptiſm; becauſe *holy* often ſignifies thoſe that might be admitted to ſacred rites, and *unclean* ſuch as were to be excluded from them. Doddr. in loc.

The Pædo-baptiſts acknowledge that there is no direct and expreſs command to baptize infants; but appealing to the hiſtory of the adminiſtration of baptiſm, they argue, that the apoſtles are ſaid to have baptized whole families, (Acts, xvi. 15. 33. 1 Cor. 1. 16.), and, therefore, probably infants, comprehended under this general denomination. And they apprehend, that they have been able to trace ſuch intimations at leaſt of infant baptiſm, in the earlieſt ages of the church, as may, to a high degree of probability, prove it to be an apoſtolic, and conſequently divine inſtitution.

Irenæus, who was born about the time of St. John's death, and probably of Chriſtian parents, mentions infants among the regenerate, *i. e.* the baptized, as the word generally ſignifies in his writings.

Juſtin Martyr, about forty years after the time of the apoſtles, ſpeaks of ſome who had been *made diſciples* from their infancy.

Tertullian, about one hundred years after the apoſtles, though he adviſes parents to defer baptizing their children, except when their lives were in danger, ſpeaks of the practice as generally received and obſerved in his time.

Cyprian, about one hundred and fifty years after the apoſtles, is allowed by all to ſpeak expreſsly of infant baptiſm, as generally uſed in the church; and we learn, that, in his time, A. D. 253, a queſtion being agitated among ſixty-ſix biſhops, in the council of Carthage, Whether an infant muſt be kept till he was eight days old before he be baptized, all unanimouſly gave their opinion to the contrary.

There are many paſſages that expreſsly refer to infant baptiſm in the works of Origen, who was born of Chriſtian parents; and as his father was martyred in the year 202, when he was ſeventeen years old, the remoter Chriſtians of his family muſt have been nearly contemporary with the apoſtles.

In the Apoſtolic Conſtitutions, which are allowed to be very ancient, expreſs mention occurs of infant baptiſm, as commanded by Chriſt. Matth. xix. 14.

The learned Wall, who took great pains in this inquiry, informs us, that, in the firſt four hundred years after the apoſtles, there appears to be only one, *viz.* Tertullian, who, in ſome caſes, adviſed the delay of infant baptiſm; and another, *viz.* Gregory, who practiſed ſuch delay in the caſe of his own children: but no ſociety of men adopted this opinion, nor did any one perſon pretend to ſay it was unlawful to baptize infants: and in the next ſeven hundred years, there is not ſo much as one man to be found, that either ſpoke for or practiſed any ſuch delay; and, if truth were to be determined by numbers, the general and uniform practice of the Chriſtian church is very much in favour of infant baptiſm.

On the other hand, the Baptiſts plead, that infants are incapable of complying with the terms required in order to baptiſm, *i. e.* repentance and faith, and of receiving thoſe inſtructions which Chriſt directed, as previous to it. Matt. xxviii. 19. compared with 1 Peter, iii. 21. But the Pædo-baptiſts reply, that thoſe inſtructions and conditions were required only of thoſe who were capable of them. Beſides, the word μαθητευσατε, which ſome underſtand of *teaching*, previous to baptiſm, may ſignify *make diſciples:* and that infants may be comprehended under that name, ſome have argued from Acts, xv. 10. The word uſed by Juſtin Martyr, in the paſſage above cited, and applied to infants, is εμαθητευσαν. And it has been farther alleged, that the penmen of ſcripture, and other Chriſtian writers, have commonly uſed the word to ſignify the reception of any one to the number and degree of diſciples, as preparatory to ſubſequent inſtruction; ſo that perſons, thus received in order to be taught, were, before the inſtruction itſelf, denominated diſciples. Compare Luke, ix. 57. and Matt. viii. 19, 20, 21. Euſebius Evang. Demonſt. lib. iii. ſect. 7. where he ſtyles thoſe who were deſirous of learning of Chriſt, his diſciples.

It is farther objected, that infants are incapable of receiving any benefit from baptiſm; and that, in this caſe, the ordinance is expoſed to contempt. The Pædo-baptiſts reply to this objection, by maintaining, on the contrary, that there are many advantages reſulting from baptiſm adminiſtered to infants, both to them and principally to their parents, whoſe immediate act it is; that an ordinance, as in the caſe of Chriſt, who was himſelf baptized, may ſometimes be adminiſtered to thoſe who are not capable of *all* the purpoſes for which it was originally inſtituted, and which it may ſubſerve with regard to others; and ſtill farther, that this argument againſt baptizing infants, by proving too much, proves nothing: for if infants are incapable of the ends of baptiſm, under the Chriſtian diſpenſation, infants under former diſpenſations were equally incapable of the ends of circumciſion; and, therefore, ſuch an inſtitution was uſeleſs and improperly enjoined.

The objection founded on the ſilence of the New Teſtament, with regard to infants as the ſubjects of baptiſm, is already anſwered, in the beginning of this article, and the objection retorted againſt the Baptiſts themſelves. The hiſtory of the practice of baptizing infants has been already ſtated; and though it is urged, that Juſtin Martyr contends for a profeſſion of faith as neceſſary in order to baptiſm, whence was derived the uſe of ſponſors, in the caſe of infants, it is anſwered by the Pædo-baptiſts, that Juſtin ſpeaks of the adult, or may conſider the confeſſion of the ſponſor as the child's, being made in his name: and this is the more probable, as the ſubſequent fathers uſe the ſame language long after infant baptiſm was the prevailing practice.

The Pædo-baptiſts alſo differ from the Baptiſts as to the mode of adminiſtering the Chriſtian ordinance. The former perform it by ſprinkling or pouring on water; the latter, by the immerſion of the whole body, which they contend to be an eſſential circumſtance. In favour of immerſion it is pleaded, that the word βαπτιζω, being derived from βαπτω, properly ſignifies *to plunge:* on the other hand it is urged, that in this diminutive and derivative form it may ſignify any method of waſhing, and is ſometimes uſed in ſcripture for waſhing things which were not dipped in water, but on which it was poured. Compare Luke, xi. 38. Mark, vii. 4. and thoſe paſſages in which the pouring out of the ſpirit is called baptiſm, Acts, i. 5. ch. xi. 15, 16; to which ſome add, 1 Cor. x. 2. obſerving that βαπτω is never uſed for baptiſm.

Farther, the Baptiſts argue, that John performed his baptiſm by immerſion, and that his practice is obligatory upon all Chriſtians. To this ſome have replied, that John's baptiſm is diſtinguiſhed from Chriſtian baptiſm, and that ſome, who had received his baptiſm, were again baptized in the name of Chriſt. (Acts, xix. 3, 4, 5.) And, therefore, that his example does not bind Chriſtians. However, it is at leaſt doubtful whether John, who was of the line of the prieſts that had been always uſed to perform their purifications by ſprinkling, did really baptize by immerſion. On the affirmative it is urged, that we read of his baptizing (εν) in Jordan: but to this is anſwered, that εν ſignifies *by*, *at*, or *with*, and conſequently furniſhes no proof that John plunged his diſciples into the river of Jordan. It is farther pleaded, that he choſe a place for this purpoſe, where there was much water; and this he might have done, for the convenience of ſprinkling as well as of plunging, conſidering the numbers that reſorted to his baptiſm, Matt. iii. 5. It is improbable, that ſuch multitudes of both ſexes, and at a diſtance from their own habitations, ſhould be baptized in any other mode.

Another argument, in favour of immerſion, is drawn from the account of Philip and the eunuch, Acts, viii. 38, 39, who went down (εις) *into* the water; and, after the baptiſm, they are both ſaid to come up (εκ) *out of* the water. But many paſſages might be cited, where εις ſignifies *to* or *unto*, and εκ, *from*. Matt. xv. 24. chap. xvii. 27. chap. iii. 11. John, ix. 1. 2 Cor. v. 1. Rev. xix. 5.

It is farther argued, that plunging alone repreſents our being buried with Chriſt in baptiſm, and conſequently that this ceremony is eſſential. Compare Rom. vi. 4. Col. ii. 2. The Pædo-baptiſts, though they allow that there is in theſe paſſages an alluſion to the mode of baptiſm which then generally prevailed, maintain, that in the inſtitution of the ordinance, there is no declaration that it was chiefly deſigned to repreſent this, and perſons were baptized before it was generally known that Chriſt ſhould die and ariſe from the dead. Our being cleanſed from ſin ſeems to be the thing primarily intended, which may well be repreſented by pouring on water; and as this more naturally repreſents the pouring out of the ſpirit, the ſprinkling us with it, and the ſprinkling of the blood of Jeſus, it may anſwer as valuable purpoſes as that mode, which, more directly, repreſents death and a reſurrection.

The moſt conſiderable argument in favour of immerſion is, that it was practiſed in the primitive ages. Several texts in the New Teſtament, ſay the Baptiſts, plainly declare this. (Matt. iii. 6. 16. John, iii. 23. Acts, viii. 36—39.) But from theſe paſſages, the Pædo-baptiſts reply, that no certain concluſion in favour of immerſion can be drawn; nor from the ſubſequent hiſtory of the Chriſtian church. Though they allow that immerſion might be uſed, there are ſome caſes in which it is more probable that the mode of baptiſm was ſprinkling; partly on account of the number baptized at once, and partly becauſe many of them were ſtrangers, and far from their own habitations, and therefore deſtitute of that change of raiment which decency, conveniency, and ſafety, would have required. We might add farther, that baptiſm by ſprinkling is, in its nature and the circumſtances attending it, more ſuitable to the mild and benign genius of Chriſtianity, and to the deſigned extent of its ſpread through all the various climates of the earth, than baptiſm by immerſion. See, on this ſubject, Wall's Hiſtory of Infant Baptiſm, 4to. 1707. Wall's Defence of the Hiſtory againſt Gale, &c. 8vo. 1702. Towgood's Baptiſm of Infants a reaſonable Service. Fleming's Plea for Infants, &c. &c.

For a ſummary of the principal arguments in favour of baptizing adults, and by immerſion, ſee Baptists.

PÆDOPHLEBOTOMIA, from παις, and φλεβοτομια, *veneſection*, in *Surgery*, the operation of veneſection practiſed on a child.

PÆDOTHYSIA, παιδοθυσια, in *Antiquity*, an inhuman cuſtom, that prevailed amongſt the ancient heathens, of ſacrificing their children. Thus it is related in the ſcriptures, that the king of Moab, being beſieged by the Iſraelites in his capital, and reduced to great ſtraits, took his eldeſt ſon, that ſhould have reigned in his ſtead, and offered him for a burnt offering upon the wall, on which the ſiege was raiſed. 2 Kings, iii. 27.

From Phœnicia this cruel practice paſſed into Europe and Africa, and ſpread itſelf far and wide; and it is reported, that the Mexicans are, at preſent, guilty of it.

PÆNA. in *Ancient Geography*, an iſland of the Atlantic ocean, weſt of the province of Tingitana. Ptolemy.

PÆNOE, in *Botany*, the name of a very large tree, which grows in Malabar.

The reſin, diſcharged from the root, bark, fruit, and other parts of this tree, when boiled with oil, is uſed either for a hard or liquid pitch; and is, in the Indian ſacrifices, ſometimes burnt inſtead of incenſe.

The kernels of the fruit when bruiſed, and, in conjunction with warm water, levigated on a marble, corroborate the ſtomach, remove a nauſea and vomiting, allay racking pains of the belly, and cure the cholera. The reſin of this fruit, when melted with the oleum ſeſami, is an excellent vulnerary balſam; when reduced to a powder, and exhibited, it alſo powerfully cures a gonorrhœa, and other vulnerary ſymptoms. Ray.

PÆNULA, or Penula, among the Romans, a thick ſhort, cloſe-bodied garment, fit for a defence againſt cold and rain.

PÆONES, in *Ancient Geography*, a people who inhabited the coaſt of Macedonia and mount Rhodope, according to Dion Caſſius. Herodotus places them on the banks of the Strymon; and Ptolemy aſſigns to them for their habitation Macedonia, towards the ſources of the river Haliacmon.

PÆONIA, a country of Macedonia, which, according to Pauſanias, took its name from Pæon, the ſon of Endymion. Herodotus ſpeaks of this country, as ſubject to Darius, ſon of Hyſtaſpes. It was ſituated eaſt of the Axius, and weſt of Strymon.

Pæonia, in *Botany*, the Pæony, ſo named by the ancients, in memory of Pæon the phyſician, whom Homer records as having cured Pluto with this herb, when he was wounded by Hercules. We preſume its virtues are altogether reſerved for ſuch auguſt occaſions, they having never been made manifeſt on any other, as far as we can learn. The παιονια of Dioſcorides evidently appears, by his very particular deſcription, to be our plant. What he diſtinguiſhes, by the gratuitous appellation of male and female, are now acknowledged to be two ſpecies; though Linnæus conſidered them as varieties of one, by the name of *P. officinalis*. Linn. Gen. 273. Schreb. 365. Willd. Sp. Pl. v. 2. 1211. Mart. Mill Dict. v. 2. Ait. Hort. Kew. ed. 2. v. 3. 315. Sm. Prodr. Fl. Græc. Sibth. v. 1. 369. Juſſ. 234. Tourn. t. 146. Lamarck Illuſtr. t. 481. Gærtn. t. 65.—Claſs and order, *Polyandria Pentagynia*. Nat. Ord. *Multiſiliquæ*, Linn. *Ranunculaceæ*, Juſſ.

Gen. Ch. *Cal.* Perianth inferior, of five ſmall, roundiſh, concave, reflexed, permanent leaves, unequal both in ſize and inſertion. *Cor.* Petals five, roundiſh, concave, contracted at the baſe, ſpreading, very large. *Stam.* Filaments very numerous, (about three hundred), capillary, ſhort; anthers erect, large, oblong, quadrangular, of four cells. *Piſt.* Germens two or more, ovate, erect; ſtyles none; ſtigmas compreſſed, oblong, obtuſe, coloured. *Peric.* Follicles as many as the germens, ovate-oblong, ſpreading widely, often downy, coriaceous, burſting lengthwiſe at their inner edge. *Seeds* numerous, oval, poliſhed, coloured, ranged along each margin of the ſuture.

Eſſ. Ch. Calyx of five leaves. Petals five. Styles none. Follicles ſuperior, with many marginal ſeeds.

Obſ. Linnæus remarks, that though the moſt natural number of the germens is, in his opinion at leaſt, two, they are often more numerous; but he thinks they ſcarcely ever amount to five. Some newly diſcovered ſpecies however contradict this, and indeed moſt of the old ones afford reaſons, at one time or other, for the union of the Linnæan orders from *Digynia* to *Pentagynia*, in the claſs *Polyandria*, into one; which is ſanctioned alſo by *Delphinium*, *Aconitum*, and others. See Sm. *Introd. to Botany*.

1. P. *Moutan*. Chineſe Tree Pæony, or Moutan. Ait. n. 1. Sims in Curt. Mag. t. 1154. (P. ſuffruticoſa; Andr. Repoſ. t. 373 and t. 448.)—Stem woody, perennial. Leaflets oblong-ovate; glaucous and ſomewhat hairy beneath; the terminal one three-lobed. Germens numerous, diſtinct.—Native of China, where it is one of the moſt favourite objects of horticulture, as may be ſeen by the paper-hangings, ſcreens, porcelain, and other ornamental productions of art, brought from that country. It is depicted on ſuch with double bloſſoms, either of a roſe-colour, crimſon, purple, white, or even of a golden yellow. The firſt only has been introduced into this country, by Sir Joſeph Banks, in 1789. Collectors who have had means of communication with China, particularly the late Right Hon. Charles Greville, and Sir Abraham Hume, have anxiouſly endeavoured to obtain ſome of the other varieties, but in vain; except that the gentleman laſt mentioned has procured a ſhrubby Pæony with a ſingle flower, more beautiful than the double, of which we ſhall preſently ſpeak as a diſtinct ſpecies. The *Moutan* proves tolerably hardy in England, though, like many other plants from the ſame country, which bloſſom early in our ſpring, it requires the protection of a glaſs frame at that ſeaſon. The ſhrubby *ſtem* is peculiar to this and the next ſpecies, among all thoſe hitherto known, and forms a large buſh, ſpreading ſeveral feet in diameter. *Leaves* on long ſtalks, alternate, large and ſpreading, twice or thrice ternate in an oppoſite manner, deciduous; their leaflets tapering at the baſe, acute, entire, occaſionally lobed, veiny; glaucous and very ſparingly hairy beneath; the terminal ones three-lobed. The ſcales of the *leaf-buds* are pale crimſon. *Flowers* terminating the branches, ſolitary, ſix or eight inches broad, known to us in a very double ſtate only, conſiſting of innumerable jagged roſe-coloured *petals*, with a few *ſtamens*, with yellow *anthers*, remaining unchanged, and a greater or leſs number of *germens*, all ſeparate and diſtinct. The ſmell of the *flower* is generally unpleaſant, but a ſweet-ſcented variety, of the ſame colour, is cultivated by Meſſrs. Lee and Kennedy. It is ſtrange, and ſcarcely credible, that Thunberg and Loureiro ſhould have thought this ſhrub a mere variety of our common *P. officinalis*. The latter indeed ſuſpects that ſome of the ſuppoſed varieties of this plant, which, for many hundred years, are ſaid to have been cultivated in China, are probably ſpecies. We are as yet much in the dark reſpecting theſe, but they ſeem by the drawings of the Chineſe, to differ only in the colour of their bloſſoms. That whimſical people are reported to take pleaſure in budding the different colours on the ſame ſtem.

2. P. *papaveracea*. Poppy-fruited Pæony. Andr. Repoſ. t. 463.—Stem woody, perennial. Leaflets oblong-ovate; glaucous and ſlightly hairy beneath; the terminal one three-lobed. Germens about ſix, cloſely combined into a globe. This bloſſomed in 1808 in the fine collection of the late lady Amelia Hume, at Wormleybury, having been introduced a year or two before, from China. It differs in no reſpect, as to *ſtem* and *foliage*, from the preceding. The *flowers* however differ, in being nearly ſingle, with ſcarcely more than five *petals* which are very large, white or bluſh-coloured, with a large purple ſpot, at the baſe of each, vyeing with the beauty of a Gum Ciſtus. The *ſtamens* alſo are copious and all perfect. But the moſt remarkable difference exiſts in the *piſtil*, which conſiſts of ſix *germens*, rarely more, all cloſely compreſſed together into a globe, like a Poppy-head, and even enveloped in one common integument. The appropriate number of *ſtigmas*, one to each germen or cell, crowns this globe. Whether this can poſſibly be a variety, is doubtful. Dr. Sims is induced to conſider it, if natural, as amounting to a generic diſtinction. This the exact conformity of all the other parts forbids, eſpecially as there are ſimilar ſpecific differences in other genera; ſee NIGELLA. The character in queſtion is found conſtant in all the ſpecimens of this fine plant, that, for ſeveral ſucceſſive years, have fallen in our way.

3. P. *officinalis*. Common Pæony. Willd. n. 1. Ait. n. 2. Retz. Obſ. faſc. 3. 35. Linn. Sp. Pl. α. 747. Bulliard t. 101. (P. fœmina; Matth. Valgr. v. 2. 266. Fuchſ. Hiſt. 202. Lob. Ic. 682. f. 2. Ger. em. 981.)—Leaves twice compound; leaflets with broadly-lanceolate lobes. Follicles downy, nearly upright.—Native of ſhady groves in Switzerland, as well as on the mountains of Crete and Greece. It has been as long cultivated in European gardens, as perhaps any other exotic, flowering in May and June. The *root* is perennial, with many fleſhy, cylindrical, or elliptical knobs, black externally. *Stems* herbaceous, annual, two feet high, with large, ſpreading, compound, dark-green *leaves*, moſtly ſmooth and naked underneath, as well as above. *Flowers* terminal, ſolitary, crimſon, uſually double in gardens. There is an elegant fleſh-coloured variety, as well as a white one. This is certainly the παιονια θηλεια, or female Pæony, of Dioſcorides, ſo named, of courſe, without any idea of the real ſexual diſtinctions, in the parts of fructification. He celebrates it as uſeful in promoting natural diſcharges when deficient, and reſtraining ſome of them when too abundant. The flavour of the root is acrid, bitter and fœtid, and its qualities are reported to be narcotic

and dangerous, which we can readily believe. Bulliard's plate ſeems intended for this, though he did not diſtinguiſh it from the following very diſtinct ſpecies.

4. P. *corallina*. Entire-leaved Pæony. Willd. n. 2. Ait. n. 3. Retz. Obſ. faſc. 3. 34. Engl. Bot. t. 1513. (P. officinalis; Linn. Sp. Pl. β. 747. Mill. Illuſtr. t. 47. P. mas; Ger. em. 980. Lob. Ic. 684. Matth. Valgr. v. 2. 265.)—Leaves twice ternate; leaflets ovate, undivided. Follicles downy, recurved.—Native of the ſouth of Europe. Dr. Sibthorp had wild ſpecimens communicated to him by an apothecary of Zante. It was alſo diſcovered, in a wild ſtate, by Francis Bowcher Wright, eſq. in the rocky clefts of the iſland called Steep Holmes, in the Severn, in Auguſt 1803, whence this ſpecies has found a place in *Engliſh Botany*. Gerarde ſays he found it at Southfleet, Kent, which his editor Johnſon rudely denies. Ruſtic gardens often abound with this flower, in its proper ſingle ſtate; the ſeed-veſſels being admired, and long preſerved for the decoration of the cottage chimney-piece, on account of their ſhining pink inſide, and black poliſhed *ſeeds*, contraſted with the red remains of numerous abortive ones, ranged along the edges. This is the παιονια αρρην, or male Pæony, of Dioſcorides, whoſe *leaves* he compares to thoſe of a Walnut-tree, a ſufficient indication of their ovate, undivided, ſimply pinnate form, by which the ſpecies is clearly diſtinguiſhable from the laſt. The qualities of the two plants probably differ but little. We find the *leaves* of the preſent ſometimes downy beneath.

5. P. *peregrina*. Crimſon-flowered Small Pæony. Ait. n. 4. Sims in Curt. Mag. t. 1050. (P. promiſcua; Ger. em. 982. Lob. Ic. 683. P. byzantina; Ger. em. 982?)—Leaves twice ternate; leaflets elliptic-oblong, decurrent, lobed; glaucous and hairy beneath. Follicles erect, downy.—Native, probably, of the ſouth of Europe. It is a plant of much humbler growth, and ſmaller dimenſions, than any of this genus that we have hitherto mentioned, and is eſſentially diſtinguiſhed, if we miſtake not, by its decurrent *leaflets*, whoſe main ribs unite far above the baſe. The *flowers* are of an elegant, but not very deep or bright, crimſon, ſcarcely three or four inches in diameter, often double, with linear internal *petals*, like a double anemony. Such is the plant we had from Mr. Loddige by the name of *P. humilis*, with whoſe figure and deſcription it, as Dr. Sims well remarks, does not at all agree. But neither, in our judgment, does it accord with the *P. peregrina, flore coccineo*, Beſl. Hort. Eyſt. Vern. (not Æſtiv.) ord. 6. t. 9, nor with *P. byzantina* of Gerarde, Parkinſon and others, which is deſcribed by Parkinſon as larger than the Male Pæony, *P. corallina;* whereas our *peregrina* is a great deal ſmaller, and exactly anſwers to the *promiſcua* of old books. It appears to be rather of recent introduction among us, and we have ſome ſuſpicion of its having been brought from Siberia. The *flowers* are produced in May or early in June, and the *roots* are quite hardy.

6. P. *daurica*. Glaucous Daurian Pæony. Ait. n. 10. Andr. Repoſ. t. 486.—Leaves pinnate; leaflets elliptical, obtuſe, glaucous, ſomewhat wavy. Stem herbaceous.—Native of Siberia, from whence it was procured, in 1790, by the late Mr. Bell. This, like the reſt, is a hardy perennial, flowering in May or June. *Stem* about two feet high. *Leaves* apparently all ſimply pinnate, glaucous on both ſides, paler beneath; leaflets broadly elliptical, obtuſe, concave, veiny, rather wavy at the edge. *Flowers* large and handſome, of a purpliſh roſe-colour, with copious yellow *ſtamens*, and two *piſtils*. *Follicles* ovate, divaricated, downy, about one inch and a half long. We know this ſpecies, which ſeems well worthy of general cultivation, from Mr. Andrews's work only. Its affinity to the three preceding, has made us here ſwerve from the arrangement in the *Hortus Kewenſis*.

7. P. *albiflora*. White-flowered Pæony. Pallas. Roſſ. v. 2. 92. t. 84. Willd. n. 3. Ait. n. 5. Andr. Repoſ. t. 64. and t. 612.—Leaves twice ternate; leaflets elliptic-lanceolate, acute, entire, ſmooth. Capſules recurved, ſmooth. Calyx bracteated.—Native of Mongol Tartary, on graſſy hills, and introduced into the Britiſh gardens by Pallas, its celebrated diſcoverer, in 1784. This flowers in May or June, and is hardy, but we do not find this ſpecies ſo eaſy of culture, nor ſo free in flowering, as ſome others. The inhabitants of its native country are ſaid to eat the roots boiled in ſoups, and to mix the powdered ſeeds with the infuſion or decoction of their tea. The *ſtem* is herbaceous, uſually dark brown, ſmooth and poliſhed. *Leaves* twice ternate, of a dark ſhining green above, paler beneath, quite ſmooth and naked. *Flowers* comparatively ſmall, but peculiarly elegant in their native ſimplicity and ſnowy whiteneſs, with concave, partly cloſed, *petals*, and a brown *calyx*, accompanied by three green, leafy, ſeſſile *bracteas*. *Germens* three or four, brown and ſmooth. Theſe *flowers* have a ſweet aromatic ſcent. There is a double variety, with a bluſh-coloured tint, and yellowiſh inner petals, figured in Andrews's t. 612, which makes a very ſplendid appearance; but we have always admired the original plant, as one of the moſt deſirable of its genus, nor are we ſingular in this opinion.

8. P. *humilis*. Dwarf Spaniſh Pæony. Retz. Obſ. faſc. 3. 35. Willd. n. 4. Ait. n. 6. (P. pumila fœmina; Lob. Ic. 683. Ger. em. 982.)—Leaves twice ternate; leaflets in three deep linear ſegments, downy beneath. Follicles hairy, nearly erect. Cluſius records this as a native of Spain. Gerarde ſpeaks of it as known in the Engliſh gardens in his time. We have never met with a ſpecimen, and ſhould be very glad to ſee it well figured. Retzius deſcribes the *ſtem* a foot and half high, ſimple, ſmooth, angular and green. *Leaves* in very narrow ſegments, acute; glaucous above; whiter and downy beneath. *Petals* of a deeper red than thoſe of *P. corallina*, n. 4. *Germens* greeniſh, ſlightly hairy, as are alſo the ſhort, nearly upright, *follicles*.

9. P. *anomala*. Jagged-leaved Siberian Pæony. Linn. Mant. 247. Willd. n. 5. Ait. n. 7. Andr. Repoſ. t. 514. (P. laciniata; Pallas Roſſ. v. 2. 93. t. 85, ſibirica. P. n. 14; Gmel. Sib. v. 4. 184. t. 72.)—Leaves twice ternate; leaflets with many lanceolate ſegments, ſmooth. Follicles depreſſed, ſmooth. Calyx bracteated. Frequent throughout moſt parts of Siberia, in graſſy, ſhady, rather hilly ſpots. Mr. Bell introduced this firſt into England, and it flowered with him in July 1807. The *calyx* is accompanied with leafy *bracteas*, like thoſe of *P. albiflora*, but longer and narrower, like the numerous lanceolate ſegments of the *foliage*, by which this ſpecies is diſtinguiſhed at firſt ſight from all we have hitherto deſcribed, except the laſt, but that has downy *leaves*, glaucous above, and hairy upright *ſeed-veſſels*. The *corolla* of *P. anomala* is concave, of a full roſe-colour. *Germens* uſually five, ſpreading, ſmooth, as well as the *follicles*.

10. P. *hybrida*. Mule Pæony. Pallas. Roſſ. v. 2. 94. t. 86. Willd. n. 6. Ait. n. 8.—Leaves twice ternate; leaflets with numerous linear ſegments, ſmooth. Germens downy. Pallas mentions this as occurring now and then wild, in vallies on the banks of ſome of the larger Siberian rivers, but much ſmaller than the ſpecimen delineated in his plate, which he ſays originated in the garden at Peterſburgh, and was ſuppoſed to be a hybrid production between the preceding ſpecies and the following, as it never produced ſeeds. Mr. Bell is recorded as having introduced *P. hybrida* into

England, in 1788. Like the laſt it is perennial, flowering in May, and like that, has the *leaflets* much divided, but with ſtill narrower ſegments. The parts of fructification however more agree with *tenuifolia*, hereafter deſcribed. The *bracteas* are partly laciniated, as in that, not all undivided, as in *anomala* and *albiflora*. The *corolla* is of a deeper red, and the *germens*, inſtead of being ſmooth, are downy. It is very likely, though occaſionally found wild, to be a mule plant, rather than a permanent intermediate ſpecies.

11. P. *tenuifolia*. Fine-leaved Pæony. Linn. Sp. Pl. 748. Linn. fil. Pl. Rar. faſc. 1. 9. t. 5. Pall. Roſſ. v. 2. 95. t. 87. Willd n. 7. Ait. n. 9. Meerb. Ic. t. 25. Curt. Mag. t. 926. (P. n. 15; Gmel. Sib. v. 4. 185. t. 73.)—Leaves thrice ternate; leaflets in numerous linear-awl-ſhaped ſegments, ſmooth. Follicles hairy.—Native of Siberia, from whence the late Mr. Malcolm is ſaid firſt to have obtained it alive in 1765. This is one of the moſt elegant ſpecies, and a highly deſirable hardy herbaceous plant, flowering readily in the open border, about the end of May. The *root* creeps moderately. In a wild ſtate the *ſtem* is ſaid to be about a foot high; in a garden it is full two feet, erect, ſimple, or ſlightly branched, clothed with numerous, very compound and finely divided, dark-green, ſmooth *leaves*, ſpreading in a recurved direction. *Flowers* terminal, ſolitary, concave, rather above two inches wide, of a moſt vivid, deep, rich, ſhining blood-colour, with copious yellow *ſtamens*. The *bracteas* are partly divided like the leaves, partly entire. *Germens* denſely covered with erect, cloſe-ſet, pluſh-like, ſhining, brown, rigid hairs. We ſeldom ſee the *ſeeds* perfected in England, though they are ſaid to ripen in Sweden. No wonder that Linnæus, who, when he firſt became acquainted with this beautiful Pæony, was full of his newly conceived ideas of hybrid generation in plants, immediately gueſſed it to be a mule between the common *Pæonia* and *Adonis apennina*. It does indeed look like a magnified *Adonis autumnalis*. Such reſemblances are, nevertheleſs, fallacious, and there is no real foundation for believing the *P. tenuifolia* any other than a moſt diſtinct and permanent original ſpecies.

PÆONIA, in *Gardening*, compriſes plants of the large, herbaceous, flowery, perennial kind, of which the ſpecies are, the common pæony (P. officinalis), and the ſlender-leaved pæony (P. tenuifolia).

There are two principal varieties of the firſt ſpecies; the common female, and male pæony.

The former of theſe has the roots compoſed of ſeveral roundiſh thick knobs or tubers, which hang below each other, faſtened with ſtrings; the ſtalks are green, about two feet and a half high; the leaves are compoſed of ſeveral unequal lobes, which are variouſly cut into many ſegments; they are of a paler green than thoſe of the latter ſort, and hairy on their underſide; the flowers are ſmaller, and of a deeper purple colour.

The latter has the roots compoſed of ſeveral oblong knobs hanging by ſtrings faſtened to the main head; the ſtems the ſame height with the preceding; the leaves are compoſed of ſeveral ovate lobes, ſome of which are cut into two or three ſegments; they are of a lucid green on their upper ſide, but are hoary on their under; the ſtems are terminated by large ſingle flowers, compoſed of five or ſix large, roundiſh, red petals.

The flowers in both ſorts appear in May, and are natives of ſeveral parts of Europe.

And Miller ſuggeſts, that it is ſcarcely neceſſary to obſerve that the old names of male and female have nothing to do here with ſexes, the flowers of both being hermaphrodite.

Beſides, there are ſeveral ſub-varieties of the female pæony, as with double flowers, differing in ſize and colour, cultivated in gardens. The male pæony alſo varies, with pale and white flowers, and with larger lobes to the leaves: they alſo vary much in different countries.

As there is the *Foreign Pæony*, with a deep red flower; the roots are compoſed of roundiſh knobs, like thoſe of the *female* pæony; the leaves are alſo the ſame, but of a thicker ſubſtance; the ſtalks do not riſe ſo high; the flowers have a greater number of petals, and appear a little later. This is a native of the Levant. The large double purple pæony is probably a ſub-variety of this.

The *Hairy Pæony*, with a larger double red flower; the roots like the common female pæony; but the ſtalks taller, and of a purpliſh colour; the leaves much longer, with ſpear-ſhaped entire lobes; the flowers large, and of a deep red colour.

The *Tartarian Pæony*, with roots compoſed of oblong fleſhy tubers of a pale colour; the ſtalks about two feet high, pale green; the leaves compoſed of ſeveral lobes, irregular in ſhape and ſize, ſome having ſix, others eight or ten ſpear-ſhaped lobes, ſome cut into two or three ſegments, and others entire; of a pale green, and downy on their under ſide; the ſtalks are terminated by one flower of a bright-red colour, a little leſs than that of the common female pæony, having fewer petals.

The *Portugal Pæony*, with a ſingle ſweet flower, has not roots compoſed of roundiſh tubers, but has two or three long taper-forked fangs like fingers; the ſtalk riſes little more than a foot high; the leaves are compoſed of three or four oval lobes, of a pale colour on their upper ſide, and hoary underneath; the ſtalk is terminated by a ſingle flower, which is of a bright red colour, ſmaller than the above, and of an agreeable ſweet ſcent.

Method of Culture.—The ſingle ſorts are eaſily raiſed by ſeeds, and the double by parting the roots.

The ſeed ſhould be ſown in autumn, ſoon after it is perfectly ripened, or very early in the ſpring (but the former is the better ſeaſon), on a bed or border in the open ground, where the ſoil is rather light, raking it in lightly. It may alſo be ſown in ſmall drills.

The plants ſhould afterwards be properly thinned, kept perfectly free from weeds, and be occaſionally watered when the weather is hot and dry.

As they ſhould remain two ſeaſons in the bed, it is neceſſary, in the ſecond autumn, to ſpread ſome light mould over them, to the depth of an inch; and in the autumn following they may be removed where they are to remain. Plants of the double-flowered kinds are often produced from theſe.

The roots of the old double-flowered plants may be taken up in the beginning of the autumn, and divided ſo as to have one bud or eye, or more, to each part or crown, as without care in this reſpect, they never form good plants. And where regard is had to the flowering, they ſhould not be too much divided, or the offsets made too ſmall, as when that is the caſe they do not flower ſtrong. But where a great increaſe is wanted, they may be divided more, being left longer in the nurſery-beds.

They ſhould be planted out as ſoon as poſſible after they are ſeparated, though, when neceſſary, they may be kept ſome time out of the earth. The large offsets may be ſet out at once where they are to remain; but the ſmall ones are beſt ſet in nurſery-beds for a year, or till of proper ſtrength for planting out.

The plants may afterwards be ſuffered to remain ſeveral years unremoved, till the roots are increaſed to very large branches, and then be taken up when the ſtalks decay, in autumn, divided, and replanted in their allotted places in the manner directed above.

All the ſorts are hardy plants, that are capable of flouriſhing in any common ſoil in almoſt any ſituation, either in open expoſures, or under the ſhade of trees.

The Portugal variety, however, ſhould have a warmer ſituation and lighter ſoil than the others.

They are proper ornamental flowery plants for large borders, and may be had at all the public nurſeries. In planting, one ſhould be put here and there in different parts, placing them with the crowns of the roots a little within the ſurface of the earth, and at a yard at leaſt diſtant from other plants, as they extend themſelves widely every way, aſſuming a large buſhy growth; and, together with their conſpicuous large flowers, exhibit a fine appearance, and are often planted at the terminating corners of large borders adjoining principal walls, diſplaying a buſhy growth in their foliage and flowers. When the flowers are gone, the capſules opening lengthways diſcover their coloured ſeeds very ornamentally, eſpecially in that called the male pæony and varieties. And to forward this, the capſules may be ſlit open on the inſide at the proper valve; whereby they will expand much ſooner, and diſplay their beautiful red ſeed more conſpicuouſly than would otherwiſe be the caſe.

PÆONITES, in *Natural Hiſtory*, a name given by ſome writers to the ſtone called by others *pæanites*, and eſteemed of great uſe to women in labour. It ſeems to have been called pæonites, from Pæonia, in Macedonia, where it was found.

PAES, in *Geography*, a river of Lapland, which runs into the North ſea, N. lat. 70°.

PAESIELLO, Giovanni, in *Biography*, a Neapolitan, and gifted with as much fertility of invention for dramatic compoſitions as nature ever beſtowed on an Italian opera compoſer. He was thought, at the beginning of his career, not to have laboured ſufficiently at the drier parts of counterpoint, upon which many great maſters of Italy have eſtabliſhed their fame.

From his early youth he gave way to the fire of his invention, which art could hardly reſtrain, much leſs confine to rule. His wildneſs, however, was never groteſque, ungraceful, crude, wild, or offenſive to cultivated ears; but conſiſted of the moſt happy flights of fancy, pleaſing melodies, and new effects of accompaniment. He at firſt worked at little dramas in the Neapolitan jargon, ſo different from good Italian, that it is totally unintelligible to the reſt of Italy. This language, however, is allowed to be very poetical, and capable of receiving all the grace and refinements of melody.

He compoſed for the burletta a comic opera in Italian, as early as 1765, "Amore in Ballo;" and in 1766, "Le Nozze Turbate." In 1770 we heard at Naples his comic opera called "Le Trame per Amore," in which, though the ſinging was but indifferent, and out of nine characters there was not one good voice, yet the muſic pleaſed us extremely. The ſymphony, conſiſting of only one movement, was truly comic, and contained a perpetual ſucceſſion of pleaſing paſſages. The airs were full of fire and fancy, the ritornels abounding with new paſſages, and the vocal parts in elegant and ſimple melody, ſuch as might be remembered and carried away after the firſt hearing, or be performed in private by a ſmall band, or even without any other inſtrument than a harpſichord or pianoforte. The airs of this drama were much applauded when we heard it performed, though it was the fourteenth night of its run.

But ſince that time he has continued improving in his ſtyle, both in ſerious and comic operas, and the public all over Europe has not been inſenſible to his tranſcendent merit, as he has juſtly been regarded at the head of vocal compoſition of the preſent time, as Haydn of inſtrumental. In 1770 he was the only compoſer in Naples who could make head againſt the high favour in which Piccini then ſtood, after his "Buona Figliuola." We were ſo happy as to hear him *improviſare* in muſic at ſir William Hamilton's, where, having dined, he was begged to ſing a ſcene of an opera; but there being none at hand which he liked to perform, he ſaid "date mi un libretto," and the words of the firſt opera which could be found having been put on the harpſichord deſk, he compoſed and ſung extempore three or four ſcenes in ſo exquiſite a manner to his own ingenious accompaniment, that no ſtudied muſic and ſinging we ever heard of the greateſt compoſers or performers ever pleaſed us ſo much. It was not written muſic, it was inſpiration.

He paſſed three years at Peterſburg in the ſervice of the empreſs Catharine II., whoſe court was conſtantly in poſſeſſion of the beſt compoſers and vocal performers of Italy, and there he eſtabliſhed a great reputation, which ſince his return has been conſtantly increaſing in his own country. He is now (1804) at Paris, and though a modern, is as much revered and reſpected as any of the moſt invaluable antiques among the ſpoils of Italy. A liſt of his works would aſtoniſh by the number, as much as they have delighted by their performance, every judge of feeling, who is able to diſcriminate good muſic from bad, or perfection from mediocrity.

PAEZ, Pedro, a man deſervedly celebrated in the hiſtory of the Jeſuits, and of Abyſſinia. was a Caſtilian, born at Toledo of a noble family. Having completed his ſtudies in the company, he was ſent to India in the year 1588. The Portugueſe in Abyſſinia were at this time without a patriarch, or any ſpiritual aſſiſtant, ſo difficult was it to introduce them into that kingdom, every entrance into which was in poſſeſſion of the Turks or Moors. To this miſſion Paez and P. Antonio de Montſerrat were appointed. They were made priſoners on their way, and ſent to the court of the king of Xael, by whom they were kindly treated; but being himſelf tributary to the pacha of Yemen, and bound by treaty to ſend him all the Portugueſe who might fall into his hands, they were ſent to Canaan, the capital where the pacha reſided. At firſt their captivity was eaſy; but afterwards they were treated with great barbarity, in hopes that he might obtain a very large ranſom for their liberty. At length the viceroy of India obtained their deliverance, upon the payment of a thouſand crowns: they returned to India, where Montſerrat ſoon afterwards died. Paez was more ſucceſsful in his ſecond attempt; he entered Abyſſinia very ſafely in 1603, and inſtead of buſying himſelf with court intrigues, and ſeeking court favour, he remained quietly among his flock, tranſlating into Abyſſinian a compendium of the Chriſtian doctrine, which had been written by Marcos George. He inſtructed ſome children in the dialogues of this work. The king of the country, hearing of their proficiency, ſent for the maſter and his ſcholars to exhibit before him. He was delighted with their performance, and became himſelf a thorough convert to the Roman Catholic faith; but the zeal which he ſhewed in behalf of the new ſyſtem of faith led to his depoſition and untimely death. Other revolutions followed; when things, however, were become quiet, Paez undertook to build a palace at Gorgora, a rocky peninſula, on the ſouth ſide of the lake of Dembea. He was himſelf architect, maſon, ſmith, and carpenter, and produced a building which was the aſtoniſhment of thoſe who beheld it. A ſpring-lock, which he fixed upon one of the doors, ſaved the king's life, when an attempt was made to aſſaſſinate him. The laſt triumph which Paez enjoyed was that of ſeeing the king put away all his wives but one, and receiving his general confeſſion. He died in May 1622. Gen. Biog.

PAGÆ, in *Ancient Geography*, a town of the territory of Megara, ſituated towards the north, on a ſmall gulf formed by an extenſion of the gulf of Corinth, and called "Mare Alcyonium."

PAGAHM, in *Geography*, once a magnificent city of the Birman empire, on the Irawaddy, but now its remains are merely numerous mouldering temples, and the veſtiges of an old brick fort, the ramparts of which are ſtill to be traced. The town of Neoundah, about four miles to the north, which may be called a continuation of Pagahm, has flouriſhed in proportion as the latter has decayed. Pagahm is ſaid to have been the reſidence of forty-five ſucceſſive monarchs, and was abandoned 500 years ago, in conſequence, as it is ſaid, of a divine admonition; but whatever may be its true hiſtory it was certainly once a place of no ordinary ſplendour. The temple of Pagahm riſes upwards with a heavy breadth almoſt to the top, and then terminates abruptly in a point, which give to the buildings a clumſy appearance. Many of the moſt ancient temples at this place are not ſolid at the bottom; a well arched dome ſupports a ponderous ſuperb ſtructure; within, an image of Gaudma ſits enſhrined; four Gothic door-ways open into the dome, in one of which was a human figure ſtanding erect, ſaid to have been Gaudma, and another of the ſame perſonage, lying on his right ſide aſleep, both of gigantic ſtructure. Theſe, however, are not the uſual attitudes of the divinity; as he is generally depictured ſitting croſs-legged on a pedeſtal, adorned with repreſentations of the leaf of the ſacred lotus carved upon the baſe; the left hand of the image reſts upon his lap, and the right is pendent. Beyond the ſuburbs there is a part where the inhabitants are employed in expreſſing oil from the Seſamum ſeed: the grain is put into a deep wooden trough, in which it is preſſed by an upright timber fixed in a frame; the force is increaſed by a long lever, on the extremity of which a man ſits and guides a bullock that moves in a circle, thus turning and preſſing the ſeed at the ſame time: the machine was ſimple, and effectually anſwered the purpoſe. Of theſe mills, there were not leſs than 200 within a very narrow compaſs. From the circumſtance of the cattle being in good order, it was concluded that they were fed on the ſeed after the oil was extracted. The land about Pagahm ſcarcely yields ſufficient vegetation to nouriſh goats. Symes' Embaſſy to Ava, vol. ii.

PAGALOAN, a town in the N.W. coaſt of Mindanao.

PAGAMEA, in *Botany*, Aubl. Guian. v. 1. 112. t. 44. Juſſ. 209. Lamarck Illuſtr. t. 88. A genus conſiſting of only one ſpecies, whoſe fruit was judged by Juſſieu to be not ſufficiently aſcertained. It appears next akin to FARAMEA of the ſame authors, (ſee that article,) and likewiſe belongs to the *Rubiaceæ* of Juſſieu. Aublet deſcribes the berry as of two cells, with two ſeeds, convex on one ſide, flat on the other, one of them frequently abortive. Each of theſe ſeeds, when cut acroſs, is found to have two cells, with a kernel in each cell.—The *Pagamea guianenſis* is a *ſhrub* ſeven or eight feet high, growing on the top of the Serpent mountain, in Guiana, and bearing flowers, as well as fruit, in Auguſt. The *branches* ſpread every way, and are knotty, leafy at the extremities. *Leaves* oppoſite, in pairs croſſing each other, ſtalked, lanceolate, pointed, entire, about three inches long, ſingle-ribbed and veiny, ſmooth and pliant. *Stipulas* ſheathing, ſhort, with two ſmall points. *Flowers* in ſhort, looſe, axillary, ſtalked ſpikes. *Corolla* white, funnel-ſhaped, equally four-cleft, downy within.—No reaſon is given for the name, nor any thing ſaid about the qualities or uſes of the plant, except that the wood is hard, and of a yellowiſh colour.—The trunk is only five inches in diameter.

PAGAN, PAGANUS, a heathen, gentile, or idolater, one who adores falſe gods.

Baronius derives the word *paganus*, *a pagis*, *villages*, becauſe, when Chriſtians became maſters of the cities, the heathens were obliged, by the edicts of Conſtantine and his ſons, to go and live in the country villages, &c. Salmaſius will have the word come from *pagus*, conſidered as originally ſignifying *gens*, or *nation*: whence he obſerves, we ſay indifferently, pagans, or gentiles.

The abbot de Fleury gives another origin of pagan: he obſerves, that the emperor Conſtantine, going from Antioch, againſt Maxentius, in 350, aſſembled all his troops, and adviſed ſuch as had not received baptiſm to receive it immediately; declaring withal, that ſuch as ſhould be found unbaptized ſhould quit the ſervice, and go home.

Hence, perhaps, ſays the abbot, the name pagan might be given to thoſe who choſe the latter; the Latin word *paganus* properly ſignifying *a perſon who does not bear arms*, in oppoſition to *miles*, *a ſoldier*.

And hence it might, in time, extend to all heathens; or, continues he, the word might come from *pagus*, *village*, in regard the peaſants were thoſe who adhered longeſt to the idolatry of the heathens.

PAGAN, BLAISE FRANÇOIS, *Compte de*, in *Biography*, an eminent military engineer, was born at Avignon in the year 1604. He entered into the army at twelve years of age, and diſtinguiſhed himſelf in a variety of actions. He was patronized by his near relation, the conſtable de Luynes, whom he had the misfortune to loſe at the ſiege of Montauban, at which he was alſo deprived of the ſight of an eye by a muſket-ſhot. At the paſſage of the Alps, and the barricades of Suza, he placed himſelf at the head of a determined band, and having gained the ſummit of a ſteep mountain, he cried out "This is the road to glory," and inſtantly ſlid down the mountain; and being imitated by his men, they arrived firſt at the barricades and carried them. When the king, Lewis XIII., laid ſiege to Nanci in 1633, Pagan had the honour to attend him in drawing the lines and forts of circumvallation. In 1642 he was ſent to the ſervice of Portugal, in the poſt of field-marſhal, and there he had the misfortune to loſe his eye-ſight. Though diſabled from ſerving his country in the active duties of a warrior, he was intent upon augmenting its glory, by extending the boundaries of military ſcience. Having from his youth cloſely applied to mathematical ſtudies, with a particular view to the ſcience of fortification, he now employed the whole force of his active mind in ſpeculations of this kind, and in 1645 publiſhed his "Traitè des Fortifications:" this was regarded as the beſt work that had ever been written on the ſubject, and it is ſaid that whatever improvements have been made ſince, have been derived chiefly from this treatiſe, as concluſions from its principles. In 1651 he publiſhed his "Theoremes Geometriques," which ſhew an extenſive and deep knowledge of all the parts of the mathematics. In 1655 he publiſhed an "Hiſtorical and Geographical Account of the River Amazons, extracted from different Writers," and we are aſſured, that though blind, he drew the chart of that river and the parts adjacent. His other works, publiſhed in 1657 and 1658, were "Theorie des Planetes;" and "Tables Aſtronomiques:" by the former he cleared the ſyſtem from that multiplicity of eccentric circles and epicycles, which aſtronomers had invented to explain their motions. His aſtronomical tables are reckoned ſuccinct, and very plain. Pagan died at Paris, November 18, 1685. He was devoted to judicial aſtrology; but what he wrote on this ſubject is the only thing which detracts from his high character. He had an univerſal genius, and having applied himſelf entirely to the art of war, and particularly to the branch of fortification, he made much progreſs in it. He underſtood the deeper branches of the mathematics, and had ſo fine a genius for theſe abſtruſe ſpeculations, that he read but little on the ſubject, his own fertile mind ſupplying him with almoſt every thing that he wanted. Lewis XIII. regarded him as one of the moſt adroit, and moſt valiant men in his kingdom. That branch of his family which removed from Naples to France in 1552, became extinct at his deceaſe. All his works were collected and printed in 12mo. in the year 1669. Moreri.

PAGAN, PETER, a diſtinguiſhed poet of the 16th century, was born at Wanfrid, in Heſſe, and being educated with great care, he exhibited at an early age much literary taſte, and a particular turn for poetry. In the year 1550 he received the degree of bachelor in philoſophy, and he became poet to the emperor Ferdinand. To the ſtudy of poetry he joined that of hiſtory, and was elected profeſſor of both in the univerſity of Marpurg. He died at Wanfrid, on the 29th of May, 1576. Beſides many pieces in poetry on miſcellaneous ſubjects, he left "Hiſtoria tergeminorum Romanorum et Albanorum fratrum," in verſe, which contained the hiſtory of the three Horatii, and the three Curiatii. Moreri.

PAGAN *Creek*, in *Geography*, a river of Virginia, which runs into James river, N. lat. 37° 5'. W. long. 76° 37'.

PAGANALIA, an ancient rural feaſt thus called, becauſe celebrated in the villages, *in pagis*.

In the paganalia, the peaſants went in ſolemn proceſſion all round the village, making luſtrations to purify it. They had alſo their ſacrifices, wherein they offered cakes on the altars of the gods.

Halicarnaſſus and St. Jerom refer the inſtitution of the paganalia to Servius Tullus. They were held in the month of February.

PAGANELLUS, in *Ichthyology*, a ſpecies of *Gobius*; which ſee.

PAGANICA, in *Geography*, a town of Naples, in Abruzzo Ultra; 8 miles N.N.W. of Aquila.

PAGANINA, an Italian word, uſed by ſome authors to expreſs the firſt excrements of children: theſe, dried and reduced to powder, are eſteemed by ſome a very great and powerful medicine againſt epilepſies. It is to be taken in ſmall doſes, every day, for ſome time.

PAGANINI, LA, in *Biography*, an admirable ſinger and actreſs in the character of *prima buffa* in the burletta operas of "Il Mondo della Luna," and "Il Filoſofo di Campagna," compoſed by Galuppi, when his genius was in full fire. The airs "Si l'Uomini ſirpirano," and "Donne, donne, ſiamo Nate," were ſung in a way ſo piquant and agreeable by the Paganini, that the applauſe which ſhe acquired by them amounted almoſt to acclamation. This laſt opera had an uninterrupted run of fifteen nights; and the Paganini, though not young when ſhe came hither from Berlin, in 1760, increaſed in reputation ſo much during the run of this opera, that when it was her turn to have a benefit, ſuch a crowd aſſembled as we never remember to have ſeen on a like occaſion, before or ſince; indeed, not one-third of the company that preſented themſelves at the opera-houſe doors were able to obtain admiſſion. Caps were loſt, and gowns torn to pieces, without number or mercy, in the ſtruggle to get in. Ladies in full dreſs, who had ſent away their ſervants and carriages, were obliged to appear in the ſtreets and walk home in great numbers without caps or attendants. Luckily the weather was fine, and did not add to their diſtreſs by rain or wind; though their confuſion was greatly augmented by its being broad daylight, and the ſtreets full of ſpectators, who could neither refrain from looking or laughing at ſuch ſplendid and uncommon ſtreet-walkers.

PAGANISM, the religious worſhip and diſcipline of pagans; or the adoration of idols and falſe gods.

The gods of paganiſm were either men, as Jupiter, Hercules, Bacchus, &c. or fictitious perſons, as Victory, Fame, Fever, &c. or beaſts, as in Egypt, crocodiles, cats, &c. or finally inanimate things, as onions, fire, and water, &c.

PAGAPATE, in *Botany*, Sonnerat Guian. 16. t. 10, 11. See SONNERATIA.

PAGARCHUS, ϖαγαρχος, formed from *pagus*, *village*, and αρχη, *command*, among the ancients, a petty magiſtrate of a pagus, or little diſtrict, in the country.

PAGASA, or PAGASU, in *Ancient Geography*, a town of Magneſia, formerly a port of the town of Pheræ.

PAGE, formed from ϖαις, *child*, *boy*, a youth of ſtate, retained in the family of a prince, or great perſonage, as an honourable ſervant to attend in viſits of ceremony, carry meſſages, bear up trains, robes, &c. and at the ſame time to have a genteel education, and learn his exerciſes.

The pages in the king's houſehold are various, and have various provinces aſſigned them: as pages of honour, pages of the preſence-chamber, pages of the back ſtairs, &c.

Pages were anciently diſtinguiſhed from the other ſervants in livery, by their wearing drawers in lieu of breeches; and ſleeves turned up with velvet.

Cujas and Gothofred obſerve, that pages in the emperor's families were called *pædagogiani pueri*. Fauchet ſays, the word page was firſt given to the little boys who attend tilers, to bring them their tiles, &c. that till the time of Charles IV. or VII. the name was common to the baſeſt ſervants; and it is ſince then, that page is become a term of honour; and the meaner ſervants are diſtinguiſhed from them by the name of lacqueys, valets, &c.

PAGE is particularly uſed in the Turkiſh ſeraglio, for the children of tribute, or ſlaves who wait on the grand ſignior.

They are commanded by the firſt aga, and conſtitute four claſſes, called odas.

PAGE *of a Book*. See PRINTING.

PAGEANS, in *Mythology*. See PYGMIES.

PAGEANT, a triumphal car, chariot, arch, or other the like pompous decoration, variouſly adorned with colours, flags, &c. carried about in public ſhows, proceſſions, &c.

PAGEL, in *Ichthyology*, a name given by the Spaniards to that fiſh which authors in general called the *erythrinus*, or *rubellio*, and ſome the *xathus* and *pagrus*. It is properly a ſpecies of the ſparus, and is diſtinguiſhed by Artedi from the reſt of that genus, by the name of the *ſilver-eyed red-bodied* SPARUS, which ſee.

PAGET'S PORT, in *Geography*, a ſmall harbour within the great ſound in Bahama iſlands, and in the moſt eaſterly part of the ſound.

PAGHATAKAN, a town of New Jerſey, on the Pachton. N. lat. 42° 8'. W. long. 74° 40'.

PAGI, ANTHONY, in *Biography*, a celebrated Cordelier, and one of the ableſt critics of his time, was born at Rogne, in Provence, in the year 1624. He embraced the monaſtic life, in the convent of Arles, in the year 1641, and obtained ſo high a reputation, that he became four times provincial of his order; but his religious duties did not prevent his application to the ſtudy of chronology and eccleſiaſtical hiſtory, in which he excelled. His moſt conſiderable work is a critique upon the "Annales" of Baronius, in which, following the learned author year by year, he has rectified an infinite number of miſtakes, both in chronology, and in the repreſentation of facts. The firſt volume was publiſhed at Paris in 1689, and dedicated to the clergy of France, who allowed him a penſion; the other three were not printed till after the death of the author: the publication of them was ſuperintended by his nephew Francis. A new edition of the whole was publiſhed at Geneva in the year 1727. Father Pagi died at Aix in 1699. His nephew, already referred to, having finiſhed the publication of his uncle, employed himſelf in writing a work of his own, which he publiſhed under the title of "Breviarium Hiſtorico-Chronologico-Criticum, Illuſtriora Pontificum Romanorum Geſta, Conciliorum Generalium Acta, &c. complectens," forming in the whole four volumes, 4to. This work is ſaid to diſplay much curious reſearch, and is drawn up in a correct and neat ſtyle. Francis Pagi died in 1721, in the ſixty-ſeventh year of his age. He left a nephew, Anthony, on whom devolved the care of publiſhing the laſt volume of his uncle's "Breviarium." Moreri.

PAGIETTA, in *Geography*, a town of Naples, in Abruzzo Citra; 5 miles S. Langiano.

PAGIN, M., in *Biography*, a violiniſt at Paris in the year 1770, much admired for his taſte, neatneſs, and delicacy, by judges of the violin,—not of the French ſchool. He was a diſciple of Tartini, and regarded by many at Paris as his beſt ſcholar. Having had the honour of being hiſſed at the Concert Spirituel for daring to play in the Italian ſtyle, he quitted muſic as a profeſſion, and had a place conferred upon him under the count de Clermont, of about 250*l.* a-year.

PAGLIA, in *Geography*, a river of Italy, which runs into the Tiber, a few miles below Orvieto.

PAGLIANELLO, a town of Naples, in Lavora; 14 miles N.E. of Capua.

PAGLIANO, a town of Naples, in Abruzzo Ultra; 15 miles E.S.E. of Aquila.

PAGLIAPOLI, a town of Naples, in Calabria Ultra; 4 miles E. of Gierace.

PAGLION, a river of France, which runs into the Mediterranean, a little to the E. of Nice.

PAGNINUS, Sanctes, in *Biography*, an Italian Dominican monk in the fifteenth century, eminent for his ſkill in the oriental languages and biblical learning, was born at Lucca in 1466, but, according to others, in the year 1470. At the age of ſixteen he took the habit in a convent of the Dominican order, and applied with extraordinary diligence to the ſtudy of the learned languages, and of divinity. He became deeply and accurately ſkilled in Latin, Greek, Hebrew, Chaldee, and Arabic, but he was particularly celebrated for his knowledge of the Hebrew language. He ſpent the greater part of his life in a monaſtery at Lyons, was diſtinguiſhed by his zeal in defending the Catholic church againſt the attacks of the reformers, and laboured to prevent the numerous Italian families which had ſettled in this city from being converted by the emiſſaries of the Waldenſes and Lutherans. Pagninus is, however, chiefly known by his making the firſt modern tranſlation into Latin of the Old Teſtament from the original Hebrew, and of the New Teſtament from the Greek. To this deſign he was led from a firm conviction that the Vulgate tranſlation, as it has deſcended to modern times, is greatly corrupted from the ſtate in which it was left by St. Jerome. It was his object, therefore, to produce a new tranſlation, in which the Vulgate ſhould be followed whenever fidelity to the originals permitted. Being patronized by Leo X. he began his great work in 1493, and having employed himſelf in it with the greateſt aſſiduity twenty-five years, finiſhed it in 1518. He then applied to the tranſlation of the apocryphal books and the New Teſtament, both of which he rendered from the original Greek before the year 1521. The whole was publiſhed at Lyons in 1528, under the title of "Veteris et Novi Teſtamenti nova Tranſlatio, per Sanctum Pagninum nuper edita, approbante Clemente VII." Many high commendations have been beſtowed upon this work by the moſt learned rabbis, who have given it the preference to all other tranſlations of the ſacred Hebrew writings, and likewiſe by many eminent Chriſtian critics, Catholic and Proteſtant, and among others, by Leuſden, Erpenius, Buxtorf, and Huet. But father Simon and others, though they admit that Pagninus has ſhewn great learning and talents, conteſt its claims to the ſuperior excellence which the former attribute to it. Simon ſays it is obſcure, barbarous, and full of ſoleciſms, and he maintains that it ſometimes changes the ſenſe of the text. The verſion has gone through many editions. Huet, though he gives Simon credit for the general truth of his criticiſms, yet propoſes his manner as a model for all tranſlators of the ſacred books; "Scripturæ interpretandæ rationis utile nobis exemplar propoſuit Sanctus Pagninus." This author publiſhed "Theſaurus Linguæ Sanctæ," in folio, which was reprinted by Robert Stephens, under the title of "Theſaurus Linguæ Sanctæ contractior et emendatior." Pagninus publiſhed many other works: he died at Lyons in 1536. Buxtorf, who made much uſe of his Theſaurus, in forming one of his own, calls him "Vir linguarum Orientalium peritiſſimus." Luther ſpoke of him with great applauſe.

PAGO, in *Geography*, an iſland in the Adriatic, near the coaſt of Dalmatia, or Morlachia, about 20 miles long and 6 broad containing ſeveral villages. It is ſubject to a ſtormy ſea, ſo that neither wood, nor paſture, nor corn lands are found upon that part which is oppoſite to the continent, except in few places. The air is darkened by the ſalt miſt that is raiſed by the colliſion of the waves in the narrow channel of Morlachia. The large lake itſelf is not calm in the ſtormy ſeaſon, and ſo far from being a harbour, it is tempeſtuous and uſeleſs. The inhabitants of the city are not ſecure in their houſes, without defending the roofs by large ſtones, nor can they leave them with ſafety during the violence of the wind. This iſland in winter is no leſs inhoſpitable than Siberia, always covered with ſnow and fire, and expoſed to the cold north wind. The nakedneſs of the rocks, which form the ſurface of almoſt the whole iſland, the narrowneſs of the vallies, the reverberation of the water of the lake, which is generally quite calm in ſummer, increaſe the heat to ſuch a degree among the ſtones, that the vines which are planted round the lake ripen the grapes before the beginning of Auguſt, and the few other productions of the ſpot anticipate the uſual time of maturity. The part of the iſland under the juriſdiction of Pago, produces about 40,000 barrels of good wine, and about 2000 of Rakia, one year with another. The iſland is covered with ſage and odoriferous herbs, which furniſh food for the bees, inſomuch that honey forms no inconſiderable branch of trade. The paſture among barren rocks maintains alſo a large number of ſheep and goats, ſo that the wool, which is very bad, and cheeſe, furniſh ſmall articles of export. The northern part of the iſland, called "Novaglia," and depending on the government of Arba, is well ſupplied with water, and has good paſtures on its low grounds, by which its black cattle are larger and better than thoſe on any of the neighbouring iſlands, or of litoral Dalmatia. The produce of corn and oil is very ſcanty, and not ſufficient for two months ſuſtenance of the inhabitants. The moſt conſiderable product

duct of the iſland is ſalt: the ſalt-works belonging partly to the government, and partly to private proprietors. The northern extreme of the iſland, called "Punta di Loni," is abundantly ſupplied with wood for various purpoſes, though other parts are wholly deſtitute. The roots and trunks of old olive trees afford excellent materials for the cabinet-makers and ſculptors. The ſoil of the iſland, that is, of the land lying on the declivity and at the bottom of the hills, is very gravelly and light; but on the northern extremity, where are plains, though ſtony, the land is better and ſtronger, and might be cultivated for all ſorts of corn. The whole number of inhabitants amounts only to 3500, moſt of whom live in the city of Pago, which is ſuppoſed to contain 3000. N. lat. 44° 40′. E. long. 15° 10′.

Pago, a town of the above iſland, built by the Venetians in the year 1468. This city has undergone various revolutions. The difficulty of acceſs to it, and the bad accommodation it affords to ſtrangers, render the intercourſe with it very unfrequent; and to this circumſtance it is owing that the inhabitants are as wild and unpoliſhed, as if they were ever ſo remote from the ſea, and the commerce of polite people. Even the gentry exhibit groteſque figures, both in their dreſs and behaviour; and the ignorance of the clergy is incredible.

PAGOD, or **Pagoda**, a name which the Portugueſe have given to all the temples of the Indians, and all the idolaters of the Eaſt.

Theſe pagods, or pagodas, are moſtly ſquare; they are ſtone buildings, which are not very lofty, and are crowned with a cupola. Within, they are very dark; for they have no windows, and only receive their light through the entrance. The image of the idol ſtands in the deepeſt and darkeſt receſs of the temple; it is of a monſtrous ſhape, and of uncouth dimenſions, having many arms and hands. Some of theſe idols have eight, and others ſixteen arms; with a human body, and the head of a dog, with drawn bows and inſtruments of war in their hands. Some of them are black, others of a yellowiſh hue. In ſome pagodas there are no images, but only a ſingle black, poliſhed ſtone, lying upon a round altar, covered with flowers and ſandal-wood, which were ſtrewed upon it. Greater veneration is manifeſted for theſe ſtones than for the idols themſelves. Their worſhip of theſe divinities conſiſts in throwing themſelves upon the ground, and making their ſalam, or ſalutation, with their hands, and ejaculating their prayers in ſilence, in that poſture. The offerings which they are accuſtomed to preſent to their gods conſiſt of flowers, rice, pieces of ſilk and cotton, and ſometimes gold and ſilver. Every thing is laid before the idols, and is taken care of by the Brahmins, who profit the moſt by it. They guard the pagodas both by day and night. The pagodas of China are lofty towers, which ſometimes riſe to the height of nine ſtories, of more than 20 feet each.

In order to give ſuch an idea of theſe buildings as may enable the reader to judge with reſpect to the early ſtate of arts in India, we ſhall briefly deſcribe two, of which we have the moſt accurate accounts. The entry to the pagoda of Chillambrum near Porto Novo, on the Coromandel coaſt, held in high veneration on account of its antiquity, is by a ſtately gate under a pyramid, 122 feet in height, built with large ſtones above forty feet long, and more than five feet ſquare, and all covered with plates of copper, adorned with an immenſe variety of figures, neatly executed. The whole ſtructure extends 1332 feet in one direction, and 936 in another. Some of the ornamental parts are finiſhed with an elegance entitled to the admiration of the moſt ingenious artiſts. The pagoda of Seringham, ſuperior in ſanctity to that of Chillambrum, ſurpaſſes it as much in grandeur; and, fortunately, we can convey a more perfect idea of it by adopting the words of an elegant and accurate hiſtorian. This pagoda is ſituated about a mile from the weſtern extremity of the iſland of Seringham, formed by the diviſion of the great river Caveri into two channels. "It is compoſed of ſeven ſquare incloſures, one within the other, the walls of which are twenty-five feet high, and four thick. Theſe incloſures are 350 feet diſtant from one another, and each has four large gates with a high tower; which are placed, one in the middle of each ſide of the incloſure, and oppoſite to the four cardinal points. The outward wall is near four miles in circumference, and its gateway to the ſouth is ornamented with pillars, ſeveral of which are ſingle ſtones, thirty-three feet long, and nearly five in diameter; and thoſe which form the roof are ſtill larger; in the inmoſt incloſures are the chapels. About half a mile to the eaſt of Seringham, and nearer to the Caveri than the Coleroon, is another large pagoda, called Jembikiſma; but this has only one incloſure. The extreme veneration in which Seringham is held, ariſes from a belief that it contains that identical image of the god Wiſtchnu, which uſed to be worſhipped by the god Brahma. Pilgrims from all parts of the peninſula come here to obtain abſolution, and none come without an offering of money; and a large part of the revenue of the iſland is allotted for the maintenance of the Brahmins who inhabit the pagoda; and theſe, with their families, formerly compoſed a multitude not leſs than 40,000 ſouls, maintained, without labour, by the liberality of ſuperſtition. Here, as in all the other great pagodas of India, the Brahmins live in a ſubordination which knows no reſiſtance, and ſlumber in a voluptuouſneſs which knows no wants."

The pagods of the Chineſe and Siameſe are exceedingly magnificent.

The revenues of the pagod of Janigrade are ſo great, as to ſubſiſt, every day, from fifteen to twenty thouſand pilgrims.

Pagod is alſo uſed for the idol adored in the temple.

Hence many give the name pagod to thoſe little porcelain images brought from China.

Pagod, or *Pagoda*, is alſo the name of a gold coin, current in ſeveral parts of the Indies, on the footing of the piece of eight.

There are alſo ſilver pagods, ſtruck at Narſingua, Biſnagur, &c. which uſually bear the figure of ſome monſtrous idol: whence their names. They are of various values.

Accounts are kept at Madras, or Fort St. George, on the Coromandel coaſt, in pagodas, fanams, and caſh; 80 caſh = 1 fanam, and 42 fanams = 1 pagoda. Such is the mode of reckoning uſed by the Eaſt India company, and other European merchants, but among the natives, the value of the pagoda varies from 44 to 46 fanams. The gold coins are ſtar or current pagodas; and the ſilver coins, Arcot rupees. Double and ſingle fanams are current here, and copper pieces of 20 caſh, called pice. Alſo pieces of five and ten caſh, called doodee, and ſingle caſh pieces: theſe copper coins are ſtruck in England, bearing the date of 1803, and the value is marked upon each. The ſtar pagoda weighs 52.56 Engliſh grains, and the gold is 19½ carats fine; it therefore contains 42.048 grains of fine gold, and is worth 7*s.* 5¾*d.* ſterling; but it is commonly valued at 8*s.* In the company's books, 100 ſtar pagodas are valued at 425 current rupees; and 10 ſtar pagodas at 16 Spaniſh dollars. Many other coins circulate on the Coromandel coaſt, of which the moſt generally current are the following; *viz.* the old pagoda, with three ſwamy, or figures, coined at Madras and Negapatam, which is about 20⅔ carats fine, and which generally bears a batta, *i. e.* an agio or diſcount of 10 *per cent.* againſt the new coins of the ſame places: the old pagoda of Negapatam and Tutocoryn, which is of the ſame value as the ſtar pagoda: the new pagoda of Negapatam and Tutocoryn, which is 18¼ carats fine; and is reckoned about 4 *per cent.* worſe than the ſtar pagoda: the Porto Nova pagoda, which is 17¾ carats fine; and is about 20 *per cent.* worſe than the ſtar pagodas: the Pondicherry pagoda, originally equal in value to the ſtar pagoda, but its ſtandard has been lowered to 17 carats, and even leſs. All theſe different pagodas are nearly of the ſame weight. Mohurs, or gold rupees of Bengal, occaſionally paſs here for four ſtar pagodas. There are alſo gold fanams, which are only $7\frac{1}{12}$ carats fine, and are alloyed chiefly with ſilver; 24 of theſe are reckoned for an old Negapatam pagoda.

Gold and ſilver are weighed by the current or ſtar pagoda weight, as above ſtated. At Mangalore, on the Malabar coaſt, accounts are kept in Sultannee pagodas, rupees, and annas; the pagoda being four rupees, and the rupee, 16 annas: others divide the pagoda into 10 hunas, and the huna into 16 parts, called likewiſe annas. At Maſulipatam, on the Coromandel coaſt, accounts are kept in pagodas, rupees, and annas; the pagoda being 3½ ſilver rupees, and the rupee 16 annas. The coins, beſides gold and ſilver rupees, are pagodas of nearly the value of the ſtar pagoda of Madras.

In the Myſore country, and particularly at the capital, Seringapatam, accounts are kept in Canter'raia pagodas, and palams, called by the Engliſh Cantery pagodas and fanams. This pagoda is an imaginary money, and the fanam, which is a real coin, is the 10th part of the pagoda. The coins are gold mohurs, which paſs for four pagodas; ſultany pagodas, coined by Tippoo Sultan, and other pagodas, coined by Hyder Ally, and by the rajah of Myſore, all paſſing for 13 fanams: alſo, ſultany rupees, and rajah rupees, 26 of which paſs for 7 ſultany pagodas; copper dudus, called by the Engliſh dubs, 260 of which are the market price for a ſultany pagoda. The ſhroffs, when they exchange copper for gold or ſilver, pay at the rate of 234 dudus for a pagoda; but when they change gold and ſilver for copper, they receive 240; whilſt the price fixed by government is 182 dudus *per* pagoda: and the other coins exchange in proportion. At Pondicherry, the coins are gold pagodas, and ſilver rupees and fanams. Gold and ſilver are weighed by the ſeer, pagoda, rupee, and fanam. A pagoda weighs 9 fanams, or 144 nellos; ſo that three rupees are equal in weight to 10 pagodas; 71½ pagodas weigh a French mark, or 3778 Engliſh grains.

The following table ſhews the aſſay, &c. of the ſeveral pagodas which it ſpecifies, W. every where denoting worſe than Engliſh ſtandard, and the mint price of gold in England, that is *3l. 17s. 10½d. per* ounce, being ſtandard.

	Aſſay.			Weight.			Contents in pure Gold.	Value in Sterling.		
		car.	gr.	oz.	dwt.	gr.	grains.	*£.*	*s.*	*d.*
* Star pagoda - - - - - -	W.	3	0	0	2	4¾	42.	0	7	5¼
Old Arcot ditto - - - - -	W.	3	2	0	2	4½	40.5	0	7	2
New Arcot ditto - - - - -	W.	7	1	0	2	4½	32.4	0	5	8¾
Onore ditto - - - - - -	W.	1	3¼	0	2	4½	44.2	0	7	10
Mangalore ditto - - - - -	W.	1	2½	0	2	4½	44.6	0	7	10¾
Pagoda, with a creſcent and three figures - - - -	W.	1	3¼	0	2	5¼	44.7	0	7	11
Pagoda, with a creſcent and one figure - - - -	W.	2	1¾	0	2	4	42.4	0	7	6
Pagoda of Pondicherry - - - -	W.	5	0	0	2	4½	36.2	0	6	5
Hyderee Hoon, or pagoda - - - -	W.	2	1¼	0	2	4¾	43.3	0	7	8
Sultanee Hoon, or pagoda - - - -	W.	0	3¼	0	2	4¾	47.5	0	8	5

* N. B. The fineneſs of the ſtar pagodas varies from W. 2 car. 3 gr. to W. 3 car. 0½ gr.

The pagodas differ in ſhape from all European coins: they have a convex ſide, with prominent dots, and a flat ſide which generally bears a figure, and in ſome three figures, of Indian idols. The ſtar pagoda is marked on the convex ſide with a ſtar; other pagodas are marked with a creſcent, or with an initial letter; the pagodas of Maſulipatam and Pondicherry have nothing on the convex ſide but the dots. Tippoo's pagodas have no figure on the flat ſide, but a legend which is tranſlated thus: "Mahomet, he is the authority of equity," with the date of the Hegira: on the convex ſide, the name of the place where it was coined, and generally the initial of Hyder. Kelly's Univerſal Cambiſt.

Pagoda *Bay*, in *Geography*, a bay on the Eaſt coaſt of Cochinchina. N. lat. 12° 21′. E. long. 109° 4′.

PAGON, or St. Ignatius, one of the Ladrone iſlands, about 36 miles in circumference; 30 miles N. of Amalagan.

PAGOOR, a town of Bootan; 16 miles S. of Taſſaſudon.

PAGOUA Bay, a bay on the eaſt coaſt of the iſland of Dominica. N. lat. 15° 18′. W. long. 61° 19′.

PAGOYUM, a word uſed by Paracelſus and his followers, to expreſs an imaginary being, which preſides over, or is the occaſion of diſeaſes, whoſe cauſes are leſs known, and which have been ſuppoſed to ariſe from inchantment. Such is the doctrine of this ſtrange writer, and on this ſubject he has written a treatiſe called *Pagoyus.*

PAGRUS, in *Ichthyology*, a ſpecies of *Sparus*; which ſee. See alſo Sparus *Dentex*, and Sparus *Erythrinus.*

PAGUL, in *Geography*, a town of Africa, in Whidah; ſix miles N.W. of Sabi.

PAHA-CACHON, a town of Thibet; 100 miles S.W. of Hara-Toubé.

PAHANG, Pahan, or *Pân*, a ſea-port town on the E. coaſt of Malacca, called by the Portugueſe "Paon," and by the Arabs "Fân." It is ſituated about four leagues from the ſea, and inhabited only by nobility, the people dwelling in the ſuburbs. It is incloſed by a wall, made of the trunks of trees joined cloſe together, and about 24 feet in height, ſtrengthened with a baſtion. The ſtreets are fenced on both ſides with hedges of reeds, and planted with cocoa and other trees; ſo that Pahang appears more like an aſſemblage of gardens than a regular town. The houſes are conſtructed of reeds and ſtraw, the king's palace only being of wood: for Pahang was formerly the capital of a kingdom, but it is now part of Johor. The adjacent country is low, but fertile, producing pepper, eagle and calambac woods, coarſe gold, nutmegs, Sapan wood, diamonds, and hog-ſtones, deemed of ſuperior efficacy to bezoar-ſtones. In the interior of the country elephants are numerous. N. lat. 3° 40′. E. long. 103° 36′.

Pahang, or *Pulo-Pahang*, a ſmall iſland near the coaſt of Malacca; five miles E. from the town of Pahang.

PAHARGUNGE, a town of Bengal; ten miles S.W. of Beyhar.

PAHAVENS, a town of Perſia, in the province of Irak; 30 miles W. of Jeſd.

PAHICH, a town of Arabia, in the province of Hedsjas; 60 miles S.E. of Medina.

PAHIE is one of the claſſes of canoes or boats uſed by the inhabitants of the iſlands in the South ſea. The pahie is of different ſizes, from ſixty to thirty feet long, but very narrow; a tranſverſe ſection of it reſembles the ſpade of cards, the whole being much wider in proportion to its length. The largeſt pahies are uſed for fighting, in which caſe they are fitted with a ſtage or platform; but principally for long voyages. Hawkeſworth's Voy. vol. ii. p. 222, &c. See Boat (*Pahie.*)

PAHO, in *Geography*, a river on the W. coaſt of the iſle of Celebes, which runs into the ſtraits of Macaſſar. S. lat. 3° 10′. E. long. 119° 52′.

PAHVA, a ſmall iſland on the coaſt of Finland, with a town upon it. N. lat. 60° 29′. E. long. 21° 30′.

PAHVITTRAM, a town of Hindooſtan, in the Carnatic; 14 miles E.S.E. of Coveriporum.

PAJACK, in *Commerce*, a corn meaſure in Ruſſia: thus, the chetwert or cool of corn is 2 oſmins, 4 pajacks, 8 chetwericks, or 64 garaitzy. A cool of flour is 9 poods, and a ſack 5 poods. The chetwerick is 13½ Engliſh inches in diameter, and 11½ in depth; it therefore meaſures 1555,92 cubic inches, and contains 5¾ Wincheſter gallons nearly. In buſineſs the uſual calculation is, that 100 chetwerts produce 72 quarters, and 1 chetwert 5¾ buſhels, Wincheſter meaſure.

PAJANA, in *Geography*, a lake of Sweden, in the province of Tavaſtland, about 100 miles in length.

PAJAS, a town of Aſiatic Turkey, in the government of Maraſch and bay of Alexandretta; five miles W. of Alexandretta.

PAJAUNNY, a town of Hindooſtan, in Oude; 30 miles W. of Kairabad.

PAICHAM, a town of Chineſe Tartary. N. lat. 42° 42′. E. long. 120° 22′.

PAIDORFF, a town of the duchy of Stiria; ſix miles N. of Muehrau.

PAIGLES, in *Botany*. See Primula.

PAIJALA, in *Geography*, a town of Sweden, in Weſt Bothnia; 86 miles N. of Tornea.

PAIL, in *Rural Economy*, a wooden veſſel in which milk, water, or other fluids are commonly carried.

Pail-*Bruſh*, in *Agriculture*, a ſort of hard bruſh furniſhed with briſtles at the end to clean out the angles of the veſſels more fully. Theſe ought to be in every dairy, though in many diſtricts their uſe is ſcarcely known.

Pail-*Stake*, in *Rural Economy*, a ſimple contrivance for drying dairy utenſils upon, being merely a bough of a tree furniſhed with different ſmall branches, which is fixed with its thick end into the ground in the dairy-yard. The ſeveral ſmall branches being lopped of proper lengths, the ſtumps afford pegs for hanging the pails upon, or for other utenſils, by which they are not liable to be blown down and thereby burſt or injured.

PAILLY, in *Geography*, a town of Hindooſtan, in Viſiapour; five miles S.S.W. of Sattarah.

PAIMBŒUF, or Painbœuf, a town of France, and principal place of a diſtrict, in the department of the Lower Loire, ſituated at the mouth of the Loire, 21 miles W. of Nantes. The place contains 4220, and the canton 6047 inhabitants, on a territory of 72½ kiliometres, in three communes. N. lat. 47° 17′. W. long. 1° 97′.

PAIMPOL, a town of France, in the department of the North Coaſts, and chief place of a canton, in the diſtrict of St. Brieuc; ſeven miles E. of Treguier. The place contains 1679, and the canton 16,319 inhabitants, on a territory of 127½ kiliometres, in 11 communes.

PAIN, Dolor, αλγη, in *Medicine*, an uneaſy and diſtreſſing ſenſation, which is connected with various forms of diſeaſe, and with various ſpecies of injury, inflicted upon the living body.

As we are altogether unable to explain the nature of ſenſation, and the agency of the nervous ſyſtem, as the organ of that faculty; ſo it is impoſſible to give any ſatisfactory account of the proximate cauſe of pain. As in all ſimilar caſes, we muſt content ourſelves with conſidering it as an ultimate fact, and with obſerving the various circumſtances under which it occurs, and the different phenomena which accompany it. All the attempts which have been made to explain its nature, being founded entirely upon hypothetical ſpeculations that have been altogether gratuitous, are juſtly exploded.

The varieties of pain can only be deſcribed by referring to the common agents by which they are excited, to the parts of the body in which they are ſeated, or to the degree and duration of their occurrence. The external agents, which produce painful ſenſations, operate variouſly upon the living body; ſome by mechanical, and ſome by chemical action upon the animal fibre; while others act by a peculiar influence upon the nervous ſyſtem, without deranging the ſtructure of the ſentient parts. The mechanical agents are all ſuch as tend to produce a ſolution of continuity in the ſolid parts, to interrupt the circulation of the blood in them, and to produce an extravaſation of the fluids from their proper veſſels: whence pain is a conſequence of blows, bruiſes, and continued preſſure, of laceration from the bites of animals, of abraſion, of the cutting and ſtabbing of ſharp inſtruments, &c. The chemical agents produce a ſolution of continuity, by inducing the parts of the living body, like dead matter, to enter into new combinations: whence pain is the conſequence of the action of fire, or intenſe heat from any ſource, and of a number of acrid ſubſtances, which corrode the ſubſtance of the body, ſuch as the ſtrong mineral acids, the pure alkalies, &c. Again, the third claſs of external cauſes of pain conſiſts of thoſe agents, which act ſpeedily upon the ſentient ſyſtem, injuring its functions, without leſion to any organic ſtructure; namely, the venomous and narcotic ſecretions of animals and vegetables, which are called poiſons. As the operation of theſe various exciting cauſes occaſions many modifications of pain, which are probably very ſimilar in different individuals, we are thus furniſhed with a language, by which the various painful ſenſations may be deſcribed to thoſe who feel them not. Thus we ſpeak of a burning, ſtinging, pricking, gnawing, cutting, or lacerating pain. Pains are alſo diſtinguiſhed by other concomitant ſenſations, ſuch as by being connected with a ſenſe of weight, of throbbing or pulſation, of rawneſs or excoriation, of tenſion or contraction, of formication or the creeping of inſects, of ſhooting or darting through particular parts, of coldneſs, of torpor or numbneſs, and ſo forth. Some pains, again, are characteriſed by remaining fixed and immoveable; while others are flying or wandering pains, leaving one part and ſeizing upon others in ſucceſſion; and others are periodic or intermittent, ceaſing altogether for a certain number of days or hours, and recurring with great regularity, like the paroxyſms of an ague.

Many of the cauſes above-mentioned, however, do not immediately excite pain, but indirectly, by producing one of two morbid conditions, which are invariably accompanied by pain; we mean *inflammation*, or *ſpaſm*: whence pain frequently occurs, as a ſymptom of theſe diſeaſes, ariſing from internal cauſes, and independently of the violent operation of the external agents above enumerated. The diagnoſis between theſe two ſources of pain, in many maladies, is of the utmoſt practical importance, as the indications of cure are nearly of an oppoſite nature in the two caſes.

Before we come to theſe practical points, it may be proper to notice ſome pathological facts, which are worthy of obſervation. It is obvious, that the nervous ſyſtem is the medium of ſenſation, or the communicating link between the parts receiving the impreſſion, and the common ſenſorium, the brain, where the perception is produced. For if the nervous trunks are divided, and the communication cut off, the parts of the body, ſo inſulated, may be cut or otherwiſe injured without pain, and even without the cognizance of the individual. Hence the pain cannot be ſaid ſtrictly to be ſeated in the part to which the ſenſation is referred. This is illuſtrated in a remarkable manner in caſe of the loſs of limbs by amputation or accident. The patients, in theſe inſtances, often complan of pain in the fingers or toes of their loſt arm or leg; a ſenſation, which can only ariſe from the impreſſion which the wounded nerve makes upon the brain, being ſimilar to that which it had been accuſtomed to convey from the extremity of its branches, while the limb remained perfect. In other caſes, again, the pain is not even referred by the mind to the actual ſeat of the irritation which induces it, but to ſome other point, at a diſtance from it. Thus the part which is the ſeat of unceaſing ſenſation, when the cells of the lungs are loaded with mucus, blood, or other matters, is the top of the larynx, or wind-pipe, which excites the effort of coughing, to expel the offending ſubſtance, and which ſubſides when the cells are unloaded. In a ſimilar manner, in inflammation of the liver, the pain which is moſt complained of is not always ſeated in that organ, but is often referred to a ſmall ſpace at the top of the ſhoulder. And in all caſes of irritation in the urinary bladder, whether from the preſence of a ſtone or gravel in that ſac, of acrid urine, of blood, pus, or other foreign matter, the moſt poignant irritation is often ſeated at the extremity of the urethra. The facts are not eaſily explained, but are neceſſarily referred to ſome peculiar communication of ſympathy through the diſtribution of the nerves.

It is a curious fact, which has been attempted to be explained in various ways, that pain is much alleviated by certain exertions of the voluntary muſcles; whence, in all caſes of violent pain, perſons are obſerved to reſort to ſome ſpecies of exertion, ſuch as graſping any thing ſtrongly, fixing the teeth, exerting the voice in ſcreams or moaning, &c. Dr. Darwin, with his accuſtomed acuteneſs, generalizes this obſervation to a great length. “The reſtleſſneſs in ſome fevers,” he ſays, “is an almoſt perpetual exertion of this kind, excited to relieve ſome diſagreeable ſenſations; the reciprocal oppoſite exertions of a wounded worm, the alternate emproſthotonos and opiſthotonos of ſome ſpaſmodic diſeaſes; and the intervals of all convulſions, from whatever cauſe, ſeem to be owing to this circumſtance of the laws of animation; that great or univerſal *exertion* cannot exiſt at the ſame time with great or univerſal *ſenſation*, though they can exiſt reciprocally; which is probably reſolvable into the more general law, that the whole ſenſorial power being expended in one mode of exertion, there is none to ſpare for any other.” Zoonomia, vol. i. ſect. xxxiv. 1, 2.

This idea of the two great powers of motion, ſenſation and volition, in the animal machine, is, Dr. Darwin thinks, confirmed by the obſervation, that they never exiſt in a great degree or univerſally at the ſame time; and hence he would account for the fact, ſtated above, that we inſtinctively exert our voluntary motions, when ſuffering ſevere pain or uneaſineſs, and thus procure ourſelves relief. The ingenuity with which he illuſtrates the modes of exertion, in caſes of bodily ſuffering, is peculiarly his own.

“When any violent pain afflicts us, of which we can neither avoid nor remove the cauſe, we ſoon learn to endeavour to alleviate it, by exerting ſome violent voluntary effort, as mentioned above; and are naturally induced to uſe thoſe muſcles for this purpoſe, which have been in the early part of our lives moſt frequently, or moſt powerfully exerted. Now the firſt muſcles, which infants uſe moſt frequently, are thoſe of reſpiration; and on this account we gain a habit of holding our breath, at the ſame time that we uſe great efforts to exclude it, for this purpoſe of alleviating unavoidable pain; or we preſs out our breath through a ſmall aperture of the larynx, and ſcream violently, when the pain is greater than is relievable by the former mode of exertion. Thus children ſcream to relieve any pain either of body or mind, as from anger, or fear of being beaten. Hence it is curious to obſerve, that thoſe animals, who have more frequently exerted their muſcles of reſpiration violently, as in talking, barking, or grunting, as children, dogs, hogs, ſcream much more, when they are in pain, than thoſe other animals, who uſe little or no language in their common modes of life, as horſes, ſheep, and cows.

“The next moſt frequent or moſt powerful efforts, which infants are firſt tempted to produce, are thoſe with the muſcles in biting hard ſubſtances. Hence when a perſon is in great pain, the cauſe of which he cannot remove, he ſets his teeth firmly together, or bites ſome ſubſtance between them with great vehemence, as another mode of violent exertion to produce a temporary relief. Thus we have a proverb, where no help can be had in pain, “to grin and abide;” and the tortures of hell are ſaid to be attended with “gnaſhing of teeth.” Hence in violent ſpaſmodic pains, I have ſeen people bite not only their tongues, but their arms, or fingers, or any object which was near them, &c.

“If the efforts of our voluntary motions are exerted with ſtill greater energy for the relief of ſome diſagreeable ſenſation, convulſions are produced; as the various kinds of epilepſy, and ſome hyſteric paroxyſms. In all theſe diſeaſes, a pain or diſagreeable ſenſation is produced, frequently by worms, or acidity in the bowels, or by a diſeaſed nerve in the ſide, or head, or by the pain of a diſeaſed liver.” Loc. cit.

To this view of the ſubject it might perhaps be objected, that the exertions and convulſive motions, if they were excited by the pain, ſhould be proportionate to the violence of the pain; which is not the caſe. This objection, however, is entirely obviated by the conſideration, that the nervous ſyſtem ſuffers a greater degree of irritation from many ſenſations, that are even in ſome degree pleaſurable, than from intenſe pain. This is exemplified in reſpect to tickling. Children have been tickled into convulſions; and perhaps no pain is ſo intolerable as that of tickling, if the violent efforts of laughing and of moving the limbs were to be reſtrained. The writer of this article has been informed by a very intelligent gentleman, who is ſubject to conſtant and ſevere convulſive actions, of the nature of St. Vitus's dance, that they are clearly the reſult of diſagreeable ſenſations, not always amounting to what may be called pain. In this way, it ſeems to happen, that the moſt violent and fatal convulſive malady with which we are acquainted, the *tetanus*, or locked jaw, is produced from the irritation of a wound, but not from a deep and open wound, but from a ſlight abraſion of the ſkin, or from a wound that is juſt healed.

Independently, then, of the ſuffering which pain occaſions, its effects on the animal economy are ſufficiently ſevere to induce us to ſearch for the means of relieving it. It never exiſts long without exciting ſome degree of fever, and diſturbing the functions of life, eſpecially that of digeſtion; whence alſo debility and emaciation ultimately follow: frequently it brings on delirium, ſyncope, or fainting, and convulſions of every ſpecies, beſides thoſe already mentioned, and even occaſions death itſelf. In many diſeaſes, therefore, it is an important object to alleviate pain, even where ſuch alleviation has no remedial effect upon the diſeaſe, of which it is a ſymptom.

With a view to the ſucceſsful alleviation of painful diſeaſes, it is neceſſary to eſtabliſh a clear diagnoſis with reſpect to the origin of the pain; for the treatment, which will cure one variety, will aggravate another, and even accelerate the fatal termination of the diſeaſe which it accompanies.

Violent or *acute pain* originates, in general, from acute *inflammation* of ſome organ, or from *ſpaſm* in a muſcular part. The former ſpecies of pain accompanies inflammation of all the viſcera; occurring in the head, in phrenitis, or inflammation of the brain; in the cheſt, in pleuriſy, and inflammation of the heart, or of the diaphragm; in the right ſide, in inflammation of the liver; in the abdomen, in enteritis and peritonitis; in the loins, in nephritis, and ſo on. The ſpaſmodic pain occurs in the muſcles of the limbs, in cramp; in the bowels, in colic; in the ſtomach, in gaſtrodyniæ; in the uterus, during the time of parturition; and in the muſcles of the jaw and of the ſpine, in locked jaw and tetanus, &c. In ſome of theſe caſes, the obvious appearance of rigid contraction, or ſpaſm, in the muſcles of the pained parts, as in the cramp, locked jaw, and tetanus, is ſufficient to point out the nature of the pain. But in regard to the internal pains, the principal ſource of diagnoſis is the preſence or abſence of a ſtate of *fever*. Acute inflammation cannot exiſt, without an increaſed velocity of pulſe, which is alſo commonly ſtrong, or at leaſt hard, and wiry, and not eaſily compreſſible under the finger: there will alſo be thirſt, heat of ſkin, a dry and foul tongue, with failure of appetite, and ſome proſtration of ſtrength. When the pain ariſes from ſpaſm, the ſymptoms of fever are generally abſent; the pulſe is often not altered in its beats, but remains moderate, ſoft, and compreſſible; the tongue continues moiſt, and without fur; there is no particular thirſt, nor any ſenſe of heat, ſucceeding chillneſs; and the animal functions are not much diſturbed. It is principally from theſe circumſtances that the nature of pain, in any one ſeat, is aſcertained: thus in inflammation of the bowels, and in ſpaſmodic colic, the ſeat and the degree of ſeverity of the pain are often preciſely ſimilar, and can only be thus decidedly diſtinguiſhed. Some other circumſtances, however, require attention as auxiliary to the diagnoſis: for inſtance, in inflammation, *preſſure* upon the part pained aggravates the evil, and a ſenſe of *ſoreneſs* is felt under the touch; while, in ſpaſm, the parts are not generally tender, but the pain is often relieved by preſſure, and even by *friction*. In inflammatory affections, again, the pain remains *fixed* in one ſpot, and regular in the degree of its intenſity; whereas, in ſpaſmodic ailments, the pain is commonly *moveable*, wandering from one point to another, as the ſpaſm ſuddenly relaxes in one ſet of muſcular fibres, and recurs in others; and it is commonly *ſudden* in its attack, and *remittent* in its degree, being aggravated and alleviated by fits or paroxyſms.

The progreſs of an internal inflammatory diſeaſe may often be aſcertained, and the nature and period of its termination anticipated, by an attention to the variation of the pain, together with other ſymptoms. Thus if, after ſome continuance, an acute inflammatory pain gradually becomes more obtuſe, is accompanied with a ſenſe of weight and tenſion, and at length with a ſenſation of throbbing or pulſation, it is moſt probable that ſuppuration has commenced, and that the diſeaſe muſt terminate in abſceſs; and there will be no doubt of this, if at the ſame time the fever begins to remit, and paroxyſms of rigour, followed by fluſhes of heat, come on daily: in other words, if the fever put on a hectic type. Again, if, during the continued ſeverity of the pain and fever, the former ſhould *ſuddenly ceaſe* altogether, the practitioner is not to ſuppoſe his patient recovering: it is probably an indication that *gangrene* has come on, and that the life of his patient is near its cloſe. This will be placed beyond a doubt, if, at the time of the ceſſation of pain, the pulſe loſes its ſharpneſs, and becomes ſmall and feeble, with a tendency to coldneſs in the extremities, and a ſinking of ſtrength.

Another material conſideration, in eſtimating the probable event of a painful diſeaſe, is the importance of the organ in which it is ſeated. An inflammation in any of the viſcera, immediately ſubſervient to the great functions of the living body, is always attended with danger, eſpecially in the brain, ſtomach, or bowels; becauſe the functions of theſe organs cannot be interrupted with ſafety to the vital machine. But an inflammation, however violent, may occur in the external muſcular or ligamentous parts, as in the joints and limbs, without much riſk to the ſafety of the ſyſtem. It is never to be forgotten, however, that what is called a *metaſtaſis* of ſuch external inflammation to an internal organ, (of which both gout and acute rheumatiſm afford many examples,) that is, the occurrence of inflammation in ſome internal viſcus, immediately upon the ſpontaneous diſappearance of external inflammation, is always an alarming circumſtance, and leads to an unfavourable prognoſis.

Of the more chronic varieties of pain, it is not neceſſary to treat at any length, as they are commonly accompanied by other ſymptoms of diſeaſe, which are equal objects of medical attention, and which contribute to point out the nature of the malady.

The diagnoſis being once eſtabliſhed, in caſes of acute pain, according to the principles above ſtated, the ſelection of the proper *means of cure* will be perfectly eaſy: but if a miſtake is committed in determining the firſt point, the miſapplication of the remedies will be of ſerious injury. For if the expedients, which will preſently alleviate ſpaſmodic pain, be adminiſtered for the removal of that which is inflammatory, it is ſcarcely poſſible that aggravation ſhould not follow;

and in many caſes, on the contrary, when the proper remedies for inflammation are applied for the relief of ſpaſmodic pain, an injurious effect, ſcarcely leſs ſevere, may be expected to reſult. Yet in the popular practice, no miſtake is ſo common as the former of theſe errors.

For the cure of violent inflammatory pain, ſuch as occurs in phrenſy, pleuriſy, and inflammation of the ſtomach or bowels, evacuations by blood-letting, both general and local, by external veſication, and by the uſe of cathartics, are the means which muſt be adopted, and executed with expedition; while every ſtimulus, in the way of food, drink, and medicine, muſt be cautiouſly interdicted, and the whole antiphlogiſtic ſyſtem rigidly purſued. But in the feeble and debilitated conſtitutions, in which ſpaſmodic diſeaſes often occur, ſuch a plan might aggravate the malady, and reduce the conſtitutional powers to a dangerous ſtate of imbecility. On the other hand, in the conſtitutions juſt deſcribed, and in moſt caſes of ſpaſmodic pain, the moſt effectual remedies are opiates, combined with ſtimulants of the moſt powerful and diffuſible kind, ſuch as alcohol, ſuſpending the ſtimulant gums and eſſential oils, ammonia, preparations of ether, &c. Yet it is ſcarcely neceſſary to remark, how directly adverſe to inflammatory affections ſuch medicines muſt prove. It is, therefore, lamentable to reflect upon the indiſcriminate reſort, which is popularly made to ſpirituous and hot liquors, under all internal pains, eſpecially in their commencement; and the neceſſity of attending to the marks of diſtinction above pointed out, or of delaying all remedies until proper medical aſſiſtance be procured, in caſes of the attacks of ſuch diſeaſes, cannot be too ſtrongly enforced.

PAINS, *After*, in *Midwifery*. See AFTER *Throes* or *Pains*.

PAIN-*d'Abeiles*, a word uſed by ſome to expreſs what the ancients called *ambroſia*, or the yellow ſubſtance found concreted in lumps on the legs of bees, and ſuppoſed by the generality of the world to be real wax.

Experiments made by Mr. Reaumur and others, have ſufficiently proved that this ſubſtance is not wax, nor has it any of the properties of wax; but it has been conjectured, that this is the matter out of which wax is finally made.

In tracing this ſubſtance up to its origin, we find that the bees collect the farina of flowers, which, when moulded by their feet into a lump, makes this matter. It is very probable, that they feed on this matter, and, as ſome imagine, after paſſing through certain changes in their bodies, it becomes wax. This was an opinion ſo old as the days of Pliny; ſome of the authors he quotes calling this ſubſtance *ambroſia*, or the food of theſe little deities; but later obſervations overthrew this opinion, till it again got credit under the more accurate examinations made by Mr. Reaumur, on the ſtructure and parts of the bee. This is a food not only eaten occaſionally by the bees, but neceſſary to their ſupport, and is found ſtored up in their hives againſt a bad ſeaſon. The combs have their different cells made for different purpoſes; and, beſide that, ſome are deſtined for receiving honey, and ſome for the young worms which are hereafter to become bees; there are ſome alſo which ſerve to contain this yellow matter, collected on the legs of theſe inſects. In fine weather, when more of this matter is collected than is eaten for immediate nouriſhment, the bees ſcrape off the lumps of it from their legs into ſome of the holes, or cells of the combs, where, others following their example, there finally become large reſerves of it; which are eaten on ſuch days when they cannot go out in ſearch of more.

The bee collects this yellow matter, which, according to Reaumur, is the prime conſtituent of the wax, from whatever flowers happen to be moſt plentiful about the hives; and though generally yellow, as the farina of moſt plants is ſo, yet it is ſometimes ſeen in red or green lumps on their thighs; but whatever be its natural colour, it is always turned yellow before it is diſcharged from the body of the animal; and when the ſtomach of any of them is diſſected, after feeding on a red ſubſtance collected from flowers, the farina of which is of that colour, the change is found to be made as to colour in this part, for the whole is found there in form of a yellow jelly. This matter, taken out of the ſtomachs of ſeveral bees, and dried, is found to be of a diſagreeable ſmell, like fermented matter, and of a pungency ſomewhat reſembling that of the volatile ſalts. Mr. Reaumur was hence induced to try the effect of the volatile ſalts in turning the bees bread, or rough wax, into perfect wax by digeſtions, continued a long time, but in vain. If we may give credit, however, to the German Ephemerides, there is a much more eaſy way of reducing this matter, while yet contained in the apices of the plant, into true wax; and that without the aſſiſtance of the work of the bees. Mr. David Maja gives an account, in thoſe papers, that the perſons he employed in beating roſes into conſerve, always obſerved in the pounding of the roſes, before the ſugar was put to them, that a piece of ſolid but ſoft matter was found adhering to the peſtle of the mortar, which, on a ſtrict examination, proved to be true and genuine wax. It appeared from this experiment that the juice of the petals or leaves of the roſes, was able, by the aſſiſtance of beating, to convert into true wax the farina contained in the apices of that flower. Mr. Reaumur tried what effect the juice of roſes would have on the yellow matter collected on the legs of the bees, and on the farina of plants, but no treatment he could give theſe ſubſtances was ever able to produce wax. Mr. Reaumur alleges as an abſolute proof, that the bees eat the rough wax or bees bread; that, by obſerving the bees of a certain hive to come home loaded with it every day, ſeveral times over, during the month of April, and a great part of May; and after this, opening and examining the hive they belonged to, there were found no new combs, nor were the old bees enlarged in ſize; it is true, that there were ſome cells found filled with magazines of this matter, but as the far greater part was brought to no ſort of account, it ſeems very plain that they had eat it. It is to be obſerved, that the bees have their ſeveral periods of going out in ſearch of this matter and of honey: it would be too fatiguing for them to be always thus at work; and to avoid this there is always a very large part of them, even more than half the hive, found at reſt within it; theſe are ſuch as have worked till they are tired, and the others in turn take this manner of reſting, and ſend theſe out to work again. Reaumur's Hiſt. Inſ. vol. x. p. 68.

But it is neceſſary to add, that Butler, Purchas, Ruſden, and Thorley, very accurate obſervers of the various operations of bees, have urged ſeveral arguments to diſprove the identity of the ſubſtance now deſcribed, and wax. When the hives, they ſay, have been for a year or more filled with combs down to the floor, and there is no more room to build, the bees carry in this matter in the greateſt plenty; and even when no more wax is wanting, beſides the ſmall quantity which is required for ſealing up the honey and the breeding cells. They alſo urge, that this ſubſtance is very different from wax; as the particles of the former will ſeparate from each other, and be crumbled to powder when examined between the fingers, whereas thoſe of the latter will adhere, and cleave together; and if the one be carried to the fire, it will melt and diſſolve, whereas the other will be converted into aſhes and duſt. The difference of the colours of this ſubſtance is an additional proof that it was not wax, which, when it is gathered and wrought into combs, is always white, and the change of its colour is owing merely to the age of the combs, and breath of the bees. Beſides, it is obſerved, that new ſwarms for the firſt, ſecond, or third day, carry in little or nothing of this matter; though in that ſpace of time they have conveyed into the hive ſufficient quantities of wax, formed into ſeveral large combs: on the contrary, when they carry in the greateſt quantity of this matter, they collect the leſs wax: becauſe the new ſwarms want the wax, and the old ſtocks want food and nouriſhment for their young. Moreover, Mr. Thorley found upon the belly of a bee, which he caught as it was entering the hive, within the plaits, no leſs than ſix pieces of ſolid wax, perfectly white and tranſparent: and he has alſo at other times found wax in the ſame ſituation. Thorley's Inquiry into the Nature, &c. of Bees, ed. 1774, p. 106. See Wax.

PAINE *Fort*, *&* *Dure*, in *Law*, an eſpecial puniſhment, formerly inflicted on one, who, being arraigned of felony, refuſed to put himſelf upon the ordinary trial of God and his country, and thereby ſtood mute by the interpretation of law.

This is vulgarly called *preſſing to death*. The proceſs whereof is thus deſcribed:

"He ſhall be ſent back to the priſon, whence he came; and be laid in ſome low dark room, where he ſhall lie naked on the earth, without any litter, ruſhes, or other cloathing, and without any raiment about him, but only ſomething to cover his privy members; and he ſhall lie upon his back with his head covered, and his feet; and one arm ſhall be drawn to one quarter of the room, with a cord, and the other arm to another quarter, and his legs in the ſame manner; then let there be laid upon his body iron, or ſtone, as much as he may bear, or more; and the next day following, he ſhall have three morſels of barley-bread without drink; and the ſecond day he ſhall have drink three times, as much at each time as he can drink, of the water next unto the priſon, except it be running water, without any bread; and this ſhall be his diet, till he dies."

This ſpecies of puniſhment is now diſcontinued by 12 G. III. cap. 20. See Mute.

PAINIM, the ſame with Pagan.

PAINOM Jeung, in *Geography*, a town of Thibet, on the Painom-tchieu; 122 miles S.S.W. of Laſſa. N. lat. 29°. E. long. 89° 8′.

PAINOM-TCHIEU, a river of Thibet, which runs into the Burhampooter; 15 miles S. of Sgigatchee-Jeung.

PAINOUC, a town of Chineſe Tartary. N. lat. 41° 56′. E. long. 119° 49′.

PAINSWICK, a ſmall market-town in the hundred of Biſley, and county of Glouceſter, England, is ſeated on the ſouthern declivity of Sponebed-hill, at the diſtance of ſix miles S.S.E. from the city of Gloceſter, and 101 miles W. by N. from London. It is a town of conſiderable antiquity, being mentioned in Domeſday book under the name of Wiche. The manor then belonged to Roger de Laci, who, joining in the rebellion excited by Robert Curthoſe againſt his father, was deprived of all his poſſeſſions. On this event Painſwick became the lordſhip of Pain Fitz-John, from whom it derived the former part of its preſent deſignation. Since that period it has been inherited by ſeveral noble perſonages, and among others by the lords Talbot, one of whom obtained a grant, in the year 1400, to recompenſe the widows of thoſe perſons who were ſlain in foreign wars, "it having been repreſented that eleven married men out of ſixteen had loſt their lives beyond the ſea; and the widows were allowed to marry with whom they liſt."

Painſwick conſiſts of ſeveral ſtreets, very irregularly built. The church, dedicated to St. Mary, is the only edifice worthy of notice. This building has a nave, a chancel, and a north and ſouth aiſle, with a tower and ſpire at the weſt end, riſing to the height of one hundred and ſeventy-four feet. Its ſtyle of architecture is mixed and incongruous; the ſouth aiſle, which is modern, is ſupported by Doric pillars, and the entrance is beneath an Ionic portico, while the body of the church is in the pointed ſtyle. The ſpouts under the battlements of the north aiſle, repreſent ſingularly groteſque heads of demons. In the chancel are ſeveral monuments of the Jerningham family.

According to the parliamentary returns of 1811, this town and pariſh contains 674 houſes, and a population of 3201 perſons, a great proportion of whom are employed in the woollen trade.

Above the town, on the ſummit of Sponebed-hill, is an ancient entrenchment, deſignated by the different appellations of Kimſbury-caſtle, King's-Barrow, and Caſtle-Godwin. This fortification is of a ſquare ſhape, and has a double ditch and vallum. The inner rampart incloſes an area of about three acres, and as well as the outer one is ſtill of conſiderable height, though both have of late years ſuffered great dilapidation for the ſake of the ſtones employed in conſtructing them. This encampment is ſuppoſed to have been of Roman origin, as coins of that people are frequently dug up within its area. It was afterwards, however, occupied by earl Godwin during the inſurrection made for the expulſion of all foreigners from the kingdom; and again by the royaliſt army after the ſiege of Gloceſter, in the time of the grand rebellion. The poſition of this entrenchment, in a military view, is excellent, as from its loftineſs it overlooks a large tract of the adjacent country.

Haresfield pariſh, to the weſtward of Painſwick, contains ſome veſtiges of antiquity. On the high ridge of hills, which ſhelter the village, is a very ſingular entrenchment, conjectured to have been a ſtation of the Romanized Britons. It extends on one ſide 600 yards in length, and is defended by a ſingle vallum fifteen feet high. Connected with this work is another, (partly in the pariſh of Standiſh,) which incloſes the bold promontory, called Beacon-hill, by a "tranſverſe vallation fifty feet deep, and containing fifteen acres." At Hareſcomb is the ſcite of an ancient caſtle of the Bohuns. Beauties of England and Wales, vol. v. by E. W. Brayley and John Britton, F.S.A. Bigland's Hiſtory of Gloceſterſhire, vol. ii.

PAINT, Black Oil, in the *Arts*, is prepared by grinding, with a proper quantity of oil, the charcoal or ſoot blacks, or the natural black earths, or the pit-coal, till they are united into a ſmooth, uniform, thick compound, which is occaſionally diluted with more oil to a due conſiſtence for being worked freely with the bruſh or pencil. The fineſt black colour is made with ivory black, ground before the addition of the oil, into an impalpable powder. The material moſt commonly made uſe of is lamp-black, the unctuoſity of which diſpoſes it to mix more eaſily and perfectly with oil than other pigments; but it derives hence the imperfection and diſadvantage of drying ſlowly, which may be remedied by a due preparation of the oil; as by ſetting it on fire, and boiling it, as in the method of making printing-ink. An opaque deep black paint with water, is made by grinding ivory-black with gum water, or with the liquid which ſettles from white of eggs, after they have been beaten up and ſuffered to ſtand a little. Some uſe gum-water and the white of eggs together; and obſerve that a ſmall addition of the latter makes the mixture flow more freely from the pencil, and improves its gloſſineſs. Lewis's Com. Phil. Techn p. 356, &c.

PAINTED LADY, among the *Floriſts*, a term for a particular ſort of carnations, the flowers of which have all their petals red or purple on the outſide, and white underneath.

PAINTED *Lady Pea*, in *Gardening*, the common name of an ornamental pea. See LATHYRUS.

PAINTED *Poſt*, in *Geography*, a townſhip of America, in Steuben county, New York, on Tioga river, between Bath and Newtown; containing 262 inhabitants.

PAINTEN, a town of Bavaria, in the principality of Neuburg; 11 miles W. of Ratiſbon.

PAINTER, in *Naval Language*, a rope employed to faſten a boat either alongſide of the ſhip to which it belongs, or to ſome wharf, key, &c. as occaſion requires. See SHANK-*Painter*.

PAINTER, in the *Hiſtory of the Arts*, one who poſſeſſes and practiſes the art of painting.

PAINTER'*s Harbour*, in *Geography*, a port on the W. coaſt of Cape Breton. N. lat. 46° 22'. W. long. 61° 16'.

PAINTERS, *Houſe*. The price of painters work is limited by ſtatute. and they ſhall not take above 16*d*. a-day, for laying any flat colour, mingled with oil or ſize, upon timber, ſtone, &c. and plaiſterers are forbid uſing the trade of a painter in London, or to lay any colours of painting, unleſs they are ſervants to painters, &c. on pain of 5*l*. But they may uſe whiting, blacking, red lead, ochre, &c. mixed with ſize only, ſtat. 1 Jac. I. cap. 23.

Painting is meaſured by the ſquare yard in the ſame manner as wainſcoting, the mouldings being meaſured by a thread; the ſaſhes of windows are paid for by the piece; and it is uſual to allow double meaſure for carved mouldings, &c.

PAINTING, *the Art of*, is the art of imitating the appearances of natural objects, by means of artificial colours ſpread over a ſurface; the colouring ſubſtances being uſed either dry, as in crayon painting; or compounded with ſome fluid vehicle, as oil, water, or ſolutions of different gums and reſins in oil or ſpirits, &c.

The theory and practice of this ingenious and delightful art, are divided by its profeſſors into five principal parts; *viz. invention*, or the power of conceiving the materials proper to be introduced into a picture; *compoſition*, that of arranging thoſe materials; *deſign*, that of delineating them; *chiaro-ſcuro*, or the arrangement and management of the lights and ſhades, and of light and dark colours; and *colouring*, whoſe name ſufficiently deſignates its end.

Each of theſe principles we have already amply diſcuſſed in ſeparate articles; and our readers will alſo find the more minute, though not leſs uſeful, ſubdiviſions of them explained and illuſtrated under their reſpective deſignations. (See EFFECT, ELEGANCE, EXPRESSION, &c.) We ſhall in this place, therefore, confine ourſelves to the treatment of the ſubject generally, rather than technically; and trace its hiſtory from its firſt application as an arbitrary means employed to relate or record a mere fact, in a rude and formal manner, ſuch as it was found practiſed among the Mexicans, (ſee Robertſon's America,) to that high ſtate of cultivation, when it was employed to ſoften and mould the heart, by impreſſing it with ſentiments at once moral, lovely, and energetic.

Nature has denied to few the paſſions and feelings which are the baſis of the imitative arts; and moſt men delight in beholding their productions. The deſire of imitation appears to be ſo congenial to the mind, that one can ſcarcely imagine there could have been any lengthened period of time when it was not called into action, as an agent, either of amuſement, of information, or of inſtruction. Of drawing or painting more particularly, it appears reaſonable to ſuppoſe, that it muſt have been adopted for either or all of theſe purpoſes, in the earlieſt ſtages of human ſociety; though in its very ſimpleſt and rudeſt form.

It will be therefore a vain attempt, if we endeavour to trace the period when the art began its original eſſays, as an aſſiſtant towards communication between man and man; as a means of adorning their perſons, or amuſing their minds. A ſtate of indolence and ignorance, ſuch as that of ſavage nations whoſe ſole occupation, dictated by neceſſity, conſiſts in procuring the neceſſaries of life, by becoming acquainted with the productions of nature, never appears to have prevented the practice of the ruder elements of it; and it is not improbable that the waſte of time between the active periods of exertion in the chaſe, might itſelf have been the cauſe of the firſt ſtep towards imitation. In pure indolence of thought, or by accident, the firſt trace of form might have been made in the ſand, or on the body; or reſemblances obſerved in ſticks or ſtones, have given riſe to the idea of imitating by lines and colours the appearances of natural objects. Among the rudeſt, moſt uncultivated nations which our circumnavigators have within the two laſt centuries diſcovered, unleſs it be the natives of New Holland, and that may admit of a doubt, none are without the rudiments of art. Some exhibit it by carving what they conſider as ornamental forms, &c. on their inſtruments of war, their idols, or their utenſils. Others, in more refined attempts, adorn their perſons by coloured lines and figures; puncturing their ſkins, and rubbing in powders of various colours, which become by that means indelible. All diſplay the influence of natural principle in this particular; and from theſe rude employments of the inventive and imitative faculty, the progreſs appears neither unnatural nor difficult, till we find it adopted as a ſubſtitute for language; tranſmitting an image and record of events before the invention of writing; and even in a more univerſal, though in one view more confined manner, than that later invention is capable of.

Although thus early the art of painting may be ſuppoſed to have allured the attention of men, to have excited their inherent taſte for imitation, and in this find the baſis of a durable principle for itſelf whilſt mankind exiſts; yet, when the mere object of conveying ideas was once completed, its advance towards that cultivation of which we now know it to be capable, was extremely ſlow. Being more an adjunct to the pleaſures than the neceſſities of human life, it could not experience that attention which alone carries it forward, when time was occupied almoſt excluſively in procuring neceſſary food; and before intellectual education had made men acquainted with its true value. Painting may exiſt in a ſtate of ignorance, but has never been known to flouriſh, except at the periods wherein human cultivation was moſt aſſiduouſly encouraged, and ardently purſued; and even in the higheſt ſtages of mental acquirement, and when that art was moſt devotedly admired, and induſtriouſly practiſed, it ſtruggled with difficulties proportioned to its value, and the delight it is calculated to afford; and few have been the happy mortals who have enjoyed the bleſſing of ſhining pre-eminent in the exerciſe of it.

Such are the uncertainties attending the traditionary hiſtory of the progreſs of the arts of deſign in the countries to the eaſt of Syria, which relate to the probability of their having been firſt practiſed there, and thence travelled through

Perſia to Egypt, where they are ſaid to have been domiciliated ſix thouſand years before they were introduced into Greece; that we ſhall not ſcruple to lay them aſide, and commence our hiſtory of painting from the time when we have the earlieſt actual account of its exiſtence; *viz.* in the reign of Ninus and Semiramis, king and queen of Aſſyria; about 2000 years before the commencement of the Chriſtian era. Of the art of painting at this period, we have but a glimpſe, and are then immerſed in the ſame obſcurity as before, where nought but conjecture and arguments drawn from ſubſequent events are the guides.

Diodorus Siculus relates, lib. ii. "that Semiramis having thrown a bridge over the Euphrates at Babylon, erected a caſtle at each end of it, and encloſed them by three walls of conſiderable height, with towers upon them;" theſe were built of brick, painted and burnt. Theſe paintings exhibit a very great advance in the arts for that early period; for he ſays, "the bricks were painted before they underwent the fire," (ſo that, if this account be correct, here was enamel as well as painting), and that not only there were ſingle figures of animals repreſented in colours, but they were alſo combined in groups; one, a hunting piece of conſiderable length, wherein the queen herſelf was repreſented on horſeback, throwing her dart at a panther; and near her Ninus ſtriking a lion to the earth with his ſpear." They were of great extent, covering walls and towers attached to them. One other mention of painting is found in the ſame author, concerning the ſame period, and under the guidance of Semiramis; and that is, of paintings in the temple dedicated to Belus, and founded by her. In them were repreſented monſtrous figures, exhibiting hermaphrodites and centaurs; or unnatural combinations, probably alluſive to the idolatry of the time. Diodorus alſo mentions the ſituation of the arts in Egypt at about the ſame period, where probably they had attained nearly the ſame degree of cultivation: ſculpture, as beſt ſerving religious purpoſes, being in both countries carried much farther than the ſiſter art of painting.

From Egypt the arts were ſuppoſed to have been tranſplanted to Greece, where a more genial culture awaited them; where they had not to ſtruggle with ſuch impediments as aroſe from the government and habits of Egypt; and where alone, in the more early period of the world, they are found to have been fully brought into action. In other countries, where any trace is viſible of them, wrought before the Greeks had exhibited their power, the beſt exemplars are little better than hieroglyphics; and moſt probably they never far exceeded the efforts of youthful learners of the preſent day.

It is, doubtleſs, to the Greeks alone we are indebted for the higheſt cultivation which the imitative arts have known. In ſculpture they attained ſo high a pitch of excellence, as to remain unrivalled to this moment; and it is probable, that as far as relates to the perfect imitation of a ſingle figure, in taſte, in expreſſion, and in execution, the ſame may be ſaid of their painting: but there is much reaſon to conclude, that in many branches of that art they are ſurpaſſed by the beſt among the moderns. In Egypt, the knowledge of what is moſt deſirable in art, ſelection, never appears to have operated far. When a ſpecific form of character was once adopted, there it remained, and was repeated unchanged for generations. Little action was given to figures, and no attempt at all at expreſſion. Pliny ſays, that the ſtatues made by the Egyptians in his time, differed in no reſpect from thoſe made by them 1000 years before. Of their painting, a few figures remain to us; but their date is by no means clear. Two of them, ſeen at Thebes, and deſcribed by Bruce, are ſuppoſed by him to be of the time of Seſoſtris (about 700 years B.C.), who is ſaid to have beautified and reſtored that city; but this is mere conjecture. Of theſe paintings, he remarks, that they may be compared with good ſign-paintings of his day.

It appears very probable that the practice of improved art, improved in compariſon with the very rudeſt periods, was very widely diffuſed. Pliny, beſides mentioning the culture of it in Egypt, ſpeaks of paintings at Ardea in Italy, older than the foundation of Rome. Unfortunately we cannot follow this author preciſely, in his account of the riſe of the art in that country, any more than in Greece. By his own ſtatement, the only guides he had, except tradition, *viz.* the Greek writers, were extremely incorrect. But though we may not truſt our judgments with him on the era of the riſe of painting, yet the plan he offers us of its progreſs, the imperfection of its firſt eſſays, the gradual advance towards perfection by the addition of new and more valuable qualities, and the retrograde ſteps it fell into after it had reached its acme, preſent an order of things ſo preciſely following the ſyſtem of nature in every part, that we cannot heſitate to give complete faith to it.

After ſmiling at the claims of the Egyptians, who ſaid that the art had been known and practiſed in Egypt 6000 years before it was introduced into Greece, he ſays, that it was not practiſed in Greece till after the ſiege of Troy; a circumſtance certainly not credible, if the ſtory above related of Semiramis be true; and if Homer be correct in imputing ſo much of ſculpture as he does to the artiſts of that period; or the amuſements of Penelope, of Andromache, and of Helen, at their looms, be at all founded in fact. It is not probable that ſo much of other arts, particularly of weaving coloured deſigns, ſhould exiſt, without ſome advance being made at the only ſource whence it is natural to imagine they could ariſe. It is vain to diſcuſs the point; nor is it of much conſequence whether it were at Corinth or at Sicyon that the practice of drawing firſt attracted particular notice. But, as Mr. Fuſeli has beautifully obſerved in his firſt lecture, "if ever legend deſerved our belief, the amorous tale of the Corinthian maid, who traced the ſhadow of her departing lover by the ſecret lamp, appeals to our ſympathy to grant it."

The firſt eſſays, then, of this delightful art were merely outlines of a ſhade, ſuch as are ſtill made uſe of in that agent of the ſcience of phyſiognomy, termed a *ſilhouette*; with no line within, no ſhade, or colour; and they were therefore called ſkiagrams. The next ſtep was to the monogram, or lines within the outline; and afterwards to the monochrom, or outlines filled up with one ſingle colour. This, by ſtudy, and a more ſcientific mode of proceeding, advanced to the polychrom, or picture of many colours; and at length was perfected by that harmony of tone, ſo exalted in the hands of Apelles and his contemporaries.

Pliny mentions the name of Saurias, as one who practiſed the earlieſt ſtage of the art, and of his drawing the figure of a horſe; and of Philocles the Egyptian, Cleanthes of Corinth, Ardices of the ſame place, and Telephanes of Sicyon, who advanced to the monographic. Cleophantes of Corinth is ſaid to have been the firſt who practiſed the monochromatic, and his colour to have been that of a pounded tile. In concurrence with him, or after him, wrought Hygiemon, Dinias, and Charmas; and probably one of theſe improved the monochromatic ſtyle, ſo as not to make a whole picture, containing many figures, of one colour in every part; but varied the colours, ſo as to characteriſe the different objects introduced. According to Quintilian, (lib. ii. c. 3.) "they could ſo manage the ſingle colour, which they uſed in the monochromatic ſtyle, as to give every appearance of relief to parts;" but by what means, as light and ſhade appears not to have been obſerved, he does not ſay. After theſe came Eumarus the Athenian, and Cymon of Cleonea; to the latter of whom, Pliny gives the praiſe of having greatly advanced the art, by giving variety of attitudes to his figures, attending to the folds of draperies, and more diſcriminately marking the joints and veins of the body, than had been done by his predeceſſors.

To the exiſtence of none of the above-mentioned artiſts does Pliny, or any other author, affix a date; but he contends, and with reaſon, for that of an eſtabliſhed and important fact in the hiſtory of the art, *viz.* that about the 16th Olympiad, or little better than 700 years before the Chriſtian era, Candaules, king of Lydia, purchaſed a picture, painted by Bularchus, called the battle of the Magnetes, and gave for it its weight in gold: a tolerably ſufficient proof of the high eſteem the art was held in at that time; though we ought by no means to deduce from it, that Bularchus had arrived at any other degree of perfection, than what placed him among the beſt of his day; and it tells but very little as to the actual ſtate of the art at the time: ſince, in its infancy, the patron could only be guided in his judgment, by what had preceded; and the beſt, though moderate, has always received the higheſt eulogiums from thoſe who, of neceſſity, are ignorant of ſuperior exertions.

Whatever was the degree of excellence to which the immediate ſucceſſors of this fortunate painter carried the art, we muſt be content to remain entirely ignorant of it. Poſſibly the confuſions of civil anarchy and of foreign wars, which followed this period, and brought Athens, and indeed all Greece, near to deſtruction, prevented, in a great degree, the exerciſe of an art, which requires the foſtering aid of peace, of ſcience, and of patronage flowing from the hand of power.

When inteſtine commotion had ſubſided, and Xerxes had been driven out of Greece, then the depreſſion under which her inhabitants had groaned was removed, and her ſpirit revived, exalted by a ſenſe of its own dignity and importance. Genius then ſtepped forth from its retreat, encouraged and rewarded. The liberal arts, aided by the general cultivation of mind which then took place, were ſummoned to aſſiſt in erecting monuments to the heroic deeds of the national heroes; and again we are enabled to trace the ſteps of painting, ſtill weak and tottering in her gait at firſt, but ſoon advancing with amazing rapidity towards the higheſt point ſhe is ſuppoſed ever to have reached.

Sculpture was moſt probably practiſed with continued ſucceſs, even during the times of diſtreſs and warfare. The neceſſities of the idolatrous religion, which ſo powerfully controuled the Greeks, might alone have required the exertion of all the talents the country could produce. We can no otherwiſe account for the immenſe advance which that art is found to have made before painting, at the period of which we are ſpeaking. Phidias, who was the moſt renowned among ſculptors, guided the hand of his brother Panænus, (the firſt painter whoſe name occurs after the reappearance of the art,) in adorning the walls of the portico, called Pœcile, at Athens; where he painted the battle of Marathon, and introduced into it the portraits of the principal commanders, both Greek and Perſian. But how great was the difference between their powers! The former, among other works, had produced thoſe in the temple of Minerva, called the Parthenon, which to this day remain a ſource of admiration and of envy; while that of the latter, as deſcribed by Pauſanias (Attics, lib. i. c. 16.) exhibit his art ſtill in its infancy: although Pliny obſerves, that the painters were then ſupplied with colours better ſuited to their purpoſe; and thus proves, that the practice of it had continued in cultivation, however ſlow its progreſs. To Panænus, however, Greece was indebted for an anxious zeal to advance the art he practiſed, to a more equal ſtation with ſculpture; and in his time, prizes were inſtituted at Delphos, and at Corinth, for its encouragement; where he himſelf contended, but was excelled by Timagoras of Chalcis.

Juſt ſo far as to have become the partial and humble rival of ſculpture in bas-relief, with the exception of colour, had painting at this period proceeded; and even Polygnotus of Thaſos, who ſucceeded Panænus, advanced it no farther than a more vivid imagination, acting upon the ſame ſyſtem, might rationally be ſuppoſed to have done. He alſo was employed to paint in the Pœcile at Athens, and in the Leſche, or public hall, at Delphos. Three of his pictures in the latter place are minutely deſcribed by Pauſanias. (Phocics, c. 25. et ſeq.) The ſame imperfect elemental principle is their baſis, as in that of his predeceſſor, or rather perhaps his contemporary; at leaſt in part; for Pliny ſays, Polygnotus was prior to the 90th olympiad, and Phidias is known to have died in the firſt year of the 91ſt (432 years B.C.) The pictures by Polygnotus, which were at Delphos, were works of immenſe labour, from the number of figures introduced in each; but they were entirely without any idea of compoſition, perſpective, or chiaro-ſcuro. Each figure had its appropriate action, conſiſtent with its hiſtory and character; but no connection in lines with its neighbour: and that the obſerver might be at no loſs of time in conſidering whom they repreſented, the painter had placed a name to every figure. They were arranged in rows, beſide, or over, each other; and Pauſanias, in deſcribing them, begins at one end, and proceeds with an individual enumeration of them to the other, and then ſpeaks of other figures over theſe; but whether they diminiſhed in ſize, does not appear. Yet Polygnotus was a man endowed with uncommon talents, and certainly advanced his art very far in point of expreſſion and action in his figures, and in ideal colouring. Of this, his figure of the demon Eurynomus in one of the pictures above-mentioned, *viz.* of Ulyſſes conſulting the ſhade of Tireſias in Hades, is a ſufficient proof. "His colour," ſays Pauſanias, "is between black and azure, like that of flies who infeſt meat; he ſhews his teeth, and ſits upon the ſkin of a vulture." Pliny alſo ſays of this artiſt, that he was the firſt who dreſſed his female portraits in gay colours, and he has been highly complimented by Lucian, who invokes his aid to accompliſh his perfect woman. "Polygnotus," ſays he, "ſhall open and ſpread her eyebrows, and give her that fine glowing decent bluſh, which ſo inimitably beautifies his Caſſandra. He likewiſe ſhall give her an eaſy flowing dreſs, with all its delicate wavings; partly clinging to her body, and partly fluttering in the wind."

It could not be many years after the time of Polygnotus, or perhaps it was even during his life, that another ſtep in advance was made in the art of painting, by Apollodorus of Athens; whoſe name is particularly mentioned by Pliny as having diſcovered the principle of beauty, or rather having firſt adopted it in painting; for it had long been known and practiſed in ſculpture. From this period, the art aſſumes its moſt eſſential character, and its moſt pleaſing one; making man its object, not individual men; the genus, not the ſpecies; except in the more humble work of portraiture. By this ſentiment, Pliny muſt himſelf have been actuated, when he ſays, that "before Apollodorus, none were worthy of record as artiſts; and that no picture had till then been produced, which a man might take pleaſure in obſerving for any length of time."

The ſyſtem of Apollodorus, to whatever height he bore it, was eagerly embraced by his pupil and ſucceſſor Zeuxis of Heraclea; of whom his maſter did not deem it derogatory to himſelf to ſay, (in ſome verſes which he wrote,) that "the art of painting had been ſtolen from its profeſſors, and practiſed by Zeuxis alone." Uniting the ſimple but energetic ſtyle of Polygnotus, with the peculiar ſelection and taſte of his maſter, he certainly appears to have ſurpaſſed both. It is the remark of Quintilian, that he conſidered the poetic unity of character adopted by Homer, in the deſcriptions of his heroes, as his model; and gave to each individual he painted, the peculiar diſtinction of a claſs. This muſt have been his object, at leaſt in the picture of Juno, which he painted for her temple at Agrigentum, according to a vow which the inhabitants of that place had made. For before he began the picture, he deſired to ſee all the moſt beautiful maidens of the city naked, and from them he choſe five, whoſe form he moſt admired; intending to exhibit the moſt perfect combination of female forms, by ſelecting and adopting the moſt beautiful parts of each.

Timanthes, Eupompus, Androcydes, and Parrhaſius the Epheſian, all flouriſhed and were renowned together with Zeuxis; the firſt, and the two laſt, however, bore the ſway of ſkill and of public favour. Among the principal productions of Zeuxis, are enumerated, a figure of Penelope, wherein he is ſaid not only to have given her a becoming perſon, but alſo to have expreſſed the qualities and affections of her mind. Another of Jupiter on his throne, accompanied by the gods. Hercules ſtrangling the ſerpents in his cradle, in the preſence of Alcmena and Amphictyon: and of a wreſtler, or champion; with which he himſelf was greatly delighted, and wrote underneath it, "that it would be more eaſily envied than imitated." Having acquired great riches, he refuſed to paint any longer for money, and gave away his pictures; declaring they were above all price. Of him and his rival Parrhaſius, it is difficult to ſay which carried the art to the greateſt extent, or was moſt vain-glorious. The ſtory which Pliny relates of their conteſt, by no means ſettles the former; as both their pictures were mere matters of imitation, and could have little to do with their real excellencies, except in colouring. But if the fact be true, it is a wonderful inſtance of their perfection in that point; and totally excludes the poſſibility of belief in what he ſays concerning the colouring materials with which they were acquainted, and uſed, *viz.* only four; and thoſe were impure and imperfect in themſelves. A curtain might, indeed, be of a dull colour, and poſſibly ſuch an one Parrhaſius might have imitated, with ſuch materials, and ſo perfectly, as to have deceived Zeuxis; but it is to be preſumed the luſcious tranſparency, colour, and brilliancy of the grape in thoſe days, were not very widely different from what it now exhibits; and thoſe pure qualities can only be imitated by the pureſt and moſt perfect of colours. Zeuxis, indeed, having himſelf miſtaken the painted curtain of Parrhaſius for a real one, was obliged to acknowledge himſelf ſurpaſſed; or muſt have ſubmitted to the inference, that his penetration was not ſuperior to that of the birds whom he had deceived. It was remarked, in favour of Parrhaſius, that he had a purer eye to proportion and ſymmetry, which he is ſaid to have reduced to rule; that he rounded the boundaries of his figures into their grounds, better than thoſe who had preceded him; and that he ſuperadded the charms of grace in the action of the body and features, and in the diſpoſal of hair and draperies. With theſe qualifications, if juſtly given him, he claims the pre-eminence; though perhaps in the compliment which Pliny pays him concerning the ſoftneſs of his outline, he himſelf might have been deluded by the agreeable effect of ſuch a procedure; whilſt it may have been carried to a fault by Parrhaſius. Such an inference may certainly be fairly drawn from the obſervation of Euphranor upon his picture of Theſeus, which, in compariſon with his own, he ſaid, appeared to have been fed on roſes: implying, probably, that it wanted ſubſtance as well as colour. As the vanity of Zeuxis led him to have his name embroidered in gold upon the border of his robe, when he attended at the Olympian games; that of Parrhaſius induced him to wear a purple robe and a golden garland; to bear a ſtaff wound round with tendrils of gold; and to have ſandals tied to his feet and ankles with golden ſtraps. He ſtyled himſelf *Abrodiætus*, the dainty or delicate, and declared he was deſcended of Apollo; and that he had nightly viſits by Hercules, while he was painting a picture of that divinity. The emperor Tiberius was ſo delighted with a picture of his, of an Archigallus, or chief prieſt of Cybele, that he kept it conſtantly in his own room, and valued it at 60,000 ſeſterces, 484*l.* 10*s.* Pliny mentions many of his works, and alſo that though he was thus ſkilful, he was excelled, according to the opinion of the Samians, by Timanthes, in a picture of Ajax at the award of the armour of Achilles to Ulyſſes: whereon he ſimply remarked, that his regret was only, that ſuch a hero as Ajax ſhould have been overcome a ſecond time, by a man unworthy of the honour!

The quality for which Timanthes is renowned, is vigour of imagination. This aided him to fill the decided corporeal forms, now fixed as characteriſtic, with paſſion; and it is ſufficiently illuſtrated by that well-known circumſtance of the peculiar action given by him to his figure of Agamemnon, in the picture repreſenting the ſacrifice of Iphigenia; and by the mode in which he embodied the idea of grandeur in ſtature, in a ſmall picture of a Cyclops; *viz.* by introducing ſome ſatyrs, ſuppoſed to be of the uſual ſize of man, meaſuring the length of the giant's thumb with a thyrſus. One of his pictures remained at the time Pliny wrote, about 400 years afterwards, in the temple of Peace, at Rome. He calls it the portrait of a prince; and ſays, "it is ſo perfect, and ſo full of majeſty, that it appears to compriſe every thing deſireable in the art of painting."

The art continued advancing by rapid degrees at this period. Nature, in form, in colour, and expreſſion, was the guide; and to develope her beauties the ſole object of the artiſts. Eupompus ſufficiently diſplayed this baſis, in his advice to Lyſippus, the ſculptor, who enquired of him, whom among his predeceſſors he ſhould make the objects of his imitation. "Behold," ſaid the painter, ſhewing his friend a multitude of characters paſſing by, "behold my models! From nature, not from art, by whomſoever wrought, muſt the artiſt labour, who hopes to attain honour and extend the boundary of his art." (Pliny, lib. xxxiv. c. 8.) To ſuch a pitch of excellence was painting at this time advanced among the Greeks, that it became highly eſteemed; was thought worthy of being ranked at the head of the liberal arts; was ordered to be taught to the ſons of the higher claſſes, in preference to all other things, according to Pliny, and forbidden to be practiſed by ſlaves. Such was the honour done to it, by the influence which the painter Pamphilus of Amphipolis had acquired. Of him it is remarked, that he was the firſt who proved the value which the art acquired, by an union with ſcience and literature; and to him, Apelles, the unrivalled hero of Grecian painting, was indebted for his initiation to its myſteries.

This extraordinary man (Apelles) appears, if we give full credit to the traditions concerning him, to have been endowed with a more perfect combination of rare talent and excellent qualities, than has, either before or ſince, fallen to the lot of any other. He had, beſides, the peculiar felicity of being born at that period when his country was at its higheſt pinnacle of cultivation; ſo that mankind ſaw in him the happy union of a perfect mind, ſtrengthened and guided by the beſt aſſiſtance education could poſſibly afford. Not only as an artiſt is he extolled above all others, but equally ſo as a man; for his gentleneſs, his amiability, generoſity, and magnanimity. Pliny places the time when he flouriſhed, in the 112th Olympiad, (328 years B.C.); and adds, that he became ſo conſummate in the art, that he alone enriched it more than all his predeceſſors had done; and compiled ſeveral books upon it, wherein he illuſtrated its principles. It is agreed by all writers, who ſpeak of him, that in him, the art of painting reached its acmè. He himſelf indeed acknowledged, that he was ſurpaſſed by ſeveral artiſts in different branches of its practice; by Amphion in diſpoſition, by Aſclepiodorus in proportion, &c.; but that in the combination of the whole, he excelled them all.

Yet it is not without ſome grains of indulgence, this moſt liberal praiſe is to be received. It is extremely difficult to know how far to attach real value to the language of praiſe, as given to works of art; ſo much depends upon the taſte and judgment of him who beſtows it. The higheſt terms of praiſe will always be given to the beſt works of their time: and therefore we find, that at all periods contemporary authors have expreſſed the ſame degrees of approbation, and in nearly the ſame terms, of the pictures they have ſeen produced; whilſt we know, that as art was ſlow in its progreſs, it is impoſſible, that in all its varying ſtages, it would have merited equal praiſes. No doubt, however, can remain, but that Apelles was a moſt powerful and agreeable painter; and that he muſt have given a degree of taſte, of grace, of life and effect to his figures, which had never till then been equalled in their union, is evident, ſince it is the general unvarying opinion of all writers who have mentioned him; and they are neither few nor weak. As many of his pictures were preſerved at Rome in the time of Pliny, he had an opportunity of judging for himſelf; as far at leaſt as their condition after ſuch a lapſe of time (nearly 400 years) would allow him; but the tribute which he pays to the excellence of his mind is of courſe deduced from the reports of others. There appears in the latter no extravagant hyperbole which leads to diſbelief; and his generous conduct towards ſo powerful a rival as Protogenes, well deſerves the honourable mention made of it. Being highly delighted with a picture of Jalyſus, painted by that artiſt, he ſailed to Rhodes on purpoſe to viſit him; where finding him neglected and in poverty, he purchaſed ſome of his works, and declared, that he intended to ſell them as his own. Rouſed to a recognition of the talents of their fellow citizen by ſuch powerful teſtimony as that of Apelles, they raiſed him from his humble ſituation to rank and fortune.

The well-known conteſt of theſe two friendly artiſts, in the lines they drew as deſignatory of themſelves, exhibiting that taſte and ſkill which they knew none but themſelves poſſeſſed, ſtands upon well founded teſtimony as a fact. The tablet whereon they were drawn remained untouched, was taken to Rome, and was there ſeen by Pliny himſelf; who ſpeaks of it, as having the appearance of a large blank ſurface; the extreme delicacy of the lines rendering them inviſible, except on a cloſe inſpection. They were drawn with different colours, one upon, or rather within, the other. To judge from his account of it, it might be ſuppoſed, that all the beauty lay in the extreme delicacy of the points which had been uſed, and of the hands which had applied them; but it is reaſonable to ſuppoſe, that the firſt direction of the line might have ſome principle of beauty for its guide, by which, as well as by the neatneſs of its execution, Protogenes was inſtantly moved to the declaration, that none but Apelles could have drawn it!

Beloved, honoured, and employed by Alexander, Apelles had the happineſs of enjoying that fullneſs of renown, to which he was ſo juſtly entitled. Alexander, the envy and admiration of the world, treated the painter with the familiarity of a friend; ordained that none other ſhould preſume to paint his likeneſs; frequently viſited him; and crowned his favours by a ſacrifice to friendſhip of a moſt uncommon nature among men: depriving himſelf of a beloved object, his favourite Campaſpe; and giving her to gratify the affection of one whom he ſo much eſteemed.

The pictures produced by this exalted artiſt were numerous, and are mentioned pretty much at length by Pliny, lib. xxxv. cap. 10. But perhaps the beſt comment upon his talents as a painter, will be found in the character Mr. Fuſeli has given of him. He places him in that rank where every thinking mind will be gratified to find him. "The name," he obſerves, "of Apelles in Pliny, is the ſynonyme of unrivalled and unattainable excellence; but the enumeration of his works points out the modification which we ought to apply to that ſuperiority: it neither compriſes excluſive ſublimity of invention, the moſt acute diſcrimination of character, the wideſt ſphere of comprehenſion, the moſt judicious and beſt balanced compoſition, nor the deepeſt pathos of expreſſion: his great prerogative conſiſted more in the uniſon than the extent of his powers; he knew better what he could do, what ought to be done; at what point he could arrive, and what lay beyond his reach, than any other artiſt. Grace of conception, and refinement of taſte, were his elements, and went hand in hand with grace of execution, and taſte in finiſh; powerful, and ſeldom poſſeſſed ſingly, irreſiſtible when united."

That our readers may judge for themſelves of the propriety of theſe remarks, we will enumerate from Pliny the pictures of which he ſpeaks, and which of courſe may be ſuppoſed to convey a very juſt idea of the claſs of ſubjects generally choſen by Apelles. Of Alexander the Great, and his father Philip, the portraits he painted were very numerous; ſome ſingle and ſome accompanied by other figures. One in the temple of Diana at Epheſus, of Alexander launching thunder, is highly extolled for its effect, and the boldneſs of its relief; "the hand which was raiſed appearing to come forward, and the lightning to be out of the picture:" in another of the ſame king, he was repreſented in a triumphal chariot, near him the figure of war, with his hands tied behind his back. This, and another Alexander, accompanied by Caſtor and Pollux, and a figure of Victory, were preſerved by Auguſtus in the forum. Many other portraits are mentioned; *viz.* of Antiochus, king of Syria; of Antigonus; Archelaus with his wife and daughter; Abron, an effeminate debauchee; Clytus on horſeback, armed, except his head, with an attendant delivering his helmet to him; and of Megabyſus, a prieſt of the temple of Diana at Epheſus, ſacrificing, in his pontifical veſtments. In ſubjects of fancy, are, a Diana ſurrounded by her nymphs, attending at a ſacrifice; Neoptolemus, ſon of Achilles, on horſeback, contending with Perſians; Hercules with his back towards the obſerver, and his head turned round ſo as to ſhew his face; a horſe painted in competition with other painters, and ſaid to have excited living horſes to neigh; and laſtly, his renowned picture of Venus riſing from the ſea; which being taken to Rome was dedicated by Auguſtus in the temple of Julius Cæſar; and ſeveral Greek epigrams upon it, are preſerved in the Anthologia. So great was its perfection, that no artiſt could be found who would undertake to reſtore the lower part of it, when by accident it had been injured: and of another of the ſame ſubject, begun for the inhabitants of his native iſland, (Cos,) and of which he had only finiſhed the head and breaſts when he died, Pliny ſays, that no painter would ſet his hand to compleat it; through a fearful acknowledgment of this great maſter's ſuperiority. Other pictures and deſigns of his are mentioned by different authors, but theſe are ſufficient to ſhew the general tendency of the ſubjects on which he employed the extraordinary powers of imitation he was endowed with. The bare mention of them is ſufficient to prove the critical acumen of our learned profeſſor of painting; but doubtleſs they are fully capable of admitting, indeed they require, all that grace and taſte in conception and execution, for which he was renowned, to compenſate for their want of pathos.

What was omitted by Apelles, was ſupplied by his contemporary, Ariſtides of Thebes. Unable to rival him in harmony and grace of colour and execution, and qualified by nature to diſplay the influence of the paſſions, Ariſtides followed in the ſteps of Timanthes. His was the power of impreſſing form with ſoul, of fixing upon, and repreſenting with effect, thoſe impaſſioned actions of the body, which are the reſult of the more amiable or violent emotions of the mind. So effective was the earneſtneſs of a ſuppliant pourtrayed by him, that "his voice ſeemed to eſcape from the picture," and not only was he capable of repreſenting the more ſimple emotions of the paſſions; but their moſt complex unions were alſo ſubject to his ſkill. An expreſſion, in which are diſcoverable maternal affection, anxious for the benefit of its offſpring, amidſt the pangs of certain and approaching death, was produced in his picture of a woman who had received a mortal wound upon her breaſt, endeavouring to prevent her infant, eager for its nouriſhment, from ſucking her blood inſtead of milk. (Pliny, lib. xxxv. c. 10.) The mind dwells with apprehenſive commiſeration on the bare relation of the image; and great, indeed, muſt have been the diſcriminative power of mind, and of hand, to execute juſtly, ſo difficult a taſk. Although Ariſtides appears to have moſt delighted in ſubjects which afforded him an opportunity of diſplaying his knowledge of the human mind, and its pathognomic influence upon the body; ſuch are his pictures above mentioned, and thoſe of a ſiſter dying for love of her brother, and of one ſuffering under the languiſhments of illneſs; yet he ſometimes ventured upon a more extended field, and in one inſtance painted a picture of a battle between the Greeks and Perſians, in which were introduced 100 figures, and was paid by Mnaſon, king of Elatea, 10lbs. of ſilver for each of them. In another he repreſented a race of chariots with four horſes; of which, Pliny obſerves, "you would almoſt think the wheels were in motion, ſuch was the energy of action in the picture."

At this time, the art of painting was upheld in Greece by a great number of ingenious men renowned for their diſtinctive excellencies. Aſclepiodorus for the beauty of ſymmetry; Protogenes, for exquiſite ſkill in execution and finiſh; and in him the art received one of the higheſt tokens of regard it was ever favoured with; for when Demetrius Poliorcetes was beſieging the city of Rhodes, and might have taken it by aſſaulting it on the part where Protogenes reſided, he forbore, leſt he ſhould do an injury to his works; and when the Rhodians delivered the place to him, and requeſted him to ſpare the pictures of their admired artiſt, he replied, "that he would ſooner deſtroy the images of his forefathers, than the productions of Protogenes."

With theſe artiſts, and a few others, as Nicias, Nicomachus, Mnaſon, Ariſtodemus, &c. all nearly contemporaries, this delightful art arrived at its utmoſt height; and though it continued to be practiſed by a ſucceſſion of ingenious men, many of whoſe names are handed down to us, and who contended againſt the formidable difficulties preſented by the ſcenes of luxury and confuſion which oppoſed them, yet their efforts to uphold its dignity were in vain. When the country, weakened by domeſtic broils, became ſubjugated by the Romans, its arts and its energies expired with its liberties; the ſpirit which animated the arts in Greece being removed, they fell to riſe no more, at leaſt for ages. But the cycle of nature will have its courſe in the arts, as well as in governments, and in man himſelf. All ſublunary things have within them the ſeeds of their own deſtruction; and having reached the acmè of excellence in their kinds, their further progreſs in exiſtence can only be retrograde.

In the means left to us for tracing the hiſtory of painting in Greece, many are the deficiencies we have to deplore; but in nothing more than the want of pictures, and the entire loſs of the treatiſes written on the principles of the art, by Apelles, Parrhaſius, Protogenes, and Perſeus, a pupil of the former, to whom he dedicated his work. If, happily, theſe had been preſerved, we might have been able to decide upon the ſtate of the art and the merits of its profeſſors, with much greater accuracy than from the remarks of mere critics, however acute and induſtrious; who are now our only reſource. The liability to error and miſguidance of ſuch, none can be at a loſs to determine, who have peruſed the extended labours of Winkelman, Du Bos, and others upon ſubjects of this nature; where, though ſurrounded with great ingenuity in antiquarian reſearch, ignorance of the technical parts of the art is made apparent by affected alluſions and frequent miſapprehenſions, which the mere tyro in practice would detect; and where a diſplay of claſſical learning appears to have been more an object of the authors, and for which they were better qualified, than a juſt extenſion of the principles of art, or inſtruction in the practice of it.

From the information we ſtill poſſeſs upon this ſubject, it is extremely difficult to decide upon the exact degree of cultivation the Greeks attained, in many branches of the art of painting, as now underſtood. We have ſufficient data to ground a ſatisfactory belief, that in the moſt eſſential points, as fullneſs of invention, expreſſion, grace, character, and deſign, they rivalled the ſculptors of the beſt periods; and that they carried colouring to an equal degree of perfection, (though by ſome doubted,) appears to us not improbable. But whether they ever underſtood and employed compoſition, as it is now ſcientifically practiſed, as far as relates to the union or ſeparation of groups, and effecting the diſtances of given objects according to the rules of linear or aerial perſpective; or whether they at all comprehended and practiſed the ſcience of chiaro-ſcuro, as employed by ſubſequent ſchools of art, we have yet to learn. On theſe points the deſcriptions of their productions afford no concluſive evidence.

It muſt be obſerved, that the criticiſms employed by the ancient writers partake very little of technic information; nor appear to have ariſen from any thing like technical knowledge;

the only ſource from which any very ſatisfactory information was likely to enſue. Left, as we are, to deduce principles from imperfect materials, we are led to conclude, that the ancient painters of Greece never contemplated their art in many points of view, at which the moderns have ſucceſsfully aimed: but that their prime object was, even in the moſt cultivated periods, to impreſs, undiſturbed upon the mind, the whole force of one image; and for that purpoſe appoſition, rather than compoſition, is the moſt effective mode; eſpecially when aided by a ſelect ſtyle of repreſentation. It may, therefore, have been the effect rather of a preciſe ſcientific principle, than a want of intelligence, that we find, or conceive we do, an imperfection in the moſt engaging, though not the moſt uſeful parts of the art. It may rationally be doubted, whether, as applied by this poliſhed nation to the worſhip of imaginary deities, or the exaltation of heroes, it would not have been deprived of a great portion of its influence, if more artifice had been introduced into their pictures; though there is no doubt at all, of the improvement the minor qualities produce in the art, as it is now employed; being an agent of pleaſure rather than of inſtruction or emulation.

We occaſionally meet in authors who ſpeak of ancient art, with deſcriptions of pictures containing many figures, but in general its efforts were confined to ſubjects in which two or three only were required; and it is worthy of remark, that in none of them is there any obſervation on the contraſts employed in lines, in light and ſhade, or in colour: nor is there any mention of what is now underſtoood by the term back-ground. To gueſs from theſe attempts at criticiſm, we ſhould, at leaſt we might conclude, that all pictures painted by the Greeks were ſimilar in principle to thoſe found at Herculaneum, of which the beſt have entirely plain grounds, and others very little variety; which evidently ſhews, that the writers were unacquainted with the art. Their remarks are too vague, too undetermined, appear not to flow from any feeling or knowledge of what art is, but only from common perceptions, alike felt by all of equal underſtanding. Yet every painter knows, that without ſome ingenious management of the ground, quite ſufficient to form an object of particular remark, the hand of Alexander would have ſtill adhered to the canvas; and not, as Pliny remarks, have appeared to project before it, or "out of it."

That they diſcovered to a certain extent the effect of contraſting lights and ſhades, is evident from Plutarch's obſervation, that "painters increaſe the brilliancy of light colours by oppoſing them to dark ones, or to ſhades;" and Pliny has this remarkable general expreſſion, when, having ſpoken of the painters in the monochromatic ſtyle, he adds, "in proceſs of time the art aſſumed new powers, and diſcovered (or invented) light and ſhadow; by gradating which, the colours are alternately heightened or kept down. Afterwards *ſplendour* was added, which was different from light, and which, becauſe it was a mean between light and ſhade, they called *tonon;* and the union of the colours, and the tranſition from one to another, they called *harmogen*," lib. xxxv. c. 5. Although we ſee in theſe paſſages, that the three grand requiſites for the ſcience of colouring and of chiaro-ſcuro, *viz.* contraſt, tone, and harmony, were felt by the Greeks; that the degrees of light and ſhade in their own force, and in their approach towards each other, were fully underſtood; with the value of middle teint, the moſt difficult and important object of the painter's attention; and that one general hue in the whole work was conſidered and effected; yet we cannot agree with M. Du Bos and others, that we ought hence to conclude, that chiaro-ſcuro was ſcientifically underſtood and practiſed by them to any extent, at all approaching that to which it has ſubſequently been carried by Rembrandt and the Flemiſh ſchool, or the beſt among the Italians. All, which Pliny aſſerts, they knew upon this head, is requiſite for the due execution of a ſingle figure, upon a plain ground, and offered to view in the moſt ſimple ſtyle of compoſition. Unhappily very few of their pictures have remained to us, and thoſe we have, we muſt ſuppoſe are the works of inferior artiſts. Among the twelve pictures, the beſt of thoſe found at Herculaneum, and all poſſeſſed of infinite beauties in taſte, in grace, and feeling; there is exhibited in one of them a more compound management of chiaro-ſcuro, in the reduction of tone on parts of the fleſh and drapery, than is to be found in any other monument of ancient art; but it is not ſufficient to prove that it proceeded from any thing like principle. We have, therefore, no ſatisfactory proof upon this ſubject; and it is moſt rational to conclude with ſir Joſ. Reynolds, that this, which makes ſo material a part of modern art, was unknown to the Greeks (as a ſcience.) "If," he obſerves, and juſtly, "the great painters had poſſeſſed this excellence, ſome portion of it would infallibly have been diffuſed, and have been diſcovered in the works of inferior artiſts handed down to us."

The ſame may be ſaid of their knowledge of perſpective, at leaſt of the application they made of it in pictures; notwithſtanding Vitruvius ſays, that it was practiſed by Agatharchus, a contemporary of Æſchylus and Polygnotus, in the theatre at Athens: and was ſoon afterwards reduced to principles, and treated as a ſcience, by Anaxagoras and Democritus. The reaſoning upon this ſubject ſtands preciſely upon the ſame ground as that concerning their knowledge of chiaro-ſcuro, and we are naturally led to the ſame concluſion; though it is difficult to conceive, that when the general principles of a ſcience ſo neceſſary to juſt delineation were underſtood, that they ſhould not be put into practice. Perhaps, as we have before obſerved, it is poſſible that back-grounds were more ſimple than we are accuſtomed to ſee them in modern times; and therefore leſs of perſpective would be required in them.

It certainly is not a little remarkable, that no mention of conſequence, of any thing like a ground of relief, ſhould be made in deſcribing pictures, of whoſe beauties in the principal parts we have ſuch enthuſiaſtic encomiums; and ſo little of landſcape, that it appears to have been almoſt entirely diſregarded. The attempts at back-ground in two or three of the Herculaneum pictures, are puerile in the extreme; and the moſt beautiful productions of ancient art yet exhibited to modern times, are of figures relieved off plain grounds, or rather blended into them. If Apelles, or any other great and renowned maſter, had made it a ſtudy, to produce a beautiful combination of objects receding in due degrees to extreme diſtance, ſuch as in theſe days is regarded as abſolutely neceſſary in a picture, the ſcene of whoſe action is in the open air; it is hardly credible, that it would not ſo far have attracted the attention of the critic as to have become an object of remark. But in none of the criticiſms or obſervations of ancient authors, (of Pliny more particularly,) is a ſecondary object ever even mentioned, as being on a ſeparate line of ground, or diſtance; or indeed any thing, but the immediate ſubject of the picture; though many of thoſe he deſcribes are ſuch, as to require the accompaniment of natural objects, as ſky, rocks, trees, mountains, &c.

In Italy, as well as in Greece, it appears not improbable, that painting was practiſed at an early period, but in a rude and very imperfect mode: little, however, is known of its actual progreſs there; and that little, partaking more of antiquarian curioſity, conjecture, and doubt, than of utility, or certainty. Pliny, indeed, ſays, that there were paintings exiſting at Ardea in his time, executed before the foundation of Rome. But after a lapſe of 800 years, how much of this may not be attributed to error in the tradition he recorded? The earlieſt traceable and ſatisfactory account of the art being practiſed in Rome, is in the year 450 of the city, or 303 years before our era; when Fabius, a noble patrician, painted the temple of Salus; and he and his family thence obtained the ſurname of Pictor. It is not improbable that Fabius had travelled in Greece, and there had the happineſs to ſee the elevated ſtation of the art at that time; he might even have ſeen Apelles himſelf, employed upon thoſe works which brought honour upon his country, and ſecured immortality for himſelf. Yet the city does not appear to have much profited by this example; nor to have obtained renown for its artiſts, either in number or in quality. Pliny mentions none other after Fabius, till, on the lapſe of 150 years, Pacuvius, the poet, amuſed his declining years with painting the temple of Hercules in the *Forum Boarium*. Although it is evident, that about this time Greek paintings were introduced into Rome, either to gratify curioſity, or adorn the triumphs of generals who had been engaged in Sicily, or Greece; yet no emulation to cope with the artiſts of thoſe countries was exhibited by the Romans. That warlike people were too much occupied in ſchemes of aggrandiſement and military fame, to devote much attention to the arts; and it was not till the time of the emperors, that they experienced any thing like encouragement in Italy.

After the reduction of Greece to the Roman power, the city of the conquerors became the emporium of honour, employment, and conſequent profit to artiſts; but that only in a gradual advance. Firſt of all, the plunder of the ancient reſidence of taſte, (that country, where, of all the world, it had alone found a ſecure and honoured eſtabliſhment and due regard for a great length of time; where its utility was proved, and its delights enjoyed;) ſatiated, as well as aſtoniſhed, the uncultivated, comparatively uncultivated, inhabitants of Italy; and no employment might be found for domeſtic artiſts, when the views of all admirers of art, were directed to another country for a ſupply of their wants. Afterwards the men themſelves, who had in vain laboured to continue the arts in that once favoured, but now unhappy country, quitted it, to enſure their own exiſtence; till, by degrees, Rome, become the miſtreſs of the world in policy, aſſumed the controul of the arts. Still its own native citizens were content to allow themſelves an inferior ſhare in its praiſe; ſince the principal part of the artiſts, either in painting or ſculpture, who practiſed in Italy, are ſuppoſed to have been Greeks.

Antiquaries, under the influence of varying circumſtances, have at different times attached priority of cultivation to different countries. Such is the caſe with the regions of Italy. Etruria has been, and is ſtill, moſt generally conſidered as the nurſe of the arts in that country; but the diſcovery of painted vaſes in the ſouthern parts of Italy, and in Sicily, being more frequent than in Etruria, has led many to imagine, of late, that painting was practiſed in thoſe countries previous to its cultivation in the more northern provinces. But very little argument can be derived from this circumſtance; as it appears to us, that the deſigns and execution of thoſe curious monuments of art, only teſtify the previous exiſtence of ſome ſuperior powers in the art; as the extenſion of taſte in our own manufactories, or the attempts at it, proves the exiſtence of the art of painting, and its higher, or more direct cultivation in this country. The paintings upon thoſe vaſes are, it is true, ſo inferior, as to the extent of art they exhibit, that they merit only to be claſſed among the productions of the earlieſt periods; but that perhaps is more owing to the artiſts who executed them, being deſirous of proceeding only ſo far as would anſwer a ſpecific purpoſe; and by no means aiming to attain the degree of perfection at which the art had actually arrived at the time. The ſlight degree of difference in point of excellence among the majority of them, affords an argument to prove, that it was not painting, or the cultivation of it, which was the object of thoſe who ſupplied the initiated with theſe vaſes. Some few of them, in invention indeed, indicate a mental power ſuperior to the ſyſtem upon which they are executed; and the artiſts who painted them, only appear to have employed, in an imperfect manner, materials offered to their hands by others. For whatever purpoſe they purſued their labours, it was probably ſufficient for them, that the hieroglyphics they marked were underſtood; that being effected, their object was completed. Some of them being rather more ingenious artificers than others, and guided by the learned or artful, multiplied combinations of figures, in order to create or explain deeper myſteries, and excite the zeal of the ſuperſtitious and enthuſiaſtic. If theſe opinions are correct, there is no arguing concerning the ſtate, or antiquity, of the art of painting from Etruſcan vaſes. The uſe of their hieroglyphics, for ſo the figures employed upon them may be termed, like thoſe of the Egyptians, or like letters, admit of little improvement, or indeed of alteration, in themſelves; and allow only of being changed in effect, by new combinations. They may, therefore, or they may not, have been executed at a period comparatively late, when conſidered with regard to the hiſtory of painting properly ſo called; and certainly may be regarded, rather as an offset, than as attached to the main ſtems in its growth; or as an extraneous application of part of the art, rather than the art itſelf.

Where the Greeks firſt ſettled in Italy, or where the moſt free communication was held with the mother country, there it is moſt likely the arts tranſplanted, would be firſt cultivated; but they do not appear to have arrived at any great degree of excellence in any part of that country, previous to the conqueſt of Greece by the Romans; and it muſt ſtill remain a doubt, whether Etruria or Calabria was the parental abode of the arts of Italy. They appear certainly to have received more cultivation in the former of thoſe diſtricts than in the latter, particularly ſculpture; at leaſt, there is ſomething like evidence of the culture of it in Pliny, who mentions, "that the little brazen images, diſperſed all over the country, were wrought in Tuſcany in very ancient times."

Whenceſoever it were that Rome acquired the little taſte ſhe felt for art, or rather the ſlight degree of emulation which animated her citizens to enter the paths of taſteful cultivation, it is certain, that during the period of her exiſtence as a republic, the impetus was very weak, and the progreſs of courſe of little or no extent. The practice of painting after the days of Pacuvius, before mentioned, was held to be effeminate and diſgraceful; and it was not ſubſequently engaged in by any reſpectable men. The reſult, of courſe, was a teſtimony to the wiſdom of the Greeks; who, in order to enhance the merit of the art, ordained, that none but ſuch as Roman pride excluded, ſhould preſume to practiſe it. From being regarded as contemptible, it actually became ſo; whereas in Greece, being raiſed in rank and eſteem, it became truly worthy of both. But what this powerful city could not acquire by her own genius, ſhe endeavoured, after her generals became acquainted with the riches of Greece and Sicily, to treaſure up from the ſpoils of thoſe countries. Some of thoſe generals, to increaſe the ſplendour of their triumphs, and others, for private or for public ornament, carried pictures as well as ſtatues to Rome, and exhibited them to the people; and others again cauſed pictures to be painted of their ſucceſsful battles, to ſtimulate the admiration and applauſe of the people; and thus tacitly acknowledging the value of the art, upbraided their fellow citizens, for neglecting the cultivation of it.

It would be natural to ſuppoſe that when the fierceneſs and ſeverity of republican independence gave way to the ſuavity and more refined manners of a court devoted to one perſon; when literature and ſcience were highly cultivated, and the example of Greece was before them; that the Romans would not fail to blend the purſuit of the elegant arts, with the refined luxuries in which they indulged. But that does not appear to have been the caſe, to any great degree. Had it been ſo, Pliny, who does not eaſily loſe ſight of the honour of his country, would not have failed to mention it; particularly as it came ſo near the time in which he lived. He gives only the names of a few painters then practiſing, or who had practiſed, being native artiſts: and accompanies it with a lamentation, "that the art was dying." Lib. xxxv. cap. 5.

Even in the practice of the Greek painters of that period employed in Italy, the certain mark of decaying art is conſtantly referred to by contemporary authors; *viz.* brilliancy, rather than purity and truth in colouring; and ornament, adding affected beauty to forms, and taking place of ſimplicity, elegance, and expreſſion.

As no preparation of art had previouſly taken place, powerful enough to aid the plans of the ſtate, when Auguſtus underſtood the ſyſtem of the Grecian leaders, and ſaw the uſe to be made of painting by a monarch; he very wiſely endeavoured to adopt what was ready to his hands; and cauſed two pictures, painted by Apelles, of Alexander victorious, and triumphant, to be carried to Rome, and placed conſpicuouſly in the forum. Images of his own power and exaltation, which Claudius Cæſar more openly proclaimed, when he ordered the heads of both pictures to be cut out, and Auguſtus's portrait placed in their ſtead. But the Romans, and Roman emperors, whatever ſubjects they may have created for the pencil, found little native talent able, or ſufficiently intereſted, to convey them to poſterity in an honourable manner by painting; and even in ſculpture their beſt artiſts were low indeed in compariſon with the Greeks, at leaſt no Roman artiſts' names of great repute are handed down to us. Both arts were diverted to unworthy objects; they continued to fall in every valuable quality; and painting moſt of all; till at length the irruptions of the northern nations put an end to both Grecian and Roman efforts; and barbariſm, from which Greece is not yet redeemed, uſurped the ſtations of luxury and refinement. For near 1000 years, did the glorious title of the cultivator of intellectual power; the leader among nations, in whatever was moſt adapted to do honour to human nature, appertain to that highly favoured country; for a period approaching 2000, has ſhe ſuffered degradation and depreſſion, even almoſt to annihilation. Yet her preſent inhabitants are repreſented by travellers as ſtill the ſame animated and ardent race, although bending to the ſtrong hand of power, and unhappily under the influence of a government and religion, whoſe tenets forbid the extenſion of human knowledge; and whoſe power is upheld by ignorance.

Italy, overcome by the ſame wild anarchy with Greece, groaned not under the weight of the deſpotic ſpoiler who had ſubdued her energies, more than half the time which her predeceſſor in the race of nations has bowed, e're the dawnings of ſcience beamed upon her, and rouſed her from the ſtate of torpor to which ſhe had been reduced.

Even then, Greeks had the honour of ſtimulating her to the cultivation of her native powers; till at length that flame was kindled, which, by a gradual accumulation of ſtrength, warmed Italian breaſts, and excited them to emulate in arts, thoſe whom their forefathers had ſubdued in arms. But the country being then under the controul of a ſyſtem of religion which forbade the introduction of images into her temples, the courſe and application of ſtudy was neceſſarily changed, and the art of painting became the principal object of attention: whereas that art, highly as it was prized and cultivated by the Grecians, in the latter periods of their exiſtence as a ruling power, had remained, as we have ſeen, for a great length of time, nearly unemployed; whilſt the ſiſter art of ſculpture, being moſt ſubſervient to the purpoſes of an idolatrous religion, was cultivated in ſo extraordinary a manner, that the accumulation of its productions in ſtatues, bas reliefs, &c. both in bronze and marble, became prodigious; and not to be imagined by thoſe unacquainted with the fact. Pauſanias ſpeaks of 2827 entire ſtatues in the places which he travelled through, as remaining in his time, beſides numerous other works of ſculpture; and this was only in a part of Greece, and not till after the Romans had, for 300 years, been plundering the country of innumerable beautiful productions. Rhodes, it is ſaid, could boaſt of 3000 ſtatues of braſs; and Nero took, from Delphos alone, 500 ſtatues. The cauſe of this vaſt accumulation of ſculpture is apparent; in the patronage that art derived from the government and the prieſthood; who found it an uſeful inſtrument in moulding the people to their wiſhes. They were well acquainted with its influence upon the minds of men, when ſkilfully applied in exciting their ſympathies, ſtimulating their emulation, or aſſiſting in compelling their devotion. The foundation, therefore, of the ſuperexcellence of this art among the Greeks, does not lie very deep for our reſearch. What elſe could be the reſult of ſo much, and ſo conſtant an employment for a connected ſeries of hundreds of years, the conſequent emulation which muſt enſue, where ſo many competitors entered the field, and when, in addition to the influence of government, ſo many eſtabliſhments of a religious order were anxious to become conſpicuous by employing them? By its means the prieſthood were enriched, and exalted in the eyes of their countrymen; adorers were drawn to their ſhrines; and their favourite divinities more generally worſhipped.

The ſame ſentiments and principles, always preſent to the ambitious and powerful, and which, under happy auſpices, re-act for the benefit of the people, operated near 1000 years afterwards upon the government and church of Rome; when, by the revival of ſcience and of art, theſe ſalutary means of ſtrengthening themſelves fell into their hands. But, as the ſecond commandment of the decalogue by which they were, or rather ought to have been, controuled, prohibited the worſhip of images; their attention was directed to the uſe which might be made of painting, and ſculpture was confined to monumental and ornamental purpoſes; or nearly ſo. Thus circumſtanced, the reſult was preciſely the reverſe of what occurred in Greece. Sculpture, except in a few inſtances, made a progreſs only to mediocrity; whilſt painting roſe and expanded its beauties to the utmoſt perfection; and ſoon followed that period, when, as we have before obſerved, notwithſtanding the high-flown panegyrics of ancient authors upon Grecian art, the doubt is juſtified, whether its painters were not ſurpaſſed by thoſe of Italy and Flanders, who flouriſhed in this latter age of the world.

It was not at once, and by miracle, that painting re-appeared. Cheriſhed, amidſt the terrors of war and bigotry, by the Greek monks, in their ſilent ſecluſions, it was occaſionally exhibited ; and for two centuries at leaſt before the acknowledged era of its riſe, according to Malvaſia, and perhaps more early, had been publicly practiſed, though humbly, in freſco, and in moſaic. He ſays that from 1115 to 1140, Guido, Ventura, and Orſon, were employed as painters in ſeveral churches at Bologna ; and doubtleſs theſe practices prevailed in other places ; for now the eccleſiaſtical power of the church of Rome was completely eſtabliſhed in Italy, and felt the advantages to be derived from adding ſplendour to the buildings erected to its honour, and exciting the zeal of its devotees. The character, however, of the art, as exhibited in the works of the Greek agents univerſally employed at this time, was but ill calculated to anſwer the higher views of thoſe who promoted the exerciſe of it ; for it was now at its loweſt ebb.

Piſa, Lucca, Florence, and other petty republics into which the kingdom of Italy was divided, began, about this period, to ſhake off the barbariſm which had ſo long abuſed and controuled them, and to exhibit a taſte for improvement. Artiſts were ſummoned from Greece to aſſiſt in adorning Piſa and Florence ; and amongſt other things to paint the chapel of the Gondi family, at the church of Sta. Maria Novella, in the latter place ; whilſt the Venetians employed Apollonius and others of the ſame country, on moſaics, in the church of St. Mark.

To the gratification enjoyed by Giovanni Cimabue at ſeeing the productions of the former of theſe artiſts, is Europe indebted, in a great meaſure, for whatever ſhe has ſince beheld in the art. He, Andrea Taffi, who learned the art of working in moſaic from Apollonius ; and Nicolo Piſano, inſtructed firſt in ſculpture by Greeks, and afterwards by ſtudy from ancient bas reliefs, brought by his countryman from Greece ; were the firſt Italians reported to have entered the liſts with their maſters : whoſe taſte is allowed to have been hard and poor, and devoid of all ſpirit of imitation ; either of nature or of ancient art. A ſtate of debaſement we might deem impoſſible to have occurred, after the extraordinary diſplay of talents which thoſe countries had witneſſed ; did we not know the rapidity with which the arts fall into decay, if not upheld by a conſtant ſucceſſion of practice ; and how ſlow their growth is in advance. And yet, doubtleſs, notwithſtanding the horrors of deſtructive war, and the mad ſuperſtitious zeal of the Iconoclaſtes of the 8th century, many noble examples of ſculpture, and architecture more particularly, muſt have remained to guide their taſte. So it was, however, and Vaſari and others ſpeak of the arts at this period, as being utterly unworthy of the name. Such was their ſituation in Italy, when Cimabue, who was born at Florence, of a noble family, in 1240, having been initiated into the miſerable practice of the Greek artiſts, conceived the deſire of improving upon it ; and ſucceeded ſo well in his attempt, that a picture of the Virgin, which he painted as large as life, for the church dedicated to her at Florence, excited enthuſiaſtic delight in his fellow citizens. They treated the painter with almoſt divine honours ; the picture was carried in proceſſion, with the ſound of trumpets, to the place of its deſtination ; and the day was celebrated as a public feaſt.

Encouraged by this applauſe and admiration, Cimabue purſued the art with ardour ; and though the utmoſt of his efforts were weak and inefficient, yet he made a very great advance beyond his teachers. Vaſari, 200 years afterwards, could not help expreſſing his ſurprize, that he had ſeen his way ſo far through the obſcurity of the age he lived in : yet ſuch was the Gothic barbarity in his picture of Chriſt crucified, in the cloiſter of St. Francis, at Piſa, that written labels are employed to convey the ſentiments of the Saviour to his mother and St. John.

His pupil Giotto, whom from a ſhepherd he raiſed to be a painter, relieved the art infinitely more from the fetters of Greek imperfection. The extreme rapidity with which he advanced in deſign, we can only account for by ſuppoſing, that he left the trammels of the art, as then practiſed ; and ſtudied attentively the productions of the ancients which were to be found in Florence : and which then, doubtleſs, began to be in reſearch. Giotto left off the uſe of labels ; aimed at real expreſſion, and obtained it ; and, even in his own age, was acknowledged to be the pupil of nature. He may be ſaid to have performed for the Italians what Polygnotus had done for the Grecians, by marking the line in which the art ought to be purſued ; and though in both it was accompanied with great deficiencies, yet it was juſt in its object and direction.

To Giotto the world was indebted for the portraits of Dante, Brunetti, and others, amongſt thoſe who at that time ſhone conſpicuous in literature, and with whom he lived upon terms of intimacy and friendſhip. His abilities procured him the patronage of pope Benedict IX., according to Vaſari, (though Baldinucci ſays he is miſtaken, and that it was Boniface VIII.), who employed him in St. Peter's ; and highly honoured and remunerated him. Henceforth the art of painting became attached to the papal dignity, and few ſucceeding pontiffs diſregarded the uſe of it.

An inclination to encourage the practice of painting in all the countries attached to, or dependent upon, the church, at this time became apparent ; and the fame of Giotto having ſpread very widely, the advantage attending the exhibition of his powers was extended to numerous places where he was called to employ them. The king of Naples required him for a time of the pope ; received him with honours, and employed him largely. At Avignon, where he attended the pope, at Milan, Lucca, Arezzo, and many other places, beſides his own native city, Florence, was he engaged to adorn the churches, &c. with his paintings ; and his great work at Aſſiſi remains, though in a ruined ſtate, to this day. (See the article GIOTTO.) The principal benefit the art gained by him was his having again returned to nature for the actions and expreſſions of his figures ; and been very ſucceſsful in attempting to imitate her effects.

The ſkill of this ingenious artiſt excited the emulation of many among his contemporaries throughout Italy ; and the arts having now acquired an earneſt of employment and reputation, of emolument and of honour, no longer wanted ſkilful profeſſors, or illuſtrious patrons. A grand epoch of their eſtabliſhment took place at Florence in 1350, fourteen years after the death of Giotto ; when a diſciple of his, Jacopo Caſſentino, and nine other artiſts, founded the academy of St. Luke in that city : an inſtitution from whence aroſe a large diſplay of talent, increaſing in worth, till at length, near 150 years after its foundation, it gave to the world three of the greateſt luminaries in art which it has ever known ; Lionardo da Vinci, Michael Angelo Bonarotti, and Raphael ; beſides Maſaccio, and others of great repute.

About the ſame time, conſiderable advance was made in painting at Venice and Bologna. In the latter place, Franco Bologneſe had practiſed, with great reputation, as a miniatorè or illuminator of books. He enjoyed with Giotto the friendſhip of Dante ; and the language which that poet employed in praiſe of their talents, is at once an argument and proof, how little reliance is to be placed upon the praiſes which authors ſo freely beſtow upon the works of contemporary painters. For though in their time they well merited the rank he gives them, of being at the utmoſt height in the practice of art; yet we now know for certain, that they were very far indeed from having reached the extent of its poſſible career; and inſtead of being found to have offered a perfect ſacrifice at the altar of taſte, they had ſcarcely paſſed the threſhold of her temple.

What they had done, however, was of ſufficient excellence to operate powerfully in the eſtabliſhment of the art, particularly by Giotto. But, unhappily, the taſte of the time and of the country, was not in favour of that kind of ſtudy, by which the Greeks had obtained their exalted rank. The efforts of the art were confined, almoſt excluſively, to ſubjects drawn from the hiſtory of Chriſtianity; or more frequently, from the legends of ſaints, and the ſufferings of martyrs. The latter, indeed, required ſome knowledge of anatomy and form; but thoſe drawn from the former ſources, however engaging they might be to the heart, preſented a field of exerciſe to the artiſt, comparatively narrow and confined, when placed in competition with the variety afforded from the wide irregularities of heatheniſm. Not that the hiſtory of the bible fails in preſenting to the pencil ſcenes engaging and poetic, of the higheſt moral culture, and of ſublime imagery; and not leſs delightful by their ſimplicity, than intereſting and important in their conſequences: but there is an alloy attached to them, which renders them not ſo engaging in viſion, as in deſcription; and, therefore, leſs fit ſubjects for the painter, than the poet. In the ſcenes of the New Teſtament, more particularly; the almoſt entire excluſion of the nude, or, when introduced, its being devoted to the exhibition of deformity or common life, confining the exertions of the artiſt to heads and draperies alone; would operate ſtrongly to delay the progreſs of the art towards its legitimate object, when excluſively employed. And the general feelings of a ſuperſtitious age, but juſt emerging from barbariſm, and under ſubjugation to a prieſthood bigoted in the extreme; by no means gave room for that latitude of exertion, without which it is in vain to look for very high attainments. In ſuch a period, whatever tended to make the pleaſures of the world inviting, and to render man happy and contented with himſelf; counteracted the principles of thoſe who hoped, by exciting his apprehenſions, to keep him in ſubjection. Terror, therefore, the moſt powerful agent of ſuperſtition, was more employed than the ſentiments of humanity, as the guide of thoſe who ſelected ſubjects for the painters; to whom they offered ſcenes of martyrdom, of infernal puniſhments, or of hardſhips and ſeverities to which devotees ſubmitted themſelves, in their miſtaken zeal for purity and truth. We cannot wonder, therefore, if, under ſuch trammels, the art languiſhed in its progreſs; and if the ill direction given to the great employment it enjoyed, for a while withheld it from that perfection, to which, under more free indulgence, it aſpired; when civil policy united her influence to that of religion, or rather of ſuperſtition, in its ſupport.

After a lapſe of near 100 years from the death of Giotto, Tomaſo da San Giovanni, better known by the name of Maſaccio, (from his total neglect of perſonal appearance,) exhibited a more exalted taſte, and a grander ſtyle of execution than his contemporaries. The art under his hands may be ſaid to have advanced from the weakneſs of infancy to the ſtation of youth, verging towards the vigour of perfect manhood. He firſt compoſed with an eye to the whole; managed his groups and ſingle figures upon the principles of perſpective, which had been taught him by the ſculptor Brunelleſchi; and by underſtanding the effect of thoſe principles, firſt laid the feet of upright figures flat upon the ground, and foreſhortened his heads and figures with truth and effect. In fact, it was to him future artiſts were indebted for a more ſure and full direction of the line in which the art ought to be purſued. He ſtudied nature with the greateſt attention, gave breadth and ſimplicity to his draperies; and moſt admirable action, character, and expreſſion to his figures; which are juſtly and appropriately employed, and wrought with admirable execution. Even Raphael did not ſcruple, 80 years afterwards, to ſtudy, and ſometimes to adopt his actions; of which there is an extraordinary inſtance, in the figure of St. Paul preaching at Athens. Michael Angelo is alſo reported by Vaſari, to have regarded his pictures with great reſpect and attention. His principal works in the chapel of the Brancacci, in the church del Carmine, at Florence, became the ſchool of ſtudy for all thoſe excellent artiſts who ſucceeded him; till at length Lionardo da Vinci, born near that city in 1445, two years after the death of Maſaccio, came forth with ſuperior luſtre, and eclipſed all that had preceded. Endowed with uncommon genius, all arts and ſciences ſeemed ſcarcely to offer a ſufficient field for the exertion of his talents. He graſped at all, and ſucceeded in whatever he undertook; but by his verſatility, waſted much of his time in experiment. Had he perſevered with ſteadineſs in purſuit of the art of painting, he probably would have carried it to the utmoſt perfection. As it was, whatever he painted came from his hand elevated and adorned, and preſented a complete originality of effect and manner. To truth and preciſion of character, and whatever had been well done by Maſaccio, Lionardo added new and moſt valuable qualities, by introducing the principles of chiaro-ſcuro, and depth of tone in colour. By the former of theſe, pictures were relieved from the tameneſs of mere imitation; and acquired an increaſe of power, in boldneſs and ſtrength of relief, and force of effect. (See EFFECT.) He may be ſaid to have given more than hints of improvement in all the various branches of the art; and to have left ſome examples, whence, others enjoying more ſteadineſs, and leſs impepetuoſity of character, ſubſequently imbibed ſuch inſtruction, as directed their courſe, and aided them in a nearer view of ideal perfection. Michael Angelo in deſign, Corregio in finiſh and chiaro-ſcuro, and Rubens in compoſition, are ſurely indebted to Da Vinci for the foundation of much of their perfections.

Before the time of this extraordinary man, the imitative arts had obtained a firm eſtabliſhment in Italy, by the encouragement its profeſſors enjoyed; and of courſe the number of artiſts increaſed very conſiderably. One circumſtance which occurred at Florence in the year 1400, exhibits that growth very ſtrikingly; and no leſs ſo, the true feeling of the citizens of that place towards it. It was the wiſh of the council, who formed the government, to have another door of bronze to the church of St. John, ſimilar to the one already wrought by Piſano, from a deſign by Giotto; and for that purpoſe they invited artiſts, in various parts of Italy, to ſend models for competition. The works of ſeven were choſen for ſubmiſſion to the judges; who conſiſted, not of a committee of taſte appointed from amongſt men unpractiſed in art, but of thirty-four artiſts of diſtinguiſhed talent; painters, ſculptors, and chaſers in gold and ſilver. Among the competitors, were Brunelleſchi, Donatello, and Ghiberti; all men of extraodinary powers, and each worthy of the taſk. The election fell on Ghiberti, who ſo executed the work, that Michael Angelo, many years afterwards, ſaid, the doors he had made were worthy to be the gates of heaven. And the judgment of artiſts was thus itſelf juſtified; and by Vaſari is declared to have been regarded, as manifeſting not only ſoundneſs of ſenſe, but alſo freedom from every unworthy feeling.

When ſuch care was taken to ſelect in ſculpture, it is not probable that the art more immediately applicable to the purpoſes of the church, which participated in the governvernments, or rather controuled the ſentiments of the whole community, ſhould be neglected in cultivation, or ſtudied vaguely. Accordingly we find, that painting advanced in rapid progreſs; and circumſtances now combined, to render that advance juſt in its courſe. The general increaſe of mental civilization, of literature, and of ſcience; the ſame cauſes which operated in the eſtabliſhment of the firſt grand era of the arts among the Greeks; now again began to prevail in the world; and the country where they were found, by natural progreſs, in its turn became the nurſe of art; and in time was remunerated in the honour and renown of ſupporting them, till they eſtabliſhed a ſecond epoch, ſcarcely leſs illuſtrious than the former.

The exiſtence of Lionardo da Vinci was the immediate precurſor of that exaltation; and the examples he left, and the leſſons he inculcated in his writings, had no ſmall ſhare in producing it. (See VINCI DA.) In him, as we have ſeen in Pamphilus, the maſter of Apelles, the art enjoyed the advantage of an union with ſcience and general cultivation; and the effect of that combination is evident in the hiſtory of both. It enabled Lionardo to embelliſh and diverſify the general impreſſion of character drawn by Maſaccio; and to exhibit, with more variety and fullneſs, the latent feelings of the human heart. Of this, his picture of the laſt ſupper, at Milan, is a ſufficient proof. And that this perfection was the reſult of deep reflection, is evident, by his having refrained from painting the head of the Saviour, till he could completely ſatisfy his mind, with what features and expreſſion he ought to compoſe a repreſentation of his divine character. By him the theory of deſign was perfected to a conſiderable degree. His book upon its principles is well known, and though confuſed, ill digeſted, and unequal in its parts; yet it is, beyond a doubt, the moſt ſcientific and uſeful, of all elementary books on the ſubject; and will alone teſtify the extraordinary power of his mind, and his activity in reſearch. Many others of his writings are unfortunately loſt; and ſome confined to libraries, where they are very rarely viſible.

About the beginning of the century in which Lionardo was born, the uſe of oil was adopted as a vehicle for painting; and afforded the means of moſt extenſive improvement; particularly in colour and effect. Diſtemper, or colours mixed with ſize and water, &c. appears to have been the firſt adopted practice; and afterwards, freſco; as more durable and better adapted to larger purpoſes. (See DISTEMPER and FRESCO.) But both of theſe modes are limited in the execution, more particularly the latter, in which no means being given to change or retouch the colours without evident diſparagement of the work, the artiſt was obliged to adopt as ſimple a plan of conduct as poſſible in the management of his deſigns. But when a vehicle was diſcovered, or applied, the uſe of which permitted frequent changes in effect, and in arrangement of colours, with the aſſurance of perfect uniſon at the concluſion; no means were wanting which he could deſire for the indulgence of the utmoſt ſtretch of his imagination.

The event which gave riſe to the exerciſe of painting with colours ground and mixed with oil, is ſuppoſed, with great reaſon, to have been varniſhing over pictures painted with water colours: which, as they were wrought up to the full reſemblance of natural objects when the colours were dry, were rendered by the varniſh as deep in hue as when the materials were wetted to be employed; and thus a tone of effect was ſuperadded to the natural and ordinary one, purely artificial, but very engaging; and the more ſo, when placed in oppoſition to the comparatively dull and tame effect of the former modes; which of neceſſity lacked luſtre, as they always dried with a deadened ſurface.

The diſcovery of this very eſſential advantage to the art of painting, which ſo readily enabled it to outſtep whatever had been previouſly done; has been, by moſt authors who have written upon the ſubject, attributed to John Van Eyck, of Bruſſels, in 1410. Though many doubt concerning the accuracy of this opinion, yet one thing remains clear, that till after the time in which he lived, oil, as a vehicle for colour, was not in general uſe. No doubt can remain, that if he did not actually firſt apply it to the purpoſe of his art, at leaſt he firſt uſed it eſſentially and effectually. His application of it would not otherwiſe have made, as Vanmander ſays, "as much noiſe in the world as the diſcovery of gunpowder by Bertoldo Schwartz had done, near a century before:" nor would a native of Italy have taken the trouble of journeying to Flanders, and ſoliciting the friendſhip and inſtructions of Van Eyck, as, Vaſari ſays, Antonello da Meſſina did, could he have obtained the knowledge he ſought at the coſt of leſs trouble and time.

Painting, according to Vanmander, the hiſtorian of the Flemiſh artiſts, had been carried into Flanders about the time of Giotto, by ſome Flemings who went for the expreſs purpoſe of learning it; and he ſays that "the mode of painting brought from Italy was with gum and eggs; having been ſo practiſed at Florence, at its firſt commencement by Cimabue." It ſpread in practice among the Germans about the ſame time, and each of theſe countries eſtabliſhed a mode of art, or ſtyle, for themſelves. It was in Italy alone, however, that any true perception of what was the proper object of art appears to have been felt, and there it was firſt exhibited; and even there, it dates its principal exertions from one city and its dependencies, *viz.* Florence. In this place alone it remained pure in its object, the delineation of character and expreſſion, with ſelection of form, and ſimplicity, and unmixed purity of effect. A ſtyle of deſign, which purſuing the firſt impulſe of the art, *viz.* the repreſentation of events at their moſt impreſſive moments, leaves minor objects out of conſideration: and aims ſolely at fulfilling its purpoſes in an intuitive manner, upon the mind of an obſerver. That ſtyle, Giotto had founded; it was improved in effect by Maſaccio, ſtrengthened by Bartolomeo della Porta, and Lionardo da Vinci, and finally perfected by Raphael and Michael Angelo.

To this moſt important aim of the art, the introduction of oil in painting brought no efficient aid. What has been ſaid of its benefits, applies only to the ornamental, or leſs important applications of it. The objects of the grand ſtyle, *viz.* beauty of deſign, and purity of expreſſion, the weakeſt materials are capable of preſenting to the imagination; and, therefore, notwithſtanding the brilliancy of colour and effect, which was afforded by the uſe of oil, it was in great meaſure diſregarded by the Florentines; or if employed by them, they carried into its practice, the defective hues of freſco: to the exception of Lionardo da Vinci, and Fra. Bartolomeo della Porta, (born at Florence in 1479,) who followed cloſely the line of colouring laid down by the former, his immediate predeceſſor. To him, the art is indebted for the firſt conception of the union of true grandeur of ſtyle in deſign, with a ſuitable dignity and depth of colouring. The ſubjects he choſe were generally of a religious kind, which nearly excluded naked figures; but he amply compenſated for that, by the mode in which he compoſed his draperies, and arranged his groups. Of him Raphael is ſuppoſed to have acquired more information than from any other ſource, till he had ſeen the works of M. Angelo in the Siſtini chapel. It was Bartolomeo who changed the taſte he had imbibed from his maſter Pietro Perugino, and directed it in the courſe wherein he afterwards ſurpaſſed all that the modern art of painting had effected.

This delightful art, ſupported by an illuſtrious patronage, derived, from its acknowledged ability to aid the purpoſes of ſtate, the increaſe of riches and of intellectual cultivation; but moſt materially from religion, now attained its ſecond era of glorious ſucceſs. A conſtellation of ingenious men, endowed with uncommon talents, appeared to ſpread its light once more through the world; and painting was perfected, as far perhaps as human nature can carry it, in the works of Michael Angelo, Raphael, Titian, and Correggio.

Although no one of theſe four great men appear to have made the Grecian principle of ſelect beauty a preciſe object of attention; yet in thoſe branches of the art which they more immediately cultivated, they muſt be conſidered as having attained the very higheſt rank. The almoſt miraculous ſublimity of invention, grandeur of deſign, and breadth of manner, with which the ſeries of pictures adorning the chapel of Sixtus IV. in the Vatican, are planned and executed; ſufficiently atteſt the power of the former. The truth, ſimplicity, grace, and propriety, exhibited in the hiſtoric and poetic compoſitions, which cover the walls of the pontifical palace itſelf, and which are alſo exhibited in the cartoons at Hampton Court; juſtify the praiſe beſtowed on Raphael. The renown of Titian would be ſupported by the grandeur of conception, richneſs and truth of colour, and vigour of effect, which characteriſes his St. Peter Martyr, did no other work of his maſterly hand exiſt. And Correggio will ever live in eſtimation, while the ſuavity and grace of arrangement, the perfect harmony of colour, and the concentrated and brilliant effects of chiaro-ſcuro, exhibited in the Duomo of Parma, the Notte at Dreſden, and the St. Jerome at Paris, are preſerved to the world. (See lives of M. Angelo, Titian, Raphael, and Correggio.) To behold the various excellencies of theſe great men united in one, is ſtill "a conſummation devoutly to be wiſhed."

At the time in which they flouriſhed, namely, about the end of the fifteenth and beginning of the ſixteenth century, the immenſe patronage which the art was enjoying throughout Italy, ſtimulated numbers to the profeſſion of it. In Rome, Naples, Florence, Bologna, Parma, Venice, Lucca, &c. abundance of artiſts were found ready to fulfil the commiſſions which individuals, convents, and churches, heaped upon them.

Whilſt it was purſued at Florence in its higher principles, and thence tranſplanted pure to Rome, to adorn the pontifical palaces, &c. of the imperial city; its more alluring, though leſs ſolid charms, were cultivated at Venice; where colour occupied the attention of the artiſts, and repaid it with her moſt engaging faſcinations. Among thoſe artiſts, Giorgione del Caſtel Franco, born in 1477, has the reputation of having begun that ſyſtem of colouring, which his early death alone prevented him from carrying to perfection. Had the period of his exiſtence been lengthened, it is probable that Titian, who adopted his ſtyle, would not have ſtood ſo completely alone, as he now does, at the head of the Venetian ſchool. In character, and in grace, Giorgione, in ſome of the few works which he has left, has evidently ſurpaſſed him. Except in the adaptations of it to exalted ſubjects, and an admixture of a certain degree of grandeur and purity in deſign, which was effected by Titian, the Venetian ſtyle of art has an equal ſupporter in Giacomo Robuſti, called il Tintoretto; who too free to be correct, and too daring to be chaſte, held the pencil with a vigour of colour and execution, worthy of being added to the ſublimity of Michael Angelo in deſign. Unfortunately, to the delights of execution and ſurface, he ſacrificed character, expreſſion, and propriety; and the world ought to regard him as the founder of the ornamental ſtyle, rather than Titian; whoſe beſt works hold a middle rank between Tintoretto and Michael Angelo, and are of too ſerious a character to merit that appellation. It was, however, his proceſs of colouring, which guided the hand of Tintoretto, and alſo that of Paulo Veroneſe, in eſtabliſhing the ſucceſs of the Venetian ſchool. Paduanino, the elder and younger Palma, Pordenone, the Baſſans, and many others, upheld the ſyſtem for a time, but not with equal powers.

Another aberration from the grander aim, and more ſolid original principles of the art, was effected at Parma by the talents of Correggio. Whether he had ever ſeen the works of Lionardo da Vinci, muſt remain a doubt. Certainly, the ſame feeling of arrangement in light and ſhade, and in the tones, or approaching tones, of colour, ſeems to have governed both; but Correggio firſt exhibited it in large works, with brilliancy, with richneſs, and with conſummate harmony. To his principal object, grace of effect, he ſacrificed forms and characters; but made amends for the treaſon, by the perfection to which he carried his own principles. Yet the peculiar grace which accompanied his deſigns, was too frequently of an artificial nature, and dangerous to follow; as it approaches the verge of affectation, and ſometimes juſtly deſerved that appellation.

That peculiar practice of the art, of which Correggio was the inventor, acquired from the diſtrict wherein he and his imitators reſided, the title of the Lombard ſtyle; having chiaro-ſcuro, rather than colour, for its baſis. So that we find the three great ſchools, into which the Italian practice of painting has been divided, were founded ſeparately upon the three great principles of the art. The Florentine, upon deſign; the Venetian, upon colour; and the Lombard, upon the union of colour and chiaro-ſcuro, but principally upon the latter. The colouring of the Lombard ſchool differs from that of the Venetian, in being leſs poſitive, or leſs priſmatic; and more like the reduced effect of colours ſeen by twilight; their hues being rendered ſubſervient to the principle which more immediately characteriſes that ſchool. Whereas, in the Venetian ſtyle, the colours themſelves form a part of the chiaro-ſcuro, and are wrought up to the higheſt degree of purity and brilliancy of which they are capable. The ſtyles of both are completely artificial; and the reſult of ſcience, deviating from the general appearances of nature; and are in great danger of becoming unnatural, except in the moſt ſkilful hands.

There are, indeed, two other ſchools ſpoken of in Italy, *viz.* the Roman and the Bologneſe. But we can hardly ſeparate the former from the Florentine; for the principal works done at Rome were by Florentines, or thoſe educated amongſt them, who of courſe brought the ſtyle of that ſchool with them to Rome, and executed their pictures in it; and that of the Bologneſe, being an attempt at combining the excellencies of the three principal ones, cannot be claſſed with thoſe original ſtyles; founded as they are on original principles of art. The Carracci, nearly 100 years after the time of Raphael, were the principal promoters of this ſyſtem of combination; which in no ſlight degree aſſiſted in the ruin of the art, by diſtracting the attention of its profeſſors. Agoſtino Carracci wrote a ſonnet upon it, in which he inculcated his own ideas, of the qualities neceſſary to form a perfect painter; wherein he ſays, "whoever would be a great painter, muſt take the deſign of Rome; the ſhade and motion of Venice; the dignified tone of Lombardy's colour; the terrible manner of Michael Angelo; the juſt ſymmetry of Raphael; Titiano's truth of nature; and the ſovereign purity of Correggio's ſtyle: add to theſe, the decorum and ſolidity of Tibaldi; the learned invention of Primatticio; and a little of Parmigiano's grace." However laudable the attempt to unite theſe various excellencies may be, the difficulty has hitherto been found too great for any one ſucceſsfully to combat; and the labours of its great founders, even of Annibal and Ludovico Carracci, powerful and able as they were, by no means ſerved to prove the certainty of the ſyſtem, in conducting the practice of art to perfection. Notwithſtanding the plauſible theory it held out, it was too vague in principle, and admitted of too much uncertainty and variety in practice; as each one who adopted it, was at liberty to take, or reject, as much of the peculiar qualities of the maſters recommended, as his own taſte might direct.

The exerciſe of painting, as purſued by the Florentine ſchool, being founded upon the moſt original, moſt ſimple, and moſt valuable principle of the art, is, no doubt, moſt worthy of eſteem. Its grand object, at its happieſt period, was an undiſguiſed addreſs to the underſtanding; and its means, were grandeur of ſtyle and truth in deſign, and a ſimple unaffected colouring. In its practice there was an uniformity of purſuit, and the ſame ideas which governed and directed the attention of the earlier artiſts, were emulouſly and ſteadily cultivated; till at length, after a lapſe of more than 300 years, from the time of Cimabue, if he may be called the founder, its triumph was completed by the talents of Michael Angelo Buonarotti, who has been ſtyled the Homer of modern painting. Raphael, however, muſt not be deprived of the ſhare of applauſe due to him in tracing the line of its ſucceſs; for though he was not ſtrictly Florentine, yet the better part of his means were drawn from that ſchool, whoſe principles he adopted as ſoon as he was acquainted with them. The praiſe, however, which is his due, does not ariſe from any extenſion of improvement upon the principles of the Florentine ſchool, but from a more perfect application of them than had before been known. He therefore, in this reſpect, ſtands upon much lower ground than his great contemporary, who increaſed conſiderably the importance of its aims, and grandeur of the ſtyle in which they were diſplayed; and after whoſe death it gradually declined, till it was at length overpowered by the more ſpecious attractions of the two other ſchools we have mentioned, the Venetian and the Lombard. In this elevation of the Florentine ſchool, we would not be thought to fail in due reſpect for the others; from whence have proceeded ſo many men of great abilities, and ſo many works of ſuperior excellence. The combination of the three, forms a maſs of excellence, the productions of which, the world yet beholds with wonder and delight: but of which, the eclectic principle of the Bologneſe ſchool has failed to exhibit one highly effective inſtance. For further illuſtration of the peculiar varieties of theſe ſchools, ſee the articles COLOURING and COMPOSITION, moſt of the principal ones concerning the different parts of painting, and the lives of the painters moſt conſpicuous in them.

At the time when the great maſters of theſe ſchools were aſſiduouſly cultivating the art, and almoſt ſimultaneouſly bringing it to perfection in all its various branches; it fortunately occurred, that there exiſted men poſſeſſed of affluence and power, conſcious of its value, and ſenſible to its beauties; willing to aid the exertions of its profeſſors, and to employ their talents in an exalted manner. Long held benumbed by the rigid ſeverities of neglect, the germ of its growth, at firſt, had ſcarcely felt the genial warmth of encouragement applied to it; by degrees it ſlowly ſpread forth its leaves to catch the inſpiring gale; then eagerly enjoyed the kind atmoſphere which ſurrounded it; at length its beauties burſt ſuddenly on the view with delightful perfection, and by the enchanting pleaſure it afforded, more than repaid the hands which had cheriſhed it. Even in its decay, it left a bleſſed odour upon the countries that had foſtered it: a memento of their exiſtence in the great ſcale of nations, far more eſtimable, than the melancholy details of artifice, (under the name of policy,) and of war with its attendant miſeries, which ſo perpetually blacken the page of hiſtory.

If the circumſtances which attended its progreſs in ancient Greece, be compared with thoſe accompanying its more recent one in Italy, of which we now ſpeak, they will be found moſt ſingularly to correſpond; even to the periods of time occupied in its ſeveral ſtages. In both countries, it had riſen under the influence of devotional feeling, to various degrees of improvement, as poſſeſſed by different maſters. It had been enlarged, enlightened, and rendered more eſtimable by the elements of learning and ſcience infuſed into its ſtudies; in Greece by Pamphilus, and in Italy by Lionardo da Vinci; and during the latter periods of its progreſſive improvement, it was employed in both countries as an agent of ſtate policy.

The patronage which we have ſeen the art enjoying in Italy from the commencement of its career, kept pace with its progreſs, till it was perfected by the family of the Medici at Florence, and by Julius II. and Leo X. at Rome. Coſmo di Medici in his ſuperintendance over the political affairs of the former place, during the firſt part of the fifteenth century, did not neglect the intereſts of its academy, and of the arts in general. A great maſs of reliques of ancient art, recovered from oblivion by induſtrious reſearch throughout the country, of which they had once been the moſt conſpicuous ornaments, adorned his magnificent manſion in that city. Theſe he exhibited for the improvement of taſte, and took under his peculiar care the academy of St. Luke, which had been formed in the preceding century. His grandſon, Lorenzo, ſurnamed the Magnificent, who in 1464 ſucceeded to his power and influence, and was endowed with a far greater predilection for art, for ſcience, and for literary purſuits; increaſed the collection in a very conſiderable degree. Being laudably deſirous of exciting his countrymen to a ſucceſsful rivalry with theſe treaſures of beauty, or rather of encouraging the ſpirit and ability already exhibited by them, he opened his gardens where they were depoſited as a ſchool of ſtudy; and honouring the abilities of Michael Angelo, appointed him to the management of it. By his influence, and that of Piero Soderini, then Gonfalonierè, the council hall of the republic, which had been recently rebuilt, was ordered to be adorned with paintings by Lionardo da Vinci and Michael Angelo; each having one ſide of the hall appointed for the exertion of his abilities. This was the firſt example of any conſequence, of public civil employment being given to the painters of Italy; for hitherto their greater exertions had been confined to religious ſubjects, and devoted to the ſervice and benefit of religious eſtabliſhments. The ſubjects choſen for theſe great competitors were of an heroic nature; and ſelected from the hiſtory of the wars of the republic. Unfortunately neither of them proceeded ſo far as to complete their pictures, although their preparatory cartoons were the theme of univerſal approbation; and whilſt they were preſerved, ſucceeding artiſts ruſhed with eagerneſs to ſtudy their excellencies.

The political diſturbances which took place ſoon after prevented the further attention of the Florentines to the arts for ſome time. In the mean while that ſkilful, great, and ambitious ſucceſſor to the papal chair, Julius II., informed of the high perfection in which painting was then practiſed, would not allow ſo uſeful an inſtrument to lie unemployed in his ſervice. He ſummoned both Angelo and Raphael to attend him; and under his auſpices thoſe great works were begun in the Vatican, of which we have before ſpoken. His ſucceſſor, Leo X., emulating the magnificence of his father, Lorenzo di Medici, and that of his immediate predeceſſor in the papal chair, continued to perfect the plans which the latter had laid down; and directed the efforts of the pencil, to the honour and ſervice of the church over which he preſided, the ſtation which he more immediately held, and his own peculiar glory.

The recent diſcoveries of ſome of the moſt beautiful antique ſtatues with which we are acquainted, and which were brought by the popes to aſſiſt in adorning the pontifical palace; together with the ſplendid and admirable works produced by the two great artiſts and others of leſſer note; completely transferred the ſeat of the arts from Florence to that imperial reſidence of power, which had hitherto acted but a ſecondary part, or hardly that, in their cultivation. To this alluring maſs of talent, the powers of Titian were alſo ultimately added; and ſo important and inſtructive an aſſemblage of excellencies was thus combined, that Rome became a kind of univerſity of art, and the reſort of all thoſe who aſpired at eminence in the practice of it; and more particularly in its moſt exalted qualities. Thus the ſecond grand epoch of the art was completed in the age of Leo X.

It might have been expected that the effects of theſe brilliant examples of art would produce ſtill greater excellencies; but, as if there were a boundary ſet to the intellectual exertions of man, beyond which he is not permitted to paſs; the patronage of the higheſt powers, and the ardent ambition of ingenious artiſts failed, even to prolong theſe days of ſuper-eminent ſucceſs. The ſplendour of the talents exhibited by thoſe great luminaries of the art, ſeem to have dazzled, whilſt it illuminated, thoſe who approached the hemiſphere wherein it ſhone; and all attempts to reach its exaltation were in vain. After this favoured period, in which it appears that both patrons and artiſts, had arrived at the ultimatum of their greatneſs, the hand of deſtiny once more conducted the art of painting to its decline in Italy. Yet, as before, it lingered in its fall; and like a meteor approaching to diſſolution, caſt many brilliant emanations around.

Among the moſt ſkilful of thoſe who continued to uphold the practice of art with ability, were Julio Romano, Franceſco Parmigiano, Pelegrino Tibaldi, and Tintoretto. The former was the moſt ſucceſsful of the pupils of Raphael; but though, like Raphael, ſtruck with the grand aims and ſtyle of Michael Angelo, he had not his judgment and taſte to guide him in the application of it. Endowed with a poetic imagination, and deſirous of being original, he ſwerved from the courſe pointed out by his maſter, and loſt ſight of his purity and truth. Yet if there ever were one painter in the world, whoſe taſte, whoſe feeling, and whoſe ſtyle, might be adopted with impunity, and imitated without apprehenſion of miſguidance, it certainly was Raphael. Founded as it was upon nature, his taſte in compoſition ſeems to bid defiance to perverſion. His invention was ſubſervient to his ſubject, and was dictated by it; and yet, in his ſucceſſors it not unfrequently took the lead; and the ſubject, gave way to the bewitching delights of contraſt, grouping, and all the ſyſtematic arrangements of the art. The grandeur of ſtyle, and impoſing power of Michael Angelo, was the miſuſed ſource of this deſtroying evil. That ſtyle, emanating from a peculiar ſympathetic feeling of his exalted mind, and correſpondent to the poetic fervour which inſpired it, though ſtrong and boldly marked, was ſtill under the guidance of nature; and by his perfect knowledge of her forms, was prevented from ſwerving to deformity. After him, men unable to fathom his principles of action, did not ſcruple to tread on the ground which he had hallowed; Pelegrino Tibaldi alone traced his ſteps with ſucceſsful energy; and diſplayed his power in the freſcos which adorn the hall of the Inſtitute at Bologna. But in the hands of moſt of his imitators, it became only a ſpecious mode of impoſing upon the unlearned; and contortion and grimace, under the appellation of *il Guſto Grande*, took place of ſtyle and character.

The principle of the Venetian ſtyle, being more looſely founded than thoſe of the former two, and capable of application to all kinds of ſubjects, though not with equal propriety, was of courſe leſs likely to be ſo ſoon deſtroyed; and having the natural charm of colour for its ſupport, it was practiſed with conſiderable ſucceſs for a length of time. But that of Correggio being altogether imaginary, or ariſing from more abſtract reſearch, found no ſucceſsful imitator. His expanſive breadth of light, conducted with fullneſs of colour, perfect harmony, and depth of tone, has certainly never been repeated by any one, or but partially. Parmigiano, who probably ſaw him paint, and doubtleſs ſtudied his works with great attention, imbibed more of his peculiar excellencies than any other; and in his beſt works adopted as much of the tone and ſtyle of Correggio, as he could blend with his more exalted attempts to reach the lofty deſign of Michael Angelo. One work, ſuch as his picture of the viſion of St. Jerome, now in England, makes more than ample amends for his miſtaken adoption of the grace of Correggio; and its too frequent perverſion to affectation, viſible in his ſmaller deſigns. He, unfortunately, like Giorgione, was cut off in the early part of his career, (at the age of 37,) and perhaps before the fullneſs of his power had time, or opportunity, completely to develope itſelf. Had he been longer ſpared to the world, and his progreſs been equal to the promiſe afforded by the works he has left; it is more than probable, that we ſhould have ſeen a more perfect combination of the ſuperior excellencies of the art, than has hitherto been effected. See PARMIGIANO.

About the end of the 16th century, the Eclectic ſchool of Bologna, of which we have before ſpoken, was founded under the auſpices of the Carracci; and certainly, though they did not effectually complete the object they propoſed, yet their exertions and abilities arreſted, for a while, the retrograde progreſs of the art. Ludovico the ſenior, and teacher of the others, in a great meaſure reſtored the art once more to nature; and by the purity and ſimplicity of his taſte in form and in colour, preſerved his ſuperiority over his nephews, Annibal and Agoſtino. The former of theſe, however, ſtrongly conteſted that point, by his powerful and free execution, and his great academical acquirements; but his miſtaken application of them, more than counterbalanced their value; and of this, his great work, the gallery of the Farneſe palace is an abundant proof.

The ſchool which they formed for the improvement of their art, and which was entitled *l'Academia degli Deſideroſi*, but is now better known as the *Academy of the Carracci*, proved a ſource of information whence ſprung many artiſts deſervedly renowned. Among them were Guido Reni, Domenichino, Lanfranco, Albano, and Guercino. Amid the varied works of theſe able men, may be ſeen the imperfection of the plan adopted by their maſter. Each following the dictates of his inclination, differed from his fellow ſtudent in the objects of imitation, as well as in manner; and yet the ſchool attached in meaſure to all, inaſmuch as the art, in preference to nature, was the main object of attention with them generally. In ſome few inſtances, indeed, the reverſe took place; and Domenichino, in his pictures of the Communion of St. Jerome, and the Cure of the Demoniac, rivalled, in feeling and expreſſion, the fame of Raphael; qualities which had languiſhed, and been neglected after the death of that renowned artiſt. See lives of the artiſts mentioned.

After this period the art continued to decline in Italy. The great talents of Pietro da Cortona, and Luca Giordano, were abuſed by the too great facility with which they ſatisfied the perverted minds of their employers. Nicholas Pouſſin alone endeavoured to ſtem the torrent of corruption in taſte, which now flowed over the claſſic ground of former ages; but though he reverted to the pure ſource of Grecian art for his models, yet in ſevere criticiſm, he is juſtly ſaid "rather to have copied its reliques, than adopted its ſpirit." He indeed is by ſome denied to the Italian ſchool; but as the chief part of his life was ſpent in that country, and all the valuable information he poſſeſſed derived from his reſidence there, we have attached him to the hiſtory of its art; and with him cloſes all record concerning it, worthy of particular diſtinction.

To Germany the art travelled from Italy: at what period is not exactly to be aſcertained; but it is not improbable that it was ſoon after the time of Giotto. It was not, however, till towards the end of the 15th century, that its progreſs there claims our attention. At that time Albert Durer relieved it from little better than obſcurity, by his ingenuity, his fertile invention, and his ſkilful attention to minute imitation of individual forms. He carefully ſtudied the human figure, but waſted his time in fanciful ſchemes for regulating proportion; and never attained the art of ſelection, or a ſtation in the rank of exalted artiſts. Yet ſometimes his compoſitions are well worthy to have been treated in the greateſt ſtyle in deſign, and the colour with which he executed them, often rivals the beſt among the Venetians. The bane of the ſtyle, if it may be called ſo, is meagreneſs and poverty of forms, mean expreſſion, and capricious and often vulgar invention. Lucas Van Leyden was the beſt of thoſe who attempted to rival the name of Albert Durer, unleſs we except Holbein; who, though he never equalled him in compoſition, infinitely ſurpaſſed him in portraiture. The taſte of the Germans totally changed after they poſſeſſed the knowledge of the works of Michael Angelo; when, with the conſtant effect of the ſudden tranſition of extremes, the newly imbibed principles burſt all reaſonable bound; and were employed, only to be abuſed. Unable to penetrate the depths of its myſteries, its ſurface was extravagantly imitated by Goltzius, by Spranger, and a hoſt of ambitious contemporaries; but the folly of this miſapplication ſoon acted to its deſtruction; and in its decay bore down with it the character of the German ſchool of painting.

The hiſtory of the art in the neighbouring countries of Flanders and Holland, is merely the ſame with that of its progreſs in Germany, till about the middle of the 16th century. The extreme richneſs of colouring which had been effected by John Van Eyck, was maintained entire; and ſeems almoſt excluſively to have occupied the attention of the Flemiſh artiſts. Their diſtance from Italy, and the conſequent want of intercourſe with that country, precluded any preciſe acquaintance with the peculiar beauties of ancient art; and having no model to guide them, or rival to contend with, they were at liberty to follow the ſuggeſtions of their own inclinations. It conducted them to as preciſe an imitation of the effects of natural objects immediately preſented to their eyes, as lay in their power to produce. The ſyſtem of religion here, as in Italy, found occupation for the artiſts in a conſiderable degree; but its exerciſe ſoon deviated into common life, and reached its ultimatum in the days of Rubens and Rembrandt. The former of theſe "meteors of the art" ſhining in a ſphere completely his own, irradiated the world with a brilliant and uncommon luſtre. Poſſeſſed of a mind as full of genius as of energy; he appears without difficulty to have embraced from contemporary artiſts, and the great maſters of Italy, whoſe works he viſited, thoſe elements of which he compoſed his own ſyſtem. The principal features of which are, an union of the ſplendours of the Venetian ſchool, with a grandeur of outline drawn from the Florentine, without its correctneſs, not untinged with the natural imperfections of his countrymen, and guided by his own individual brilliancy of imagination, and a total diſregard of the beauty of the antique. But whenceſoever he drew the firſt rudiments of his ſtyle, his application of it was immediately to nature, with all her varieties. Never man was leſs the ſlave of a ſtyle than Rubens: although it does not ceaſe to appear in all his productions, yet it was moulded to his ſubject, of whatever nature it were, with the greateſt facility; and he certainly added a gradation to the ſcale of the art by a manner peculiarly his own, and totally diverſified from all others. Its great object was to captivate, and no man more completely ſucceeded in his deſign, in ſpite of the numberleſs defects with which his works abound. To uſe the words of ſir Joſ. Reynolds, "ſuch is the faſcination of his pencil, that it is only when we are removed from its influence, we are willing to acknowledge any inferiority in Rubens, to any other painter whatever." (See Rubens.) He was truly the father of the Flemiſh art; and under the influence of his example, and ſubſequently to his deceaſe, ſo perfect a cultivation of the means of imitation, both in drawing and colouring, and alſo in arrangement, took place in Flanders and in Holland, that a new ſpecies of art was produced, unknown to any other part of the world; and during the courſe of the 17th century, furniſhed thoſe countries wherein it aroſe, with innumerable works of the greateſt perfection in their kind.

At the beginning of the century, that moſt extraordinary and original luminary of the art, Rembrandt, appeared; and aided the power of Rubens in completing the perfections of the Dutch and Flemiſh ſchools. In him the world poſſeſſed another of thoſe men of powerful genius, who created an atmoſphere of art for themſelves, and moved within it uncontrouled, with a ſecurity that ſets imitation at defiance. What Correggio had given to the Italians, Rembrandt beſtowed upon the Dutch; chiaro-ſcuro concentrated, or expanded; rivalling the purity and brilliancy of nature. That, and colour, were his immediate agents; with which he played at will, in all the varieties which a vivid imagination and cloſe obſervation of the more ſtriking effects of nature, could poſſibly ſupply him; and not unfrequently by their means gave beauty even to deformity, at leaſt robbed it of diſguſt, and rendered it engaging to the eye.

The characteriſtic features of the ſchools, at the head of which theſe two extraordinary men are duly placed, are, a perfect ſkill in combination and arrangement of chiaro-ſcuro; great ſtrength of natural and local character; and a preciſe truth of imitation, even almoſt to perfect deception in form, colour, and effect. Theſe powerful qualities are, however, too conſtantly degraded by a low and vulgar application of them, particularly among the painters of the Dutch ſchool. Among the Flemings, many of the pupils of Rubens adhered to his claſs of ſubjects, and exhibited a brilliancy of imagination, and power of execution, worthy of the ſource whence they proceeded. Vandyke more eſpecially; who, in point of chaſtity of deſign, and purity of colouring, excelled even the power of his maſter, though he had not his capacious genius, to whom the repreſentation of all things ſeemed equally facile, and whoſe abilities ſeem to have been enlarged according to the ſphere he was called to act in, or the canvas he was employed to cover.

It would be uſeleſs to enter into a minute detail of the progreſs of the art in thoſe countries. The lives of the various artiſts who maintained it for a time, ſupply the neceſſary information; and their names are, in general, familiar to our readers; we therefore refer to them for further information. See JORDAENS, CRAYER, DIEPENBECK, KONING, METZU, TENIERS, NETSCHER, &c. &c.

The hiſtory of the patronage of the art in Holland and Flanders, lies within a very ſhort compaſs; as it reſted almoſt entirely with the church, who called for altar-pieces, (and their chapels were filled with them,) and the munificence and taſte of private individuals. Very few, indeed, of their public eſtabliſhments were adorned with pictures, notwithſtanding the immenſe fund of abilities the countries poſſeſſed; and it was left to find its own intereſts, by gratifying the taſte for portraiture, among the rich merchants and burghers; or the execution of ſmall pictures, within the ſcale of admiſſion to private rooms, on ſubjects of ordinary intereſt, of landſcape, or of vulgar amuſement. Its practice in thoſe countries failed completely ſoon after the commencement of the 18th century.

Very little of the progreſs of the art in Spain is known previous to the year 1500; though it is ſcarcely probable, conſidering the intercourſe between that country and Italy, Naples more eſpecially, that it had not much previous employment there. Soon after that time, the renown of Titian, and the favour in which he ſtood with the emperor Charles V. the example afforded by the portraits he drew of that monarch, with the high honour he received from his ſon Philip II., and his own reſidence for a few years (according to Palomino Velaſco) in the country, rouſed a ſpirit of emulation among her natives. And as far as an excellent power of individual imitation, and of gentle, amiable feeling, in compoſition and expreſſion, will bear a rank among the higher qualities of the art of painting, the Spaniſh nation may juſtly claim their ſhare. But the beſt works of their beſt painters, give them no juſt title to any proportion of the homage due to the great maſters of Italy, who exerciſed ſucceſsfully the grand ſtyle. Nevertheleſs the ſtyle of the beſt Spaniſh artiſts is of no mean quality. Spagnoletto certainly ſelected for himſelf an original one; the principal foundation of which he had gathered in his ſtudies from the Italian maſters; and which, when properly adapted to ſubject, preſented an air of grandeur, forcible, yet ſevere. But he ſtood alone in it. A milder and more amiable feeling characteriſes the manner of the hiſtorical painters of his country, as is teſtified in the works of Coello, Morales, (El Divino,) Murillio, Carrero, Herrera, and others; whilſt the bold freedom, and maſtery of hand acknowledged to have been poſſeſſed by Velaſques, with the ſingular reality of his portraits, places him upon a level with Titian and Vandyke in that peculiar branch of the art. The gay luxuriancy of the pencil, in the hands of Luca Jordano, employed to cover the ceilings and ſtaircaſes of the Eſcurial, and other royal palaces; and the very high honours and emoluments beſtowed upon him, and others of the like taſte, aſſiſted, no doubt, to haſten the downfall of the art in Spain; in which country it diſappeared, as to any effective proſecution of it, about the ſame time that it did in Italy and in Flanders. The late turn of events in the Peninſula, has made us better acquainted with the productions of Spaniſh painting than we formerly were; and more intimate acquaintance ſerves to increaſe reſpect for the ſimplicity and ſuavity of the general taſte of their beſt artiſts. But their productions were not very numerous, and are difficult to be obtained.

In France the adoption of Lionardo da Vinci by Francis I. after he had left Italy, (and in whoſe arms he died,) together with the powerful talents of Primaticcio, of Roſſo, and of Nicolo Abbati, employed by the ſame monarch to paint in freſco the chambers of the royal palace of Fontainbleau; it might have been imagined, would have laid ſo ſtrong a foundation of exalted taſte in the country, where it came with all the charms of novelty, that it could not but have been purſued by a people eminent for their ingenuity, with a degree of ſucceſs rivalling the neighbouring country of Italy; more eſpecially as they had perpetual intercourſe with it, and were under the influence of the ſame ſyſtem of religion, which had there adopted painting as a portion of itſelf. Yet very little aroſe from theſe admirable examples; and the only French painters whoſe names have come down to us of any pretenſions to excellence for the next 150 years, are Jean Couſin and Jacques Blanchard. The former lived towards the end of the ſixteenth century, and was a ſkilful deſigner, though in a meagre taſte. He painted principally on glaſs. (See COUSIN.) The latter was of ſomewhat later date; and having, by ſtudy at Venice, acquired a taſte for Venetian deſign and colouring, he obtained the name of the French Titian, and his works were much eſteemed. After theſe, the art did not riſe in France, till Pouſſin, having imbibed a taſte for its excellencies in Italy, returned to his native country, but with reluctance, at the invitation of Louis XIII. Although the treatment he received was handſome, and becoming both patron and painter, yet he found the taſte of his country not formed to reliſh the ſimplicity of his ſtyle. The facile mediocrity of Simon Vouet received more admiration; and Pouſſin, diſguſted, returned to his tranquil life at Rome; leaving the field to a competitor, who laid the foundation of that flutter and frivolity, which characteriſed the ſtyle of the French ſchool previous to the revolution. Le Sueur, indeed, felt like a man of a pure and elevated mind; and ſpurned the trammels impoſed by the ſtyle of Vouet. The chaſtity, the feeling, and purity of the ſoul of Raphael, ſeem to have been infuſed into his mind, and exhibited itſelf in the ſeries of pictures painted for the convent of the Chartreux at Paris, and known as the life of St. Bruno; in the burning of the books of magic at Epheſus, &c. &c. But no preparation had been made to receive ſo pure a taſte as Le Sueur's; and in a court where oſtentation took place of magnificence, its ſuavity and gentleneſs were ill capable of withſtanding the brilliant, but falſe glitter, which accompanied the exertions of his fellow ſtudent under Vouet, Charles le Brun. He ſunk under the unjuſt abaſement, and fell a victim to mortality at the early age of 37; not without leaving cauſe for a ſuſpicion of his having been poiſoned.

His fortunate competitor Le Brun, formed, by the great extent of his ability, an era in the hiſtory of the art in France; and ſtands unrivalled in his ſtyle, as the acknowledged head of the French ſchool; the deity of its ſucceeding artiſts; and the theme of their eternal adoration, to the utter excluſion of all the real great painters of Italy, of Flanders, or of Spain. And if a vigorous imagination, and powerful execution of rich combinations, in forms, and colour; with an eye and a hand, which arranged with facility the various parts of extended compoſitions, and united them as a whole; will effectively weigh againſt the want of ſimplicity, natural expreſſion, and purity in deſign; then he well merited the diſtinction given him by his countrymen. The ſplendid arrangement of the gallery of Verſailles (now in danger of periſhing by the neglect that palace experienced during the days of republican France) is a ſatisfactory proof of the extent of his abilities; and when his battles of Alexander are placed in conjunction with it, we can no longer wonder that ſuch a diſplay of talent, ſo congenial to the mind of that vain ambitious monarch, Louis XIV., completely overpowered all competitors. During his long reign, talent of all kinds ſhone conſpicuous round his throne; and painting was conſequently elevated and encouraged; the ſplendour of the court, and the dignity of the king, being made the principal objects of attention by its profeſſors. An academy of painting, &c. was formed at Paris, under the immediate patronage of his majeſty; and another at Rome, for the benefit of French ſtudents. Vander Meulen accompanied him in his campaigns, and painted the principal events that occurred, to perpetuate his renown. But a more claſſical tribute of homage was required of the art, in that age of learning. In imitation therefore of Cæſar, who had perverted the pictures of Alexander, painted by Apelles, to his own exaltation, by adopting them as ſymbolic of that power which he had created for himſelf; ſo, by the inſtrumentality of Le Brun, Louis XIV. contrived to make the victories of that immortal conqueror emblematic of his own reſtleſs ambition, and his love of falſe glory, on which he prided himſelf, but for which no real hero ſighs, when it muſt be purchaſed at the dread price of ſuffering humanity. The grand monarch, however, in this miſtaken application of the art, acknowledged the utility of it, as an agent of glory to himſelf, through the medium of a more magnanimous prince, who conquering but to conquer, lightened a weight of execration by exhibiting many traits of real heroiſm. And the reſult has been, another proof added to the teſtimony of former ages, of the increaſed renown which may be acquired by a monarch and a country, from a cultivation of the arts which adorn human nature, above that derived from political cauſes.

If even the firm baſis of nature, upon which the ſtyle of Michael Angelo was founded, did not preſerve it from perverſion by his imitators; it was not likely that Le Brun's, built as it was upon the ſandy foundation of artifice, ſhould ſhare a happier fate. As it led the way in ſubſtituting theatrical for natural taſte, in geſture and in expreſſion, and had obtained ſuch a commanding influence by its ſucceſs; thoſe who adopted it appear to have imagined that the former was the beſt prototype of the two; and accordingly the ſtage, and its artificial airs and graces, which were ready made to their hands, and prevented the difficulty and trouble of ſearching and ſelecting from the coy haunts of nature what was neceſſary for their works, was made the ſubject of their imitation. But no want of ability appears in the men who immediately ſucceeded Le Brun. The wonder is that men endowed with ſo much talent, could have ſubmitted their underſtandings to ſo falſe a taſte. Sebaſtian Bourdon, indeed, ruſhed from it, and with true poetic feeling endeavoured to imitate, and often very ſucceſsfully did imitate, the purer taſte of Pouſſin; but Pierre Mignard, Jouvenet, Champagne, and Rigaud, ruſhed into the ſyſtem, till it became reduced to pompous no-meaning flutter; and in the hands of Van Loo, Bouchet, &c. loſt all trace of its maſterly origin, and ſunk into contempt, even in the country where it originated. In a more minute detail of the progreſs of the art than our limits will admit, the names of Watteau and of Vernet ought not to be overlooked, the former, particularly, who created a pleaſing ſtyle of execution and colour, and exhibited it in ſportive ſcenes of imagination drawn principally from the amuſements of the higher circles; and the latter introduced a taſte for landſcape and views of ſea-ports which had been unknown till his time, but was too artificial in his colouring.

When the terrors of the recent revolution had ſomewhat ſubſided, and in meaſure even during its courſe, it was thought proper in France to revolutionize the taſte of its arts. But whether the fervour of hatred to royalty, the determination to exterminate all remnants of it, even to its bounties, or a real feeling of the indirect courſe which the taſte of their ſchool of art had taken, guided them in the choice of their preſent ſtyle of deſign, and was the cauſe or not of the change, certain it is, that in its vibration, it has gone as far beyond the true line of propriety on the one ſide, as it had before done on the other. In place of the pompous diſplay of figures in affected attitudes, overloaded with draperies of rich ſtuffs flowing in all the parade of unmeaning magnificence, a dry and inſipid imitation of Greek ſculpture is adopted; and in ſpite of the immenſe maſs of perfect exemplars, in the works of Raphael, of Titian, of Domenichino, and almoſt all the renowned maſters of Italy and of Flanders, &c. with which the gallery of the Louvre abounds, and which, with a ſuperior judgment, the government leave free to their ſtudy; the preſent rulers of taſte in France have marked a line of conduct for the ſtudents, imitative of the condition of painting before thoſe maſters were born. Rejecting the efforts of the happy period of its maturity, they prefer reſorting to the infancy of the art, with about as much propriety as a man who is deſirous of walking might tie up his legs, and throw himſelf into the arms of his nurſe. Whether the minute attention now given by the French ſchool to drawing, and the peculiar taſte in which it is directed, *viz.* to the adoption, in painting, of the forms which appear to belong excluſively to ſculpture, be likely to produce, in any length of time, the end propoſed, is extremely problematic. We rather ſuſpect the ſyſtem muſt be changed 'ere they will reach the object of their wiſhes; and then perhaps this preparatory attention to ſimple forms may have its due effect.

It has remained to our time, that it ſhould be ſaid of England, ſhe had a ſchool of art appropriately her own.

So very little is known of what occurred concerning the art of painting in this country, previous to the time when Henry VIII. encouraged the abilities of Holbein in portraiture, and invited Titian to come here; that it would be uſeleſs to endeavour to trace its hiſtory. Enough, however, is known to ſatiſfy us that it was at a very low ſtandard. It was but little before his time, that the people of England began to throw off the yoke of ignorance and barbariſm; and to cultivate literature and ſcience. The ambition of Henry to be renowned, and his ſpirit of rivalry to his great neighbour Francis I. of France, were quite ſufficient motives to ſtimulate him to the proud aim of becoming a patron of the liberal arts; had not his theological diſcuſſions with Luther, and afterwards his more ſublunary quarrel with the pope, ſo powerfully diverted his attention from them; and produced him ſo active an employment in deciding the courſe of the reformation in religion which conſequently enſued. But however great be the cauſe that England has to rejoice in the general fruits of that change in religious principles and government; its effects were fatal to the cultivation of the arts of painting and ſculpture. Thoſe arts, particularly the latter, being then ſo thoroughly interwoven with the ſyſtem of the church of Rome, were of conſequence as thoroughly oppoſed by that of England, ſet up in defiance of its authority. Had the arts at this time, when the nation was new-modelling its character, been adopted by the reformed ſyſtem of religion; and had they accompanied it with progreſſive ſteps in its courſe to our preſent ſtate of cultivation; we might, together with our juſt privilege to boaſt of an exalted rank as a nation, in literature and ſcience, have likewiſe heightened our importance by exhibiting a ſettled ſtyle of hiſtorical painting. But it was nipped in the bud, and to this day has not overcome the effect of the chilling blaſt of diſappointment and neglect.

In the ſucceeding reigns of Edward VI., Mary, and Elizabeth, ſome few portrait painters, natives ſome, but principally foreigners, exerted themſelves to gratify the deſires of our nobility, and preſerve their features to the admiration of poſterity. St. Antonio More, Frederick Zucchero, Iſaac Oliver, Lucas de Heere, and others of leſs note, ſupported this branch of the art with varied ſucceſs. But during the long and ſplendid reign of the latter of the three ſovereigns, not only was encouragement denied to hiſtorical painting, but the very humble, and even graceful attempt made by the dean of her majeſty's chapel, Dr. Symſon, to afford her pleaſure from the ſight of prints upon religious ſubjects, met only with the ſeverity of rebuke. (See Strype's Annals.) Whether it were natural bigotry, or political neceſſity, which incited the queen to the uſe of the repulſive air ſhe aſſumed, it acted like a command upon the church. "Who," ſaid ſhe to the doctor, "engraved thoſe prints?" A German. "It is well it was a foreigner, or we ſhould have enquired into it," was the royal rejoinder, which gave the cue to the clergy, throughout the kingdom, for the "expunging of all paintings on the walls of churches, and the ſubſtitution of paſſages of ſcripture in their ſtead;" and from that time to the preſent hour, the prejudice, except in a very few inſtances, remains in full force. Thus was that channel through which alone the plaſtic arts had ever been introduced with ſucceſs into any country, cloſed upon the efforts of the Engliſh; and by that hand which, if conducted with true and enlightened policy, ought to have foſtered it. Nor can we be ſurpriſed if the people, ignorant and overheated as they were with religious zeal, ſhould unite in the feelings of their governors.

Charles I. endeavoured to introduce a feeling for the art, which his father had almoſt entirely overlooked; but for which he appears to have had a very great affection. He employed Rubens during his ſhort reſidence here, as envoy from the king of Spain, to paint the ceiling of the banqueting room, now the chapel of Whitehall; and procured a treaſure of ineſtimable value to the country, by the countenance and encouragement he afforded to Vandyke; and alſo to other ingenious foreigners, who have enriched the country with their productions. He formed a very conſiderable collection of pictures, in addition to thoſe already poſſeſſed by the crown, and at the ſuggeſtion of Rubens bought the cartoons; he employed an artiſt to copy the works of Titian in Spain, and purchaſed the cabinet of the duke of Mantua, at the coſt of 20,000*l.* (ſee Walpole's Anecdotes, Car. I.) and ſome were ſent him as preſents. The whole were ſold and diſperſed by the parliament in 1643, who gave eſpecial orders, "that all pictures which had the repreſentation of the Saviour or the Virgin Mary in them, ſhould be burnt." After the reſtoration many of them were returned to the Royal Collection, but only to meet utter annihilation by the fire which conſumed the palace of Whitehall.

Of the natives of England, few caught the flame of deſire to imitate them even in portraiture, not one in hiſtory. Of the former, W. Dobſon took the lead, and ſucceeded in painting a head with great ſkill; but there his abilities reſted. His exertions, and thoſe of his contemporaries, were arreſted, almoſt entirely, by the Gothic barbarity of the puritanical ſyſtem which followed; and the taſte of Charles II., whatever he might have acquired from his father, was only immerged in impurity and frivolity, by his long reſidence at the French court; where he acquired a taſte for that parade and pompous diſplay of magnificence which was the ruin of the French art.

Verrio, and Benedetto Gennaro, were the protègées of this monarch. The former was employed by him to decorate the ceilings and walls of the royal palace of Windſor; and received for the extravagant load of ingenious abſurdities with which he covered them, to the amount (according to Walpole) of 5500*l.* and upwards. Of the latter, there are ſeveral pictures at Windſor, in a ſtyle of dull imitation of Guercino, of whom he was a nephew. In portraiture ſir Peter Lely filled with very great ability the place which Vandyke had held; and in an original and very agreeable manner, he often roſe to a ſtation very nearly approaching that of his great predeceſſor. In the expreſſion of beauty he frequently ſurpaſſed him; and was a far more agreeable painter to the ladies. Sir Godfrey Kneller, likewiſe, in this reign began his long career of portrait painting; he ſucceeded to Lely's fame upon his deceaſe in 1680; and as an artiſt was utterly ruined by ſucceſs. Had he been under the neceſſity of labouring with care to ſupport the great name he enjoyed and abuſed, he had talents efficient to the purpoſe. Witneſs for him, the converted Chineſe at Windſor, the portrait of Newton at Petworth, of Dr. Meade at Oxford, and many others. But he lived and practiſed painting for five ſucceſſive reigns, almoſt without a rival, making gain rather than fame the object of his deſire. Dahl, who was a Swede, was the only one who interfered with his practice, to any extent. Wiſſing, his countryman, threatened, by his carefulneſs in finiſhing, to have more effectually counteracted him; but he, unfortunately for Kneller's reputation, died young.

In hiſtorical painting, no Engliſh artiſt had appeared to rival the productions of foreigners introduced here, in any degree, till at length ſir James Thornhill, born in 1677, aroſe to conteſt the honours of the pallette with La Guerre, who had been employed to adorn the halls and ſtaircaſes of many among our nobility. The ſtyle he adopted, like that of his rival, was but a lower imitation than Verrio's of the French ſchool; and by no means ſerved to elevate the taſte of the country. However, the ſtate did him the juſtice to employ him in the decorations of St. Paul's and at Greenwich, in which he was moſt materially aſſiſted by a German of the name of Andrè: but ſuch was the humiliating nature of his engagement, that he was paid at the rate of 40*s. per* ſquare yard. With him properly commences the hiſtory of Engliſh art, though portraiture, as we have noticed, had been practiſed by Dobſon after Vandyke, alſo by Riley, and by Cooper, who was a very ingenious artiſt, in miniature. But after them, it ſunk lower and lower, in the hands of Greenhill, Jervas, Richardſon, (who, notwithſtanding, has ſo admirably written upon the art, and exhibited in his eſſays a true feeling for thoſe excellencies which he could never exemplify by manner;) and hundreds of others whoſe names it would be cruel to reſcue from oblivion; for the mania for portraiture did not ceaſe, though the ability of the artiſts was faſt verging to utter decay. What ſir James Thornhill had done in hiſtorical, or rather decorative art, found no very ſucceſsful imitator; ſo that to uſe the words of Horace Walpole, "in the commencement of the reign of George I. the arts of England were ſunk almoſt to the loweſt ebb;” and with the ſtill greater authority of ſir Joſhua Reynolds we may add, “lower they could not well be.”

That ſuch ſhould be our degraded condition in the art of painting, which from its value and importance, when properly applied, has been ſo juſtly conſidered as eſſentially uſeful in promoting the dignity of a ſtate; and that, at a time when, in political importance, in ſcience, in poetry, and philoſophy, we held ſo high a ſtation among the kingdoms of Europe, where it had been cultivated with ſucceſs, muſt, at firſt ſight, appear ſomewhat paradoxical. A little conſideration upon the circumſtances which have counteracted its growth among us, will, however, at once ſatisfactorily diſpel the ſurpriſe it neceſſarily occaſions. In no nation has the art been known to riſe ſpontaneouſly to perfection. We have ſeen it in Greece and Italy gradually gaining ſtrength through accumulated years, growing as it were with the people. “The artiſt and the age,” Mr. Barry has obſerved, “were ſo fitted to the weakneſs of each other, that admiration was kept conſtantly alive during the whole ſucceſſive progreſs from barbariſm to perfection.” When it was firſt introduced from the earlieſt ſources of cultivation on the continent, this was the time to have encouraged it, and taught the nation to imbibe a taſte for its beauties; and then, by degrees, it might alſo have reaſonably been expected to have improved among us. Whereas the circumſtances related above, exhibit it, on the contrary, rebuffed, before it had taken ſufficient root, and what lighter branches had attached themſelves to the ſoil, torn with violence from its nouriſhment. The earlier works of the artiſts, whether Britiſh or foreign, being expunged from the churches, and the ſeal of authority placed againſt their future admiſſion; together with the breaking up of the monaſteries, and the conſequent diſperſion of thoſe bodies of men, to whom at leaſt mankind are indebted for the maintenance of literature, and the arts during the dark ages, ſettled completely the fate of hiſtorical painting in England. The favourable moment for employing it in any other than a religious courſe elapſed; and the general tone of education among the people, not having fitted them to receive its influence, except as attached to religion, what little had been adopted was ſtifled in its growth. In the mean time an accumulation of pictures gradually took place; the produce of other countries, where the art had been more regularly attended to, and the habit of reſorting to the continent for information gaining ſtrength, the acquired ideas of our nobility and gentry roſe above the power of the uncheriſhed artiſts of the country, which thoſe who guided public taſte upon too juſt grounds decried; and thus an evil which to this day operates to depreſs our artiſts, commenced its preponderating influence.

The circumſtance apparently moſt ſurpriſing in this matter, is, that when the powers of Vandyke were ſo long and ſo widely diſplayed in England, and portraiture ſo much encouraged, that ſo few of her artiſts ſhould have followed in his track, or that taſte ſhould have ſwerved ſo completely from it. But the fact is, that Britiſh ſtudents were inclined to purſue it, witneſs Dobſon and Riley; and Jameſone in Scotland; and they ſucceeded to a very conſiderable degree. It could not, however, be expected that when there had been ſo little food for nouriſhment offered to artiſts, that they ſhould at once ſpring to perfection, unleſs endowed with genius in a higher degree than even the renowned maſter whom they emulated. No one was immediately found equal to that, and the aſtoniſhment created by his exquiſite abilities, had ſcarcely ſubſided into regular ſtudy, when Lely appeared to uſurp his ſtation, and ſpread the peculiar beauties of his own ready pencil in the way; gratifying the court, and, conſequently, guiding the taſte of the country. Kneller ſucceeded rapidly to him; the Engliſh artiſts had not time to riſe; and imitation of the reigning influence was alone left for them; as no one advanced with ſufficient power of mind to ſteer ſucceſsfully in a track of his own.

The period at length arrived, when England, exerting her native energy, advanced in her turn to enjoy a ſhare of renown among the cultivators of the art of painting.

The principal difficulty in the outſet of this event, was to reſcue the art from the degrading influence of a vicious taſte, to retrace the ſteps of our predeceſſors, or rather, to burſt the bondage in which they had enthralled us, and reſort at once to the original principle of imitation; which, when pure and ſelect, is the only ſound baſis of the art. The firſt ſtep towards it was the eſtabliſhment of a ſchool for drawing from the living figure. This had been begun by ſir James Thornhill, in moſt inexplicable conjunction with ſir Godfrey Kneller, who one would imagine, from his latter works, had left all conſideration of the value of ſuch a thing far behind. Thus, however, he aſſiſted in laying the foundation of a remedy for the evil, which he more than any other had occaſioned. This ſchool, ſir James continued at his own houſe in the Piazza for ſome years. His death, in 1734, obliged the artiſts to procure another ſituation, which was not effected without ſome difficulty; for the people were ſo unprepared to conſider the ſtudy from the naked figure as neceſſary to the artiſts, that their meetings were even ſuſpected to be held for immoral purpoſes. Another ſchool was at length formed by Michael Moſer, a native of Schaffhauſen, and a chaſer by profeſſion, and ſix other artiſts, principally foreigners, the management reſting with Moſer. After a while they were viſited by Hogarth and others, and a larger body was formed in conſequence, who eſtabliſhed themſelves in Peter's-court, St. Martin's-lane, in the year 1739. Having acquired ſome property by combined exhibitions of their works, they ſolicited a charter of incorporation, and the ſcheme being ſanctioned by the king, their charter was granted in 1765. But diſſentions ariſing in the body, a ſeceſſion of many of its principal members took place, and the reſult was the eſtabliſhment of the Royal Academy in 1768, under the more immediate patronage of his majeſty; ſir Joſhua Reynolds being nominated its firſt preſident. Edwards's Anecdotes of Painters. Introduction.

In conjunction with theſe more active exertions of the artiſts, there did alſo ariſe in the minds of many gentlemen of improved underſtanding, a wiſh to ſee the art of the country emancipated from the ſhackles of the artificial taſte which was impoſed upon it, and ſocieties were formed, which made it an object of attention, and excited a more general regard for it. But this was not till after the time when the artiſts had forced their way into notice; more eſpecially Reynolds, Hogarth, and Wilſon.

Richardſon, who died in 1745, at the advanced age of 80, unable by his pencil to rival the real beauties of Vandyke, of Raphael, or others whoſe names ſtand on high record, endeavoured to make amends by his pen, and in 1715, publiſhed a book full of high encomiums of the merits of thoſe maſters, and of uſeful obſervations on the theory of the art of painting; and in 1719 another, on criticiſm, and the ſcience of a connoiſſeur; works of which nobody will be inclined to diſpute the merit, who knows the value which ſir Joſhua Reynolds placed upon them; and particularly the former, which he declared confirmed him in his love of the art, and elevated his ideas of its profeſſors. In it, Richardſon contended for the propriety of painting portraits in the coſtume of their time; a dangerous ſymptom of feeling for the continuation of the ſyſtem of looſe robes introduced by Kneller, when common ſenſe began to reſume her influence in the minds of artiſts. Hudſon, the ſon-in-law of Richardſon, with the help of Van Alken, (a Fleming,) and in rivalry with Van Loo, (a Frenchman and brother to Carlo Van Loo,) profited by the ſuggeſtion, and ventured to reject the nonſenſical draperies in uſe at the time; and inſtead of looſe unmeaning pieces of varied ſtuffs thrown in artificial folds over the ſhoulders of the gentlemen; and the affectation of grace and grandeur in which the ladies were repreſented *en chemiſe*, half expoſed and half enveloped in one ill-contrived piece of ſilk, as if they had careleſsly thrown on a mantle when riſing from their beds, he dreſſed them in the formality of the day; and his Flemiſh aſſiſtant painted their ſilks and laces with great care and exactneſs. Hayman alſo, who had ſucceeded ſir James Thornhill as an hiſtorical painter, upon the ſame ground felt himſelf at liberty to preſerve the uniforms proper to thoſe whom he introduced into his pictures; and no longer by a ſenſeleſs magic converted them into Roman centurions or Grecian heroes.

Thus, by the aid of the ſchools we have mentioned, and their own good ſenſe, the attention of Engliſh painters was at laſt ſtedfaſtly attached to the firſt principle of their art, imitation, from whence they might riſe; inſtead of being diſtracted by that which properly belongs only to its decay, ornament, from whence to proceed muſt be to fall. It was comparatively of no import, that the materials which they had to imitate were deteſtable in themſelves; and nothing could be more repulſive to good taſte than the toupees and ſtiff ſkirts of the men, and the ſtarched ruffles, high heads, and hoop petticoats of the women. Attention to actual repreſentation in the firſt inſtance, appears to have been the only means by which the vile ſpell that controuled them could be effectually diſſolved. That once broken, and a cultivation of taſte taking place on better grounds; and when a real knowledge of what was truly admirable in art, and attainable in its practice, had been aſſiduouſly cultivated by our artiſts in Italy, unſhackled by any extraneous trammels, and exerting their judgments in a right unbiaſſed direction; it no longer appeared problematic, whether England might, or not, produce painters, as ſhe had done poets and philoſophers. The chains which had prevented her native exertions, had been forged imperceptibly by foreigners, who reviled her, aided by unfortunate political circumſtances; and it is not a little ſtriking, that when ſhe rejected their influence, when all pretenſions to art were ſinking upon the continent, and thoſe countries where it had moſt flouriſhed, ceaſed to produce painters of eminence; that, at that very time, England ſhould ſtep at once from her obſcurity, and illumine the deadened atmoſphere of art, with an irradiation of no common luſtre.

It were uſeleſs to trace the progreſs of the art in the hands of thoſe who in minor degree aſſiſted in this enfranchiſement of it in our country; "or recount the ſtammering and babbling of its infancy;" for as ſuch, its condition at the time of which we are ſpeaking may be regarded. It ſcarcely enjoyed the period of youth, for when Reynolds and Wilſon returned from Rome, they ruſhed at once with it to maturity in portraiture and in landſcape. And when Weſt, having by his Britiſh connections in America imbibed a true taſte for its beauties, had alſo cultivated it in Italy, and came here to devote his life in its ſervice, all that had been done in hiſtory, by Hayman, by Pine, by Wale, and others, was inſtantly ſunk in oblivion.

Hogarth, however, demands a reſcue from the maſs of our earlier artiſts. With a marked originality of feeling, he purſued the art as his own taſte, or rather fortune, guided him; and traced a line for himſelf totally unknown to any other, though more in the application of the art than in itſelf. Yet in his latter pictures, particularly in his Rake's Progreſs, and the Marriage-a-la-Mode, he exhibited a thorough feeling for the beauties of the Dutch ſchool; executed in a broad ſtyle of his own, and proving, that if his youth had been employed in painting pictures, inſtead of engraving ſilver tankards, he might have rivalled the beſt among them.

In landſcape, Lambert had advanced beyond the ſteps of his contemporaries; and produced with ſome talent, a kind of union of the peculiarities of Gaſper Pouſſin, and Claude. But when Wilſon expanded his brilliant, chaſte, and glowing tints, in ample maſſes of light and ſhade, over the canvas; the art ſeemed to leap at once ages in advance; far too rapid, indeed, for the taſte of the public; or the benefit of its (ſubſequently) adored profeſſor. See Life of Wilſon.

Whatever had been done here in portraiture, from the time of Vandyke and Lely till 1752, when Reynolds returned from Italy, was then utterly annihilated by the diſplay of his ſplendid talents; the foundation of all, which this branch of the art boaſts in the Engliſh ſchool. Not but that there have been and are exhibited various deviations with original feeling, from his peculiar taſte; but his is the acknowledged and undoubted claim of ſuperiority, as of priority. His beſt portraits are inferior to none, for truth of character, and ſtyle of treatment; in many points they are ſuperior to thoſe of all the portrait painters who ever lived; and to his talents, exhibited in the various works collected by the Britiſh Inſtitution, and opened to the public during this laſt ſummer, (1813,) the nation has, by acclamation, declared its homage, and acknowledged its obligations. See *Sir* Joshua Reynolds.

With reſpect to the practice of the higher ſtyle of hiſtorical painting in this country, the rank it merits is ſo much the almoſt excluſive privilege of artiſts now living, that it is not eaſy to know how to ſtate the ſentiments which liberal and candid criticiſm dictates concerning it. Partiality may blind, or true criticiſm, if given, may be miſconſtrued to flattery, or ſome principle of a meaner kind. It muſt be left, therefore, to poſterity, to give the due meed of praiſe to thoſe, who have exerted themſelves againſt innumerable difficulties, and endeavoured to uphold the true ſpirit of the art in this, its moſt arduous application; and perſevered, till at length ſomething like an inclination to encourage their efforts appears to ariſe, where alone it can be effectual. No one can for an inſtant heſitate to declare their ſenſe of the exalted abilities with which it has been, and is ſupported; or ceaſe to wiſh to ſee them duly engaged.

Of thoſe who have practiſed in this branch of the art, and are departed, Reynolds, Romney, Opie, and Barry, require to be particularly mentioned. The former with all the ſplendour of chiaro-ſcuro and colour, which no one ſince Rembrandt has wielded with ſo much authority, exhibited in his pictures of Hercules ſtrangling the ſerpents, Macbeth, cardinal Beaufort, and Ugolino, a fund of hiſtoric power. Romney alſo had poetic imagination, feeling and expreſſion; and in the little leiſure allowed by his general practice of portraiture, indulged in the delights ideal ſubjects afforded him; while Opie preſented "images new and ſtriking, drawn directly from nature," and "what he wanted of academical or claſſical information, he compenſated for, in great meaſure, by character, by force, and by a juſt and bold imitation." But of the four, Barry was the only one who had regularly educated himſelf for its practice, and undoubtedly had the higheſt and moſt enthuſiaſtic feeling for its beſt qualities. With a generous zeal worthy of the higheſt encomium, he broke entirely from all conſideration of the ordinary ſtyle of ſubject, or deſign; and contemplating his art in the moſt exalted manner, attempted to embody the elevated ideas he entertained. His moſt ſincere admirers muſt, however, regret, that thoſe excellent ſentiments, which he ſo ably inculcated by his pen, were not more completely ſupported by his pencil; yet, his productions of the ſeries of pictures upon the culture of man, in the great room of the ſociety in the Adelphi, notwithſtanding their imperfections in the executive part, muſt ever remain a marked event in the annals of hiſtorical painting in England.

For further illuſtrations on this ſubject, ſee PICTURE.

Colours employed by the Romans in Painting, in the time of Pliny. See Pliny, lib. xxxv. caps. 6 and 7.

WHITES.

Melinum.	A native white earth, from the iſland of Melos, uſed by Apelles before white lead prepared with vinegar was invented.
Paratonium.	An Egyptian white earth, uſed in diſtemper; and ſimilar probably to the white now called Cremnitz white, from Hungary. Pliny complains that paratonium was frequently adulterated with Cimolian earth, which was uſed by the fullers at Rome.
Eretria.	An aſhy white. It is named from a town of Eubœa, now Trocco.
Ceruſſa.	White lead.
Anulare.	Gypſum.
Creta.	Chalk.

YELLOWS.

Sil.	Ochre of four kinds; named Atticum, Lucidum, Syricum, and Marmoroſum.
Auripigmentum. *Arſenicum.*	Orpiment.
Ceruſſa uſta.	Maſticot, firſt diſcovered by the fire at the Piræus.

REDS.

Minium.	Red lead, both natural and artificial. The beſt native minium was found in a quickſilver mine near Epheſus; and in endeavouring to extract gold from it, Callias, the Athenian, diſcovered vermilion.
Vermilion.	The ſame as now uſed.
Sinopis.	A red earth. The beſt was found near Lemnos, and was ſo valuable, as to be ſold ſealed up. It approached near in colour to minium.
Rubrica.	A red earth.
Cinnabar.	Native Indian name for dragon's blood.
Sandaracha.	A red orpiment.
Sandyx.	By ſome thought to be vegetable red, and obtained ſomewhat after the manner of our lakes, *viz.* abſorbing the colouring matter of a decoction of the vegetable matter in chalk.
Purpuriſſum.	A lake made from the ingredient uſed in dyeing purple, being abſorbed in tripoli.
Syricum.	A mixture of ſinopis and ſandyx.

BLUES.

Armenium, or *Azure*, alſo called *Ceruleum.*	Verd'azur, or blue vitriol. Pliny calls it a ſand; and ſays there were three kinds, *viz.* the Egyptian, the Scythian, and the Cyprian.
Indicum.	Indigo.

GREENS.

Chryſocolla.	Malachite, or mountain green.
Appianum.	Another of the ſame nature.

BLACKS.

Atramentum.	A common name for all black colours. Pliny ſpeaks of one kind, as oozing from the earth; and it may poſſibly have been ſome kind of bitumen. Of another, as being made from ſmoke of roſin and pitch. Burnt lees of wine, or huſks of grapes, produced another, uſed under the name of Truginon, by Polygnotus and Micon; and another was invented and uſed by Apelles, by burning ivory. That being made thin by ſome vehicle, was probably the atramentum or varniſh, which he is ſaid to have laid over the ſurface of his pictures. What the vehicle was is unknown; perhaps, as the mode of painting with wax by heat was practiſed, it might have been ſome modification of that material.

According to Pliny, " Apelles and other ancient artiſts uſed only four of the colouring ſubſtances mentioned above. But if we are to give him credit for the propriety of the praiſes he beſtows upon their productions, we are under the neceſſity of denying it to him in this matter. Had he not ſpecified the ſubſtances themſelves, and we had been left to imagine that they poſſeſſed others more perfect in quality, the aſſertion might have been admitted; becauſe, philoſophically ſpeaking, four perfect colours, with all their combinations, are certainly adequate to every purpoſe the art of colouring could require. Unfortunately for him, the ſubſtances he has mentioned are not in their nature equal to the power of thoſe we now poſſeſs: and the practice of art, even with our preſent advantages, denies the knowledge of any four pigments, equal to the production of a work worthy of being denominated a fine piece of colouring. He ſays, lib. xxxv. c. 7. that " they uſed only MELOS for white; SIL, *attic ochre*, for yellow; SINOPIS, red; and ATRAMENTUM, black." He has before obſerved, that "Polygnotus and Micon uſed a black made of grape huſks," which is a *blue-black;* and probably the greyeſt they had; but this is no ſubſtitute for blue, worth mentioning. The mere enumeration of them muſt ſuggeſt to every artiſt, the utter impoſſibility of producing any work of fine colouring from them, unleſs in a very confined ſcale.

The pigments in preſent uſe are very numerous. Thoſe employed in freſco, have been mentioned under that head. The principal ones fitted for the general purpoſes of oil painting, are, *Cremnitz white*, *white lead* of different kinds, a fine yellow lately diſcovered from chromate of iron, *King's yellow* or *orpiment*, *Naples yellow*, *patent yellow*, *ochres*, *Dutch pink*, *terra di Sienna*, *yellow lake*, *red lead*, *vermilion*, *red ochre*, *Indian red*, *Venetian red*, *lakes* of various kinds, *brown pink*, *Van Dyke's brown*, *umber*, *burnt and unburnt*, *terra di Sienna*, *burnt*, *Pruſſian and Antwerp blue*, *ultramarine*, *ivory-black*, *blue-black*, *aſphaltum*. Theſe are the principal colours for the pallette, but there are a variety of others, which are employed for particular purpoſes, ſuch as verdigris, &c. &c. The natures of theſe colours may be known by reference to their particular ſpecifications.

The oils beſt adapted to the purpoſe of painting, are *poppy*, *nut*, and *linſeed oils*; and in this climate a preparation of the latter, by boiling it with ſome ſiccative, is in very common uſe. See OILS.

The varniſhes moſt employed are made from *gum maſtic* and *gum copal*, the former diſſolved in ſpirit of turpentine, the latter in oil, &c. (See VARNISH.) To thoſe who deſire more minute information on the ſubject of colours and vehicles, we recommend the peruſal of P. F. Tingry's Painter's and Varniſher's Guide.

The preparations of grounds for painting upon, is matter worthy of particular attention. The mode now moſt in uſe is of abſorbent ones; by which the oil being taken up, is of courſe prevented from coming to the ſurface of the painting, and giving its own yellow hue to the work. Abſorbent grounds are made of different materials. Some employ plaiſter of Paris, others pipe-clay, whiting, and ſize, &c. The former are apt to take up the oil too quick, and render the colour too ſtiff to work agreeably; and the latter are always liable to be affected by damp. A better one than either is produced, by grinding the colour in water, and then mixing a little oil with it. This does not cauſe the diſagreeable effect above-mentioned, and is always firm. One great object in laying on the ground, is not to give too much of it; but juſt ſufficient to cover the threads and interſtices of the canvas, or the grain of the wood: if too much be laid on, it is in danger of chipping off, or of cracking.

For the practice of the art of painting, it is very difficult to give many efficient rules. The principal objects which require attention, are to let the preparatory colours be lighter and cleaner, (that is rather more grey,) than thoſe with which it is intended to finiſh, and to take care that the full form be made out with the under colour, before any proceeding is made with the finiſhing ones; which ought not to be diſturbed in their hues; and to be employed only to ſtrengthen thoſe prepared, and give lightneſs and delicacy of execution. It is alſo deſirable in painting, that the colours be diſturbed as little as poſſible with the bruſh; and not be too much blended, or ſoftened; but rather laid on with touches, beſide each other; as that tends to keep them pure; whilſt too much fretting cauſes them to become muddy, and to change in drying. The firſt part of the proceſs of a picture, after the artiſt has fixed in his own mind a full idea of his compoſition in all its material parts, is, for him to draw correctly the general forms, and then begin to paint in his chiaro-ſcuro, with as ſimple a ſcale of colour as poſſible; and fully to ſatisfy himſelf on that head before he proceeds with his poſitive colours. This is the readieſt mode of avoiding confuſion and the neceſſity of frequent repetition; but there are almoſt as many modes of proceſs as there are painters; each varying in ſome reſpect from the other, and every man's practice, either by accident or principle, furniſhing him with varieties. Too great an adherence to ſyſtem, is certainly not favourable to advancement; yet without a ſyſtem, much time is neceſſarily loſt; and it ſeems moſt reaſonable, that every artiſt ſhould commence with one, however he may find it neceſſary to vary from it in his progreſs. Rubens, and moſt of the Flemiſh ſchool, evidently exhibit theirs, by leaving ſo much of the coloured ground of the picture to act among the ſhadows, and under the half teint; as is always ſeen in their productions. In order to do this effectually, a finiſhed ſketch ought to be prepared; and indeed, in any mode of art, ſuch an one is very uſeful; particularly where the work is of any great extent.

For the great principles which guide and govern the practice of the art, ſee the reſpective articles COMPOSITION, COLOURING, DESIGN, &c. &c.

PAINTING.

A Chronological Liſt of ancient Painters; from the earlieſt Period, to the Decay of the Art under the Romans.

Names.	Country.	Time.	Excelled in
Bularchus	Greece	700 B. C.	Hiſtory.
Panænus	Athens	about 430 B. C.	Hiſtory and Portraits.
Polygnotus	Athens	the ſame time	The ſame, and firſt gave character.
Timagoras	Athens	nearly the ſame.	Hiſtory.
Micon	- - -		
Aglaophon	- - -		
Cephiſodorus	- - -		
Phytus	- - -		
Evenor	- - -		
Apollodorus	Athens	ſoon after	Hiſtory; firſt who adopted the true principle of ſelect beauty in painting.
Zeuxis	Heraclea	about 404 B. C.	Colour and taſte.
Parrhaſius	Epheſus	ſame time	Same qualities.
Timanthes	Samos	near the ſame time	Great invention and fullneſs of expreſſion.
Euxenidas	- - -	ditto.	
Ariſtides	- - -	ditto.	
Pamphilus	Athens	about 340 B. C.	Taught Apelles; united ſcience to art; and obtained great privileges of the Sicyonians; and afterwards of all Greece, for the profeſſors.
Eipion	- - -	ſame time.	
Therimachus	- - -	ditto.	
Apelles	Native of Cos	328 B C.	In all the various parts of painting.
Pauſias	Sicyon	- - -	Encauſtic.
Ariſtelaus	Son of Pauſias	- - -	Hiſtory.
Protogenes	Rhodes	the ſame time	Taſte and finiſh.
Aſclepiodorus	- - -	ditto	Proportion.
Amphion	- - -	ditto	Arrangement.
Ariſtides	Thebes	ſomewhat later	Expreſſion.
Nicomachus	- - -	- - -	Hiſtory and poetical ſubjects.
Philoxenus	Eretria	- - -	Hiſtory.
Perſeus.			
Fabius	Rome	about 300 B. C.	
Ariſtippus and Niceros	Sons of Ariſtides	- - -	Poetic ſubjects.
Antonides and Euphranor	Pupils of Ariſtippus.		
Pyreicus	- - -	later	Called Rhyparographus, becauſe he painted low or vulgar ſubjects.
Serapion	- - -	- - -	Vulgar ſubjects on a large ſcale.
Lyſippus	Egina	- - -	Encauſtic.
Antidotus	Pupil of Euphranor.		
Nicias	Athens, pupil to Antidotus	one of the ſame name, lived at the time of Apelles	Portraits, Hiſtory, and Poetry.
Pacuvius	Rome	150 B. C.	Hiſtory.
Metrodorus	Athens	170 B. C.	
Timomachus	Byzantium	30 B. C.	

Pliny mentions many other names of painters, and what kind of pictures they made in the decline of art; but does not ſpecify at what time they lived. See lib. xxxv. cap. 11. ver. 1.

PAINTING.

A Chronological Liſt of Painters, from the Revival of the Art, to the Beginning of the laſt Century.

Names.	Studied under	Excelled in	Pamted	Country, Place, and Year of their Death.	Aged.	Principal Works are at
Giovanni Cimabue	certain Greeks	firſt revived painting	Hiſtory	Florence, Flor. 1300	60	almoſt all periſhed.
Andrea Taffi	Apollonius, a Greek	revived Moſaic	Hiſtory	Florence 1294	81	unknown.
Giotto	Cimabue	quitted the ſtiff manner of the Greeks	Hiſtory	Florence 1336	60	Rome, St. Peter's, Arezzo—Moſaics. Aſſiſi.
Buonamico Buffalmacco	Andrea Taffi	- -	Hiſtory	Florence 1340	78	Piſa, Campo-Santo.
Ambrogio Lorenzetti	Giotto	- -	Hiſtory	Sienna 1350	83	
Pietro Cavallini	Giotto	- -	Hiſtory	Rome 1364	85	Rome, St. Paolo furor della Citta.
Simon Memmi	Giotto	- -	Portraits	Sienna, Florence 1345	60	
Andrea Orgagna	imitated Giotto	- -	Hiſtory	Florence 1389	60	Florence, the Dome.
Tomaſo Giottino	imitated Giotto	- -	Hiſtory	Florence 1356	32	
Paolo Uccel'o	Antonio Venetiano	firſt who ſtudied perſpective	Birds, ſome Hiſ.	Florence 1432	83	
Maſſolino	Lorenzo Ghiberti and Gher. Starnina	gave more grace to his figures and drapery	Hiſtory	Florence 1418	37	
Maſaccio	Maſſolino	- -	Hiſtory	Florence 1443	24	Florence.
Fra. Giov. Angelico da Fieſole	Giottino	- -	Hiſt. Miniatures	Florence, Rome 1455	68	Florence, the Palace, in the apartments of, the old pictures.
Antonella da Meſſina	John Van Eyck	introduced oil-painting into Italy	Hiſtory	Meſſina 1475	49	
Fra. Filippo Lippi	Maſaccio	began to paint figures larger than life	Hiſtory	Florence, Rome 1488	69	Florence, the Palace.
Andrea del Caſtagno, detto Degl' Impiccati	Domenico Venetiano	painted in oil firſt at Florence	Hiſtory	Florence 1480	71	
Gentile del Fabriano	Giovanni da Fieſole	- -	Hiſtory	Verona 1412	80	Rome, S. Giov. Laterano, S. Mar. Maggiore.
Giacomo Bellini	Gentile del Fabriano	- -	Hiſtory	Venice 1470	—	
Gentile Bellini	Giacomo their father	- -	Hiſtory	Venice 1501	80	Venice, in ſome cabinets.
Giovanni Bellini			Hiſtory	Venice 1512	90	
Coſmo Roſſelli	- -	- -	Hiſtory	Florence, Rome 1484	68	Rome, Capella Siſtina.
Domenico Ghirlandaio	Aleſſand. Baldovinetti	lively colouring, genteel deſigning, and good airs	Hiſtory	Florence 1493	44	Florence, Palace, Cloſet of Madama.
Andrea Verocchio	Giacomo Squarcione	obſervation of perſpective	Hiſtory	Florence 1488	56	
Andrea Mantegna	- -	- -	Hiſtory	Padua, Mantua 1517	66	Florence, Rome, apartments of Innocent VIII. at the Belvedere chapel.
Filippo Lippi	Fra. Philippo his father, and Sandro Boticelli	- -	Hiſtory	Florence 1505	69	
Pietro Perugino	Andrea Verocchio	- -	Hiſtory	Perugia, Rome 1524	78	Rome, Pal. Borgheſe, &c.
Bernardino Pinturicchio	Pietro Perugino	- -	Hiſtory	Florence, Sienna 1513	59	Sienna, library of the Dome, Rome, Santa Croce in Gieruſalemme; Madonna dell Popolo, &c.

Names.	Studied under	Excelled in	Painted	Country, Place, and Year of their Death.	Aged.	Principal Works are at
Franceſco Francia -	Marco Zoppo -	firſt conſiderable maſter of the Bologneſe ſchool	Hiſtory	Bologna 1518	68	Bologna, in ſeveral churches.
Bartolomeo Ramenghi, detto Il Bagnacavallo	Franceſco Francia	ſoft and fleſhy colouring	Hiſtory	Bologna 1541	48	Bologna.
Innocenzo Francuzzi, detto da Imola	Franceſco Francia	correct drawing -	Hiſtory	Bologna ——	—	Bologna.
Franceſco Turbido, detto Il Mauro	Giorgione - -	- -	Portraits	Verona 1521	81	
Luca Signorelli -	Pietro della Franceſca	- -	Hiſtory	Cortona 1521	82	
Lionardo da Vinci	- -	exquiſite deſigning	Hiſt. and Portraits	Milan, Paris 1517	75	Milan, the Dominicans, the Academy; Florence, Pal. Pitti; Rome, Pal. Borgheſe, Barberini.
Giorgio Giorgione -	imitated Lionardo's manner - -	management of the clair-obſcure, and colouring	Hiſt. and Portraits	Caſtle Franco nel Trevigiano, Venice, 1511	33	Venice; Florence, Pal. Pitti; Rome, Pal. Pamphili.
Antonio da Correggio	- -	divine colouring and morbidezza of his fleſh; angelical grace and joyous airs of his figures and clair-obſcure - -	Hiſt. and Portraits	Correggio nel Reggiano 1534	40	Modena, the Duke's Collections; Parma, the Dome, Saint Antonio abbate, S. Giovanni del Monte, ſan Sepulcro; Florence, the Palace; Paris, the Palais Royal, &c. Naples, the King's Collections. Dreſden.
Mariotto Albertinelli	Coſmo Roſelli -	- -	Hiſtory	Florence 1520	45	
Baccio, detto Fra. Bartolomeo di S. Marco	Coſmo Roſelli -	grandeur of ſtyle in draperies	Hiſtory	Florence 1517	48	
Pietro di Coſimo -	Coſmo Roſelli -	- -	Groteſq. and monſt.	Florence 1521	80	
Raphaelino del Garbo	Filippo Lippi -	- -	Hiſtory	Florence 1529	58	
Michael Angelo Buonarotta - -	Dominico Ghirlandaio - -	great correctneſs of deſign, grand & terrible ſubjects, profound knowledge of the anatomical part - -	Hiſtory	Chiuſi, preſſo d' Arezzo; Rome 1564	90	Rome, Capella, Siſtina, Capella Paulina, S. Giovanni Laterano; Florence, the Palace.
Raffaelle Sanzio d' Urbino - -	Pietro Perugino: corrected his manner upon ſeeing the works of Lionardo da Vinci and Michael Angelo - -	in every part of painting, but chiefly in the thought, compoſition, expreſſion, and drawing -	Hiſt. and Portraits	Urbino, Rome 1520	37	Rome, the Vatican, S. Pietro, in Montorio; S. Aguſtino, the Lungara, &c.; Florence, the Palace; France, Verſailles, the Palais Royal; England, Hampton-Court; Naples, the King's Collection.
Titiano Vecelli -	Giovanni Bellini and Giorgione -	the clair-obſcure & all the beauties of colouring	Hiſt. and Portraits	Cadore nel Friuleſe; Venice 1576	99	Venice; Rome, in many Collections; Spain; England, &c.
Domenico Puligo -	Domenico Ghirlandaio	- -	Hiſtory	Florence 1525	52	
Timoteo Urbino -	Rafaëlle - -	the ſame as his maſter -	Hiſtory	Urbino 1524	54	Rome, Madonna della Pace.

Names.	Studied under	Excelled in	Painted	Country, Place, and Year of their Death.	Aged.	Principal Works are at
Vicenzo da San Geminiano	Rafaëlle - -	- -	Hiſtory	S. Geminiano 1527	52	Rome, the Vatican.
Lorenzo di Credi -	Andrea Verocchio, imitated Lionardo da Vinci	- -	Hiſtory	Florence 1530	—	
Balthazar Peruzzi -	- -	- -	Hiſtory, buildings	Sienna, Rome 1536	55	Rome, Madonna della Pace.
Giovanni Franceſco Penni, detto il Fattore	Rafaëlle - -	good imitation of his maſter, and great diſpatch	Hiſtory	Rome, Naples 1528	40	Rome, the Vatican; Lungara.
Giulio Romano -	Rafaëlle - -	in poetic imagery	Hiſtory	Rome, Mantua 1546	54	Rome, Vatican, &c. Mantua, the Palace Té.
Peligrino di Modena -	Rafaëlle - -	- -	Hiſtory	Modena 1538	—	
Pierino Buonacorvi, detto Perin del Vago	Rafaëlle - -	- -	Hiſtory	Florence, Rome 1547	47	Rome, Vatican; Genoa, Pal. Doria.
Giovanni da Udina -	Rafaëlle - -	animals, flowers, and fruits -	Groteſq.	Udina, Rome 1564	70	Rome, Vatican, &c.
Andrea del Sarto -	Pietro di Coſimo -	natural and graceful airs, and correct drawing; a bright manner of colouring	Hiſtory Port.	Florence 1530	42	Florence, the Palace, Monaſterio dé Scalzi, &c.; Rome, Pal. Borgheſe, &c.; Naples, King's Collection.
Francia Bigio -	Mariotto Albertinelli - -	painted in company with and like Andrea	Hiſtory	Florence ——	41	
Sebaſtiano, detto Fra del Piombo -	Giov. Bellini; Il Giorgione, M. Angelo -	painted in the ſtrong and correct manner of this laſt, and coloured better	Hiſtory Portr.	Venice, Rome 1547	62	Rome, S. Pietro in Montorio, Cap. Chigi; France, Palais Royal.
Orazio Sammachini -	Il Bagnacavallo, Innocenzo d'Imola	- -	Hiſtory	Bologna 1577	45	
Lorenzetto Sabattini	the ſame - -	- -	Hiſtory	Bologna ——	—	
Proſpero Fontana -	the ſame - -	- -	Hiſ. Por.	Bologna ——	—	
Lavinia Fontana -	Proſpero her father	- -	Hiſ. Por.	Bologna 1602	50	
Pelegrino Tibaldi -	Il Bagnacavallo, Innocenzo d'Imola	a ſtrong Michael Angelo manner	Hiſtory	Bologna, Milan 1592	70	Bologna, the Academy; Spain, the Eſcurial.
Primaticcio, detto il Bologna - -	the ſame; Julio Romano - -	genteelneſs and vivacity of imagination	Hiſtory	Bologna, France 1570	80	Fontainbleau; Chateau de Beauregard prés de Blois.
Nicolo Bologneſe, detto Meſſer Nicolo	Primaticcio -	ſkilful execution	Hiſtory	Modena 1372	60	Fontainbleau.
Il Doſſo - -	Lorenzo Coſta, Titian	- -	Hiſtory landſc.	Ferrara, Ferrara ——	—	
Bernazzano da Milano	- -	- -	Animals, landſc. & fruits	Milan 1550	—	
Giovanni Martino da Udina	Giov. Bellini -	- -	Hiſtory	Udina, Venice 1564	70	
Pelegrino da ſan Danielo	the ſame - -	- -	Hiſtory	Venice ——	—	
Giovanni Antonio Regillo, detto Licinio da Pordenone	Giorgione -	fine colouring -	Hiſtory Portraits	Pordenone nel Friuli, Venice 1540	56	Venice.
Girolamo da Trevigi	- -	- -	Hiſtory buildings	Il Truigiano, Engl. 1544	36	
Polidoro da Caravaggio	Rafaëlle - -	the correctneſs of deſign and imitation of the antique chiefly in chiaro-ſcuro	Hiſtory	Caravaggio, Meſſina 1543	51	Rome, Pal. Barberini, Maſchera d'Oro, Caſa di Belloni.

Names.	Studied under	Excelled in	Painted	Country, Place, and Year of their Death.	Aged.	Principal Works are at
Il Maturino - -	Rafaëlle - -	the ſame; they always painted together	Hiſtory	Florence 1527	37	
Franceſco Mazzuolo, detto Il Parmegiano	imitated Rafaëlle -	great delicacy and genteelneſs of drawing -	Hiſtory	Parma 1540	36	Parma, the Dome, Madonna della Steccata; in many collections.
Girolamo Mezzuoli -	Franceſco, his couſin	whom he always imitated	Hiſtory	Parma ——	—	Parma, San Sepolcro.
Giacomo Palma, detto Il Vecchio	Titian and others -	warm and mellow tints	Hiſ. Por.	Venice 1596	48	Venice, and in ſeveral collections.
Lorenzo Lotto -	imitated Bellini and Giorgione	- -	Hiſ. Por.	Venice 1544	36	
Franceſco Monſignori	Bellini - - -	- -	Portraits	Venice 1519	64	
Domenico Beccafumio Meccarino	imitated Pietro Perugino	- -	Hiſtory	Sienna 1549	65	Sienna, Pavement of the Dome.
Giacomo Pontormo -	Lionardo da Vinci, Albertinelli; Andrea del Sarto	- -	Hiſtory	Florence 1558	65	Florence.
Girolamo Genga -	Pietro Perugino -	- -	Hiſtory	Urbino 1551	75	
Giov. Antonio da Verzelli, detto Il Sodoma	- -	- -	Hiſtory	—— Sienna 1554	—	
Baſtiano Ariſtotile -	- -	- -	Hiſtory	Florence 1551	70	
Benvenuto Garofalo -	Baldini, Lorenzo Coſta	like Rafaëlle -	Hiſtory	Ferrara 1559	78	In a few collections.
Girolamo da Carpi -	Garofalo, he imitated Correggio	- -	Hiſtory	Ferrara 1556	55	
Giov. Franceſco Bezzi, detto Il Noſadella	Pelegrino Tibaldi -	- -	Hiſtory	Bologna 1571	—	Bologna.
Ercole Procaccini -	the ſame - -	- -	Hiſtory	Bologna ——	—	
Bartolomeo & tre figli } Paſſerotti	the ſame - -	- -	Hiſtory	Bologna ——	—	
Franceſco Salviati -	Andrea del Sarto -	- -	Hiſtory	Florence 1563	54	Florence.
Giorgio Vaſari - -	the ſame - -	- -	Hiſ. Por.	Florence 1584	68	Rome, Santa Croce; Florence, the Palace.
Daniel Ricciarelli, detto da Volterra	Il Sodoma; Baldaſar Peruzzi	in completion of character	Hiſtory	Volterra 1566	57	Rome, S. Trinita del Monte, S. Agoſtino.
Taddeo Zucchero -	ſtudied Rafaëlle -	- -	Hiſ. Por.	St. Angelo in Vado, nell'Urbino Rome 1566	37	Rome, the Caprarola, Pal. Farneſe.
Frederico Zucchero -	- -	painted with his brother -	Hiſ. Por.	—— Rome 1609	66	Rome, ſeveral collections.
Bartolomeo Ceſi -	Il Noſadella - -	- -	Hiſtory	Bologna ——	79	
Dionigi Calvart -	Proſpero Fontana -	- -	Hiſtory	Antwerp, Bologna 1619	54	
John of Bruges - -	Hubert Van Eyck	ſaid to have invented oil-painting -	Hiſ. Por.	Venlo in Guelders, Bruges 1470	—	Ghent, the cathedral.
Albert Durer - -	Hupſe Martin -	- -	Hiſ. Por.	Nuremberg 1528	57	In many collections.
Quintin Matſys, called the Smith of Antwerp	- -	Nature, high finiſhing	Hiſ. Por.	Antwerp 1529	69	Antwerp, the cathedral; England, in collections.
Lucas Jacob, called Luca d'Ollanda	Cornelius Engelbert	- -	Hiſ. Por.	Leyden 1533	—	Leyden, Hôtel de Ville, many collections.
Peter Brueghel, called Old Brueghel	Peter Koëk -	- -	- -	Brueghel near Breda 1570	60	
John Holben, called Hans Holben	- -	great Nature, extreme finiſhing	Hiſ. Por.	Baſil, London 1444	46	Baſil, Hôtel de Ville; England in many collections.
Roger Vandenſyde -	John Van Eyck -	- -	Hiſtory	Bruges ——	—	Bruſſels, Hôtel de Ville.

Names.	Studied under	Excelled in	Painted	Country, Place, and Year of their Death.	Aged.	Principal Works are at
John Schorel	Jacob Cornil	- -	Hiſtory	Alcmaer, Utrecht 1562	67	
Matthias Cock	-	- -	Landſc.	Antwerp 1465	65	
Martin Heemſkirke	John Schorel	- -	Droll figures	Heemſkirke, Haerlem 1574	76	
François Floris, called Franc-Flore	Lambart de Liege	- -	Hiſtory	Antwerp 1570	50	
Franceſco Vecelli	Titian, his brother	- -	Portraits	Venice ——	—	
Orazio Vecelli	Titian, his father	- -	Por. Hiſ.	Venice 1579	66	
Nadalino di Murano	Titian	colour	Portraits	Murano, Venice ——	—	
Damiano Mazza	Titian	- -	Hiſ. Por.	Padua ——	—	
Girolamo di Titiano	Titian	- -	Hiſ. Por.	Venice ——	—	
Paris Bordone	Titian	colour	Hiſ. Por.	Venice 1588	75	
Andrea Schiavone	Titian	- -	Hiſtory	Sebenico, Venice 1582	60	
Aleſſandro Bonvincino, detto, Il Moretto	Titian, imitated Rafaëlle	- -	Hiſtory	Breſcia 1564	50	
Girolamo Romanino	Titian	- -	Hiſtory	Breſcia 1567	63	
Il Muttano	Titian, Tad. Zucchero	- -	Landſ. Portraits	Breſcia, Rome 1590	62	
Pirro Ligorio	Giulio Romano	- -	Antique monuments and buildings	Naples 1573	80	
Dom. Giulio Clovio	Giulio Romano	chaſte and genteel colouring, ſomewhat of M. Ang. in the drawing	Miniature, Hiſtory	Sclavonia, Rome 1578	80	Rome, Vatican Library Florence, the Palace; Naples, King's Collection.
Il Bronzino, Angelo-Allori	Giacomo Pontormo	- -	Hiſ. Por.	Florence 1580	69	
Aleſſandro Allori	Bronzino, his uncle		Hiſtory	Florence 1607	72	
Giacomo Sementi	Dionigi Calvart	- -	Hiſtory	Florence 1625	45	
Marcello Venuſto	Perin del Vaga	- -	Hiſtory	Mantua 1576	61	
Marco da Faënza	- -	- -	Hiſtory	Faënza ——	—	
Girolamo da Sermonetta	Perin del Vaga	- -	Hiſtory	Sermonetta 1550	46	
Battiſta Naldino	Il Bronzino	- -	Hiſtory	Florence ——	—	
Nicolo del Pomerancio	- -	- -	Hiſtory	Pomerancio 1626	74	
Jean Couſin	- -	commonly upon glaſs	Hiſtory	Soucy prôche de Sens; Paris 1589	—	Vincennes, the Minims; Paris.
Michael Coxis	Van Orlay, Raffaëlle	- -	Hiſtory	Mechlin, Antwerp 1592	95	
John Bol	- -	- -	Miniature Landſc.	Mechlin, Bruſſels 1593	59	
Peter Porbus	- -	- -		Bruges 1583	73	
Antony More	John Schorel	- -	Por. Hiſ.	Utrecht 1575	56	
George Hoefnaghel	- -	- -	Views of cities landſc.	Antwerp 1600	—	
Camillo Procaccini	Ercole, his father; Proſpero Fontana	a dark, ſtrong, expreſſive manner	Hiſtory	Bologna, Milan 1626	80	Milan; Genoa, the Annonciate St. Maria Carignano.
Giulio Ceſare Procaccini	Ercole, his father; Proſpero Fontana	a dark, ſtrong, expreſſive manner	Hiſtory	Bologna, Milan 1626	78	Milan; Genoa, the Annonciate St. Maria Carignano.
Jude Indocus Van-Winghen	ſtudied in Italy	- -	Hiſtory	Bruſſels, Germany 1603	62	

Names.	Studied under	Excelled in	Painted	Country, Place, and Year of their Death.	Age	Principal Works are at
John Strada - -	ſtudied in Italy -	- -	Battles, hunting	Bruges, Florence 1604	68	
Bartholomew Sprangher	- -	- -	Hiſtory	Antw. Vienna 1623	77	
Michael John Miervelt	Ant. Blockland -	- -	Portraits	Delft 1641	73	
Paolo Cagliari, detto Paul Veroneſe	Antonio Badiglio -	rich and noble compoſition; fine warm colouring	Hiſtory, Portraits	Verona, Venice 1588	58	Venice, and almoſt every where.
Carlo Cagliari - -	Paolo, his father -	imitated his manner	the ſame	Venice 1596	26	
Benedetto Cagliari -	the ſame - -	the ſame - -	the ſame	the ſame 1598	60	
Gabrielle Cagliari -	the ſame - -	the ſame - -	the ſame	the ſame 1631	63	
Battiſta Zelotti - -	Antonio Badiglio, worked with Paul Veroneſe	- -	Hiſtory, chiefly in Freſco	Venice 1592	60	
Giacomo da Ponte, detto Il Baſſano -	Franceſco, his father, Bonifacio Venetiano, imitated Titian	much nature, and fine colouring	Ruſtic Figures, Animals, Por. Hiſ.	Vicenza 1592	82	Venice, &c.
Franceſco Baſſano -	Giacomo, his father	imitated his manner, and copied his pictures	the ſame	Venice 1594	84	
Leandro Baſſano -	the ſame - -	the ſame - -	the ſame	Venice 1623	65	
Giambattiſta Baſſano -	the ſame - -	the ſame - -	the ſame	Venice 1613	60	
Girolamo Baſſano -	the ſame - -	the ſame - -	the ſame	Venice 1622	62	
Giacomo Robuſti, detto Il Tintoretto -	Titian, in his drawing imitated Michael Angelo -	the boldneſs and ſoftneſs of his pencil; variety and correctneſs of deſign; ſeldom finiſhed neatly	Hiſtory, Portraits	Venice 1594	82	Venice, and every where.
Marietto Tintoretto -	Tintoret, her father	- -	Portraits	Venice 1590	30	
Paul Franceſchi -	Tintoret - -	- -	Landſc.	——— 1596	56	
Martin de Vos - -	Tintoret - -	- -	Landſc.	Germany 1604	84	
John Rothenamer -	Tintoret - -	deſigned after his manner	Hiſtory	Munich 1606	42	
Paolo Farinato - -	Antonio Badiglio -	- -	Hiſtory	Verona 1606	84	Verona.
Marco Vecelli - -	Titian, his uncle -	- -	-	Venice 1611	66	
Livio Agreſti - -	Perin del Vago -	- -	Hiſtory	Forli 1580	—	
Marco da Sienna -	Dan. Volterra -	- -	Hiſtory	Sienna 1567	57	
Giacomo Rocca -	Dan. Volterra -	- -	Hiſtory	Rome ———	—	
Frederico Barocci -	ſtudied Raffaëlle -	fine genteel drawing	Hiſ. Por.	Urbino, Rome 1612	84	
Il Cavaliero Franceſco Vanni	Fred. Baroccio -	correct deſign and agreeable colouring	Hiſtory	Sienna, Rome 1615	51	Sienna; Rome, St. Peters; Genoa, Santa Maria in Carignano.
Michael Angelo Amerigi, detto, Il Caravaggi	Cav. Apino - -	a ſtrong and cloſe imitation of nature, but without choice; exquiſite colouring	Hiſtory, humourous figures	Caravaggio in Lombardy, Rome 1609	40	Rome. Pal. Barberini; ſeveral collections.
Lodovico Caracci -	Proſpero Fontano -	exquiſite deſign; noble and proper compoſition; ſtrong and harmonious colouring	Hiſtory	Bologna 1619	64	Modena, Pal Ducale; Bologna S Michel in Boſco, S. Giorgio, La Certoſa, &c.

Names.	Studied under	Excelled in	Painted	Country, Place, and Year of their Death.		Aged.	Principal Works are at
Agoſtino Caracci	Ludovico, his couſin	ſimilarly accompliſhed	Hiſtory, Portraits, Landſc.	Bologna, Parma	1602	44	Parma, Villa Ducale; Bologna, Pal. Magnani, La Certoſa.
Annibale Caracci	Ludovico, his couſin	ſimilarly accompliſhed	Hiſtory, Portraits, Landſc.	Bologna, Rome	1609	49	Rome, Pal. Farneſe, &c. Bologna, S Giorgio, &c. ſeveral collections.
Domenico Zampieri, detto, Il Domenichino	the Caracci -	correct deſign, ſtrong & moving expreſſion	Hiſtory, Portraits	Bologna, Naples	1641	60	Rome, S. Girolamo della Carita, Santa Maria Traſtavere, S. Andrea della Valle, S. Andrea in Monte Celio, Grotta Ferrata, Pal. Ludoviſio; S. Peter's, S. Carlo a Catinari, S. Silveſtro, &c.
Guido Reni -	Dionigi Calvart, the Caracci	divine and graceful airs and attitudes, gay and lightſome colouring	Hiſtory, Portraits	Bologna	1642	68	Rome, Pal. Roſpiglioſi, Pal. Spada, Capucini, S. Andrea della Valla, &c. Bologna, Mendicanti, S. Domenico, S. Michel in Boſco; and in many collections.
Cav. Giov. Lanfranco	the Caracci -	great force, and *fulgore*, chiefly in freſco	Hiſtory	Parma, Naples	1647	66	Rome, S. Andrea della Valle; Naples, S. Carlo de Catinari; La Capella del Teſoro.
Franceſco Albani	Dionigi Calvart, the Caracci -	genteel poetical fancy, beautiful airy colouring; his nymphs and boys are moſt admired	Hiſtory	Bologna	1660	82	The Duke of Modena's and many other cabinets.
Lucio Maſſari -	the Caracci -	- -	Hiſtory	Bologna	1633	64	Bologna, S. Michel in Boſco.
Siſto Badalocchio -	Annibal Caracci	- -	Hiſtory	Parma	——	—	Rome, Pal. Veroſpi.
Antonio Caracci -	Annibal, his uncle	- -	Hiſtory	Bologna, Rome	1618	35	Rome, S. Bartolomeo nell Iſola.
Giuſeppe Pini, detto, Cavalier Arpino	Raffaelle da Rheggio	the vivacity and force of his compoſition	Hiſtory	Arpino, Rome	1640	80	Rome, the Capitol, &c.
Il Paduano - -	- -	- -	Portraits	Padua	——	—	
Il Cigoli - -	Andrea del Sarto	- -	Hiſtory	Florence	1613	54	
Domenico Feri -	Cigoli - -	- -	Hiſtory	Rome	1624	35	
Cherubino Alberti	- -	- -	Hiſtory	Rome	1615	63	
Cavaliere Paſſignano	Frederic Zucchero	- -	Hiſtory	Florence	1638	80	Florence, the Dome.
Orazio Gentileſchi	Aurelio Lomi -	- -	Hiſtory	Piſa	1647	84	
Filippo d'Angeli, detto, Il Napolitano	- -	- -	Landſc.	Rome, Naples	1640	40	
Paul Brill -	after Titian and Annibale	- -	Landſc.	Antwerp, Rome	1626	72	Rome, Vatican, Pal. Borgheſe, many collections.
Matthew Brill -	- -	worked with Paul, his brother	Landſc.	Antwerp, Rome	1584	34	
Pietro Paolo Gobbo	- -		Fruit, Landſc.	Cortona	1640	60	
Il Viola - -	Annibal Caracci	- -	Landſc.	Rome	1622	50	Rome, Vigna Montalta, Vigna Aldobrandina, Vigna pia.
Roland Saveri -	imitated Paul Brill	much finiſhing, but dry	Landſc.	——	1639	63	

Names.	Studied under	Excelled in	Painted	Country, Place, and Year of their Death.	Aged.	Principal Works are at
Bartolomeo Manfredi	M. Angelo Caravaggio -	- -	Hiſtory	Mantua ——	—	
Carlo Saracino -	imitated Caravaggio	- -	Hiſtory	Venice 1625	40	
Il Velentino -	M. Angelo Caravaggio	- -	Hiſtory	France 1632	32	
Giuſeppe Ribera, detto, Lo Spagnuoletto	M. Angelo Caravaggio -	a dark ſtrong manner; diſmal and cruel ſubjects	Hiſtory	Valencia 1656	67	Naples, &c. many collections.
John Mompre -	ſtudied nature	- -	Landſcape	Antwerp ——	—	
Henry Cornelius Wroon, or Vroon	Corn. Henrickſon	- -	Sea-ports, Ships	Haerlem, Rome ——	—	
Agoſtino Taſſi -	Paul Brill -	- -	Ships, Tempeſts, Landſcapes, Fruit, Perſpective	Bologna ——	—	Genoa; Leghorn; on the outſides of houſes.
Fra. Matteo Zaccolino	- -	- -	Perſpective	Rome 1630	40	Rome, St. Silveſtro.
Antonio Tempeſta	John Strada -	freedom of ſtyle	Animals, Battles, Huntings	Florence 1630	75	Florence, &c.
Octavius Van Veen, called Otho Vænius	- -	- -	Hiſtory	Leyden 1634	78	
Jean Le Clerc - -	Carlo Saracino -	- -	Hiſtory	Nancy 1633	—	Nancy, Les Jeſuits.
Simon Vouet - -	Laurent, his father	- -	Hiſ. Por.	Paris; Paris 1641	59	Paris, in many churches.
Peter Noeſs - -	Henry Steinwick -	- -	Perſpec.	Antwerp 1651	85	
Henry Steinwick -	John De Vries -	neatneſs - -	Buildings places illuminated by fire and candles	Steinwick 1603	53	
Theodore Rombouts -	Abraham Janſens -	- -	Low life	Antwerp 1640	43	
Gerard Segres - -	Abraham Janſens -	imitated M. A. Caravaggio	- -	Antwerp 1651	62	
Sir Peter Paul Rubens	Otho Vænius -	admirable colouring; great magnificence & harmony of compoſition: a gay and lightſome manner	Hiſtory, Portraits Landſc.	Antwerp 1641	63	Flanders, Holland, &c. Duſſeldorp; the Elector Palatine's Collec. France, Palais Luxemburgh, &c. England, Whitehall, &c. Genoa, St. Ambroſio, &c.
Sir Antony Vandyck	Rubens - -	his maſter's excellencies with more grace and correctneſs -	Portraits Hiſtory	Antwerp London 1641	42	Genoa, Pal. Durazzo, &c. Flanders, Holland, &c. France, Verſailles, &c. England, the Pembroke and Walpole Collections, &c.
Rembrandt - -	- -	great knowledge and execution of the clair-obſcure; high finiſhing, ſometimes a very bold pencil and diſtinct colouring; vaſt nature - -	Hiſtory Portraits Low life	—— - 1674	68	France, King's and Monſieur's Collections, &c. &c. Florence, the Palace, Amſterdam, &c.

Names.	Studied under	Excelled in	Painted	Country, Place, and Year of their Death.	Aged.	Principal Works are at
Cornelius Polembourg	Abraham Bloemart	high finiſh -	Miniature Landſc. with figures -	Utrecht 1660	74	Many cabinets.
John Brueghel, called Velvet Brueghel	Old Brueghel, his father -	extreme neatneſs and finiſhing	Little landſc. with figures, animals and flowers	Bruſſels 1625	65	
Moſes, called the Little	Corn. Polembourg	- -	Small landſc. with figures	— 1650	—	
F. Dan Legres -	Young Brueghel -	- -	Flowers	Antwerp 1666	70	
Gaſpar Craes -	Coxis -	- -	-	Bruſſels 1669	84	
Bartholomew Briemberg	ſtudied at Rome -	- -	Landſc.	— 1660	40	
John Aſſelyn, called Little John	Eſaias Vander Velde	- -	Landſc.	— 1660	50	
Francis Snyders -	painted with Rubens	great execution	Animals dead & alive	Antwerp 1657	78	
Ert Veeſt -	- -	- -	Sea-fights Tempeſts	Bruſſels 1670	—	
Lewis Couſin -	- -	- -	-	— 1670	—	
Philip Vauvremans -	John Wynants -	- -	-	Haerlem 1668	48	
Gerard Dow -	Rembrandt -	- -	Little figures	Leyden 1474	61	
Pietro Franceſco Mola	Albani, Cav. Arpino	ſtrong painting	Hiſtory	Como; Rome 1666	56	Rome, Monte Cavallo; Pal. Coſtaguti, &c.
Giov. Battiſta Mola	Albani -	the ſame -	Hiſtory Landſc.	— —	—	
Giacomo Cavedone	Ludov. Caracci -	- -	Hiſtory	Bologna 1660	80	Bologna, St. Michaeli in Boſco, &c.
Agoſtino Metelli -	- -	- -	Buildings Perſpective	Bologna; Spain 1660	51	Bologna, &c.
Angelo Michael Colona	Ferrantino -	- -	Buildings Hiſtory	Bologna 1687	87	Bologna, &c.
Giov. Benedetto Caſtiglione, detto, Il Genoeſe	Paggi, Vandyke -	- -		Genoa —	—	
Pietro Teſta -	Domenichino -	capricious and ſtrange deſigns	Hiſtory Whims	Lucca 1650	39	
Matthew Platten, called Il Montagna	Aſſelyn -	- -	Sea-pieces	Antw. Ven. —	—	
Franceſco Barbieri, detto, Il Guercino da Cento	the Caracci -	a medium between the Caracci and Caravaggio, he has two manners, one a dark and ſtrong one; the other more gay and gracious	Hiſtory	Cento nel Bologneſe; Bologna 1667	76	Rome, Vigna, Ludoviſi, St. Peter's; Grotto Ferrata.
Pietro Berrettini, detto Pietro da Cortona	Baccio Ciarpi -	noble compoſitions; bright and beautiful colouring	Hiſtory	Corunna; Rome 1669	73	Rome, Pal. Barberini Pal. Pamfili, Chieſa nuova, St. Peter's, St. Agnes; Florence, Pal. Pitti, &c.

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Antonino Barbalonga	Domenichino -	- -	Hiſtory	Meſſina ——	—	Rome, St. Andrea della Valle Chieſa, dei Theatini, &c.
Andrea Camaceo -	Domenichino -	- -	Hiſtory	Bevagna; Rome 1657	55	Rome, St. Peter's, St. Giov. in Laterano, Pal. Palaſtrina, &c.
Andrea Sacchi - -	Albani - - -	a colouring more languid than Pietro Cortona, but extreme delicate and pleaſing	Hiſtory	Rome; Rome 1661	72	Rome, Pal. Barberini, &c. Chieſa, di St. Romualdo, St. Carlo di Catinari, &c.
Simone Cantarini -	Guido - - -	- -	Hiſtory	Peſaro; Bologna 1648	36	
Cav. Carlo Cignani	Albani - - -	noble, bold manner and bright colouring	Hiſtory	Bologna; Bologna 1719	91	Bologna, Pal. Davia, Certoſo, &c.
Pietro Facini - -	Annibal Caracci -	- -	Hiſtory	Bologna 1602	42	Bologna, &c.
Giov. Andrea Donducci detto Il Maſteletta	the Caracci - -	- -	Hiſtory	Bologna 1655	80	Bologna, &c.
Aleſſandro Tiarini -	Proſpero Fontana	- -	Hiſtory	Bologna 1668	91	Bologna, &c.
Leonello Spado -	the Caracci - -	- -	Hiſtory	Bologna 1622	46	Bologna, &c.
Giov. Andrea Sirani	Guido - - -	- -	Hiſtory	Bologna 1670	60	Bologna, &c.
Eliſabetta Sirani -	Andrea, her father	- -	Hiſ. Por.	Bologna 1664	26	Bologna, &c.
Giacomo Sementi -	Guido - - -	- -	Hiſtory	Bologna 1625	45	Bologna, &c.
Franceſco Geſſi -	Guido - - -	good imitation of his maſter	Hiſtory	Bologna ——	—	Bologna, &c.
Lorenzo Garbieri -	Lud. Caracci -	- -	Hiſtory	Bologna 1654	64	Bologna, &c.
G. Franceſco Romanelli	Pietro Cortona -	- -	Hiſtory	Viterbo; Rome 1662	45	France, &c. Rome, &c.
Diego Valaſquez -	Franceſco Pacheco	great fire & force	Portraits	Spain 1660	66	Rome, Pal. Pamfili; France, Louvre.
Aleſſandro Veroneſe	Felice Riccio -	a weak but agreeable manner	Hiſtory	Verona 1670	70	France, Verſailles, &c.
Mario de Fiori - -	- -	- -	Flowers	Rome 1656	—	
Michelangelo del Campidoglio	Fioravante - -	- -	Flowers & Fruits	Rome 1670	60	
Salvator Roſa - -	Spagnuletto and Daniel Falcone -	ſavage and uncouth places; very great and noble ſtyle; ſtories that have ſomething of horror or cruelty	Landſc. Hiſtory	Naples; Rome 1673	59	Rome, Pal. Palavicini; Paris, the King's Collection, &c.
Il Cav. Calabreſe -	Guercino - -	- -	Hiſtory	Calabria 1688	86	Rome, St. Andrea della Valle, &c.
Fer. amola Fiovarenti	- -	- -	Vaſes, inſtruments, carpets, and ſtill-life	Breſcia 1512	—	
Il Malteſe - -	- -	- -	the ſame	—— ——	—	
Claudee Gelee, called Claude Lorraine	Godfrey Wals; Agoſtino Taſſi	rural and pleaſing ſcenes, with various accidents of Nature, as gleams of ſunſhine, the riſing moon, &c.	Landſc.	Toul; Rome 1682	82	Rome, Pal. Chigi, Altieri, Colonna; many Collections.

Names.	Studied under	Excelled in	Painted	Country, Place, and Year of their Death.	Aged.	Principal Works are at
Nicholas Pouſſin	Quintin Varin	exquiſite knowledge of the antique; fine expreſſion; ſkilful and well-choſen compoſition and deſign. Scenes of the country with ancient buildings and hiſtoric figures intermixed	Hiſtory Landſc.	Andilly; Rome 1665	71	France, Verſailles, Palais Royal, &c. Rome, Cav. Pozzo's collection, and in many more elſewhere.
Gaſpar du Ghet, called Gaſp. Pouſſin	Nicholas his brother-in-law	a mixture of Nicolas & Claude Lorraine's ſtyle	Landſc.	Rome 1665	—	Rome; Paris, &c.
Euſtache Le Seur	Simon Vouet	ſimplicity, dignity, and correctneſs of ſtyle, he is called the Frenc. Rafaëlle	Hiſtory	Paris 1665	38	Paris, the Chartreuſe and Hotel in the Iſle Notre Dame, &c.
Michelangelo delle Battaglie	Mozzo of Antwerp	- -	Battles			
Jacques Stella	his father	painted upon marble frequently	Hiſtory Min.	Lyons; Paris 1647	51	Lyons; Paris, &c.
Carlo Maratti	Andrea Sacchi	- -	Hiſtory	Ancona; Rome 1713	88	Rome; many churches and palaces, &c.
Luca Giordano	Lo Spagnuoletto	- -	Hiſtory	Naples 1705	76	
Charles Le Brun	Simon Vouet; Nicolas Pouſſin	- -	Hiſtory	Paris 1690	71	Verſailles.
Cav. Giacinto Brandi	Lanfranco	- -	Hiſtory	Poli; Rome 1713	90	Rome, &c.
Ciro Ferri	Pietro Cortona	- -	Hiſtory	Rome 1689	55	Rome, St. Agnes, Pal. Monte Cavallo, St. Ambrozio, &c. Florence, Pal. Pitti.

Painting, *Economical*, is that application of artificial colours, compounded either with oils, or water, which is employed in preſerving or embelliſhing houſes, ſhips, furniture, &c. &c. The term, economical, applies more immediately to the power which oil and varniſhes poſſeſs, of preventing the action of the atmoſphere upon wood, iron, and ſtucco, by interpoſing an artificial ſurface; but it is here intended to uſe the term more generally, in alluſion to the decorative part, as applied to buildings; as well as to its more eſſential ones; and as it is employed by the architect, throughout every part of his work, both externally and internally.

In every branch of painting in oil, as applicable either to churches, theatres, houſes, or any other public or private buildings, or edifices, the general proceſs will be found very ſimilar; or with ſuch variations, as will eaſily be ſuggeſted by the judicious artiſt, or workman.

The firſt coatings, or layers, if on wood or iron, ought always to be of ceruſe or white lead; the very beſt that can be obtained; which ſhould have been previouſly ground very fine in nut or linſeed oil, either over a ſtove with a muller, or, as that mode is too tedious for large quantities, it may be paſſed through a mill. If uſed on wood, as ſhutters, doors, or wainſcoting made of fir or deal, it is highly requiſite to deſtroy the effects of the knots; which are generally ſo completely ſaturated with turpentine, as to render it, perhaps, one of the moſt difficult proceſſes in the buſineſs to conquer. The beſt mode in common caſes, is to paſs over the knots with ceruſe ground in water; bound by a ſize made of parchment, or ſome other animal ſubſtance. When that is dry, paint the knots with white lead ground in oil, to which add ſome powerful ſiccative, or dryer; as red lead, or litharge of lead, about one-fourth part of the latter. Theſe preparations ſhould be done carefully, and laid very ſmoothly with the grain of the wood. When the laſt coat is dry, which will be in twelve or twenty-four hours, then ſmooth it with pumice-ſtone, or give the work the firſt coat of paint, prepared, or diluted with nut or linſeed oil. When that is dry, all the nail holes or other irregularities on the ſurface ſhould be carefully ſtopped, with a compoſition of oil and Spaniſh white, a whiting commonly known by the name of putty; but which is frequently made and ſold at the ſhops of very inferior articles. When that is done, let the work be painted over again, with the ſame mixture of white lead and oil, ſomewhat diluted with the eſſence of oil of turpentine, which proceſs ſhould be repeated not leſs than three or four times, if the work is intended to be left, when finiſhed, of a plain white or ſtone colour; if of the latter, the laſt coat ſhould have a ſmall quantity of ivory or lamp black added, to reduce its whiteneſs a little; and this is alſo of ſervice in preſerving the colour from changing: a circumſtance which the oil is apt to produce. But if the work is to be finiſhed of any other colour, either grey, green, &c. it will be requiſite to provide for ſuch colour, after the third operation, particularly if it is to be finiſhed flat, or, as the painters ſtyle it, dead-white, grey, fawn, &c. &c. In order to finiſh the work flatted, or dead, (which is a mode much to be preferred for all ſuperior works; not only for its appearance, but alſo for preſerving the colour, and purity of the tint,) after the work, ſuppoſing it to be wood, has been painted four times in oil colour, as directed in general caſes, one coat of the flatted colour, or colour mixed up with a conſiderable quantity of turpentine, will be found ſufficient; although in large ſurfaces it will frequently be requiſite to give two coats of the flatting colour to make it quite complete. Indeed, on ſtucco it will be almoſt a general rule; but as that will be hereafter treated, we ſhall at preſent ſay no more concerning it.

It muſt be obſerved, that in all the foregoing operations, it will be requiſite to add ſome ſort of ſiccative. A very general and uſeful one is made by grinding in linſeed, or, perhaps, prepared oils, boiled, are better, about two parts of the beſt white copperas, which muſt be well dried, with one part of litharge of lead: the quantity to be added, will much depend on the dryneſs, or humidity, of the atmoſphere at the time of painting, as well as the local ſituation of the building.

It is highly proper here to obſerve, that there is a kind of copperas made in England, and ſaid to be uſed for ſome purpoſes in medicine, that not only does not aſſiſt the operation of drying in the colours, but abſolutely prevents thoſe colours drying, which would otherwiſe have done ſo by themſelves. The beſt dryer for all fine whites, and other delicate tints, is ſaccharum ſaturni, or ſugar of lead, ground in nut oil; but which being very active, a ſmall quantity, about the ſize of a walnut, will be ſufficient for twenty pounds of colours, where the baſis is ceruſe. It will be always worthy to be obſerved, that the greateſt care ſhould be taken to keep all the utenſils, bruſhes, &c. particularly clean; or the colours will ſoon become very foul, ſo as to deſtroy the ſurface of the work. If this ſhould ſo happen, the colour ſhould be paſſed through a fine ſieve, or canvas; and the ſurface of the work be carefully rubbed down with ſand-paper, or pumice-ſtone; and the latter ſhould be prepared by being ground in water, if the paint be tender, or recently laid on.

The above may ſuffice as to painting on wood, either on outſide on inſide works; the former being ſeldom finiſhed otherways than in oil, four or five coats are generally quite ſufficient.

We ſhall now proceed to note what is requiſite for the painting of new walls or ſtucco, not painted before, and prepared for oil colours.

It does not appear that any painting in oil can be done to any good or ſerviceable effect in ſtucco, unleſs not merely the ſurface appear dry, but that the walls have been erected a ſufficient time to permit the maſs of brick-work to have acquired a ſufficient degree of dryneſs: when ſtucco is on battened work, it may be painted over much ſooner than when prepared as brick. Indeed, the greateſt part of the myſtery of painting ſtucco, ſo as to ſtand or wear well, certainly conſiſts in attending to theſe obſervations; for whoever has obſerved the expanſive power of water, not only in congelation, but alſo in evaporation, muſt be well aware that when it meets with any foreign body obſtructing its eſcape, as oil painting for inſtance, it immediately reſiſts it; forming a number of veſicles, or particles containing an acrid lime water, which forces off the layers of plaiſter, and frequently cauſes large defective patches, extremely difficult to get the better of.

Perhaps in general caſes, where perſons are building on their own eſtate, or for themſelves, two or three years are not too long to ſuffer the ſtucco to remain unpainted; though frequently, in ſpeculative works, as many weeks are ſcarcely allowed. Indeed there are ſome noſtrums ſet forth, in favour of which it is ſtated, in ſpite of all the natural properties of bodies, that ſtucco may, after having been waſhed over with theſe liquids, be painted immediately with oil colours. It is true there may be inſtances, and in many experiments ſome will be found, that appear to counteract the general laws of nature; but on following them up to their cauſes, it will be found otherwiſe.

Suppoſing the foregoing precautions to have been attended to, there can be no better mode adopted for priming or laying on the firſt coat on ſtucco, than by linſeed or nut oil, boiled with dryers, as before mentioned, with a proper bruſh; taking care, in all caſes, not to lay on too much, ſo as to render the ſurface rough and irregular, and not more than the ſtucco will abſorb. It ſhould then be covered with three or four coats of ceruſe, or white lead, prepared as deſcribed for painting on wainſcoting; letting each coat have ſufficient time to dry hard. If time will permit, two or three days betwixt each layer will not be too long.

If the ſtucco be intended to be finiſhed of any given tint, as grey, light green, apricot, &c. it will then be proper, about the third coat of painting, to prepare the ground for ſuch tint, by a ſlight advance towards it.

Grey is made with ceruſe; Pruſſian blue, ivory black, and lake, ſage green, pea, and ſea-greens, with white; Pruſſian blue and fine yellows, apricot and peach, with lake; white, Chineſe vermilion, and fine yellow, fawn colour, with burnt terra Sienna, or umber and white; olive greens, with fine Pruſſian blue and Oxfordſhire ochre.

Painting in diſtemper, or water colours mixed with ſize, ſtucco, or plaiſter, which is intended to be painted in oil when finiſhed; but not being ſufficiently dry to receive the oil, may have a coating in water colours, of any given tint required, in order to give a more finiſhed appearance to that part of the building.

Straw colours may be made with French white, a ceruſe, and maſticot or Dutch pink. Greys, fine, with ſome whites, and refiners' verditer. An inferior grey may be made with blue-black, or bone-black, and indigo. Pea greens, with French green, Olympian green, &c. Fawn colour, with burnt terra de Sienna, or burnt umber and white: and ſo of any intermediate tint. The colours all ſhould be ground very fine, and incorporated with white, and a ſize made of parchment, or ſome ſimilar ſubſtance; iſinglaſs being too expenſive for common works.

It will not require leſs than two coats of any of the foregoing colours in order to cover the plaiſter, and bear out with an uniform appearance. It muſt be recollected, that when the ſtucco is ſufficiently dry, and it is deſirous to have it painted in oil, the whole of the water colour ought to be removed; which may be eaſily done by waſhing; and when quite dry, proceed with it after the directions given in oil painting of ſtucco.

When old plaiſtering has become diſcoloured by ſtains, and it be deſired to have it painted in diſtemper; it is then adviſeable to give the old plaiſter, when properly cleaned off and prepared, one coat at leaſt of white lead ground in oil, and uſed with ſpirits of turpentine, which will generally fix all old ſtains; and when quite dry, will take the water colours very kindly.

The above proceſſes will alſo apply to old wainſcoting, in caſes where temporary painting is only required; but cannot be recommended for durability.

PAINTLICK, in *Geography*, a town of America, in the ſtate of Kentucky; 14 miles E.N.E. of Stamford.

Paintlick *Creek*, a river of Kentucky, which runs into the river Kentucky, N. lat. 37° 37′. W. long. 84° 43′.

PAINVILLE, a town of America, in Amelia county, Virginia, with a poſt office; 197 miles W. of Waſhington.

PAJOT, Lewis Leo, *Count d'Anſembray*, in *Biography*, a French nobleman, was born at Paris in the year 1678. He received the advantages of a liberal education, and having diſcovered an inclination for mathematical purſuits while he was very young, he was inſtructed in the philoſophy of Des Cartes. After this he took a tour to Holland, where he formed an acquaintance with Huygens, Ruyſh, Boerhaave, and other perſons diſtinguiſhed by their profound knowledge in literature and the ſciences. He was appointed director-general of the poſts in France, and conducted the buſineſs of that department in ſuch a manner as entitled him to the eſteem of the public, and the confidence and favour of his ſovereign. Upon the death of his father, the count came into poſſeſſion of a country-ſeat at Bercy, where he determined to eſtabliſh a ſcientific muſeum; and he ſpared neither trouble nor expence to furniſh it with rarities of nature and art, and with philoſophical and mechanical inſtruments, and machines of every deſcription. In a ſhort time his cabinet was enriched with a great number of curioſities, particularly in mechanics and natural hiſtory, on which account it was viſited by Peter the Great, the emperor of Germany, and by other princes. It was thought to be the moſt valuable muſeum in Europe, and was unrivalled in articles connected with the ſcience of mechanics. In the Tranſactions of the Academy of Sciences, of which he was a member, there are ſeveral of his papers; among which is a deſcription of an "Inſtrument for the Meaſurement of Liquids:"—of "An Areometer, or Wind Gage:"—of a "Machine for beating regular Time in Muſic." He died in 1753, bequeathing his muſeum to the academy.

PAIR, Par, a collective term, uſed for two equal or ſimilar things ordinarily joined together; though more frequently for artificial things than for natural ones. As, a pair of gloves, of ſtockings, of ſhoes, &c.

Pair is alſo uſed in compound things, for two parts alike to each other, though they only make one whole. As, a pair of ſciſſars, &c.

Pair is alſo uſed for a ſet or ſyſtem of ſeveral things joined to make another complete: as a pair of bagpipes, &c.

Pair, again, is uſed, by extenſion, for a thing that is ſingle, as a pair of tables, &c.

Pair *of Nerves*, in *Anatomy*, the right and left correſponding nerves, which are almoſt every where alike in the body. See Nervous *Syſtem*.

PAIRA, in *Geography*, a river of Perſia, which loſes itſelf in a lake near Tadivan, in the province of Farſiſtan.

PAIRAN, a town of Sibu, one of the Philippine iſlands; inhabited chiefly by Chineſe merchants and artificers.

PAIRUMBAUCUM, a town of Hindooſtan, in the Carnatic; 30 miles W. of Madras.

PAISHAWUR, or Peishore, a city of Candahar, and capital of a diſtrict, in Cabuliſtan, ſeated on the Kameh. In 1738 this town was taken by Nadir Shah; 125 miles S.E. of Cabul. N. lat. 33° 18′. E. long. 70° 36′.

PAISLEY, a large town and borough of barony, in the county of Renfrew, Scotland, is ſituated at the diſtance of ſix miles and a half weſtward from the city of Glaſgow, on the banks of the White-Cart river. It probably owes its origin to an abbey, which was founded here in the year 1160. It did not, however, riſe to be a place of much importance till after the union in 1707. From this period, the inhabitants began to direct their attention to manufactures, which have ever ſince been gradually on the increaſe, and have rendered Paiſley at preſent, ſecond only to Edinburgh and Glaſgow, among the towns of North Britain. According to the parliamentary returns of 1811, it contains 2951 houſes, and a population of 36,785 perſons, including the two ſuburb pariſhes of Abbey, Eaſt and Weſt.

James IV. king of Scotland, granted to Paiſley the firſt charter, conſtituting it a borough, in 1488, at the interceſſion of George Shaw, then abbot of the monaſtery. Under this grant it enjoys all the privileges of a royal borough, except the right of being repreſented in parliament, and of ſending delegates to the general convention at Edinburgh. The corporation or magiſtracy conſiſts of three bailies, and ſeventeen counſellors, who are elected annually, beſides a treaſurer, town clerk, and other inferior magiſtrates. The bailies are inveſted with the full powers of juſtices of the peace, and take cognizance, in the firſt inſtance, of all offences committed within their juriſdiction.

At the commencement of the laſt century, Paiſley is deſcribed as conſiſting only of one principal ſtreet, about half a mile in length, with a few narrow lanes branching out on either ſide. Now, however, it is an extenſive and well built town, and contains many excellent public and private edifices, eſpecially in that part called the New Town, which ſtands on the eaſtern bank of the Cart, and is laid out with great regularity. Over the river are three bridges, placed at convenient diſtances, and connecting with each other the buildings on its oppoſite ſides, that is, the New and Old Town, with their reſpective ſuburbs. The ſtreets are in general well paved and lighted, and exhibit all the marks of opulence and induſtry, ſome of them being crowded with warehouſes and manufactories, occupied by the merchants and tradeſmen. The whole town is built of ſtone, and in all the modern ſtreets the houſes have ſquared and ſmooth freeſtone fronts, in the ſame manner as thoſe of Edinburgh and Glaſgow.

Paiſley contains three pariſh churches, and ſeveral chapels of eaſe and diſſenting meeting houſes, but none of them are peculiarly remarkable as buildings, except the abbey church, which will be deſcribed in the ſequel of this article. The edifices appropriated to public buſineſs, charity, or amuſement, are all of modern erection. The hoſpital or poorhouſe was built in 1752, and is under the management of fifteen directors. It is a large ſtructure, with an extenſive garden attached, and is ſupported by a ſmall aſſeſſment on the inhabitants at large. The town-hall is a handſome building of cut ſtone. The butcher market is probably the neateſt and moſt commodious range of ſhambles in Great Britain. The front is of hewn ſtone. No public theatre has yet been erected here, but there are rooms appropriated to concerts and aſſemblies. A large ſubſcription room, on the plan of the Glaſgow tontine, has been erected within the laſt five years.

Paiſley has attained its preſent rank and importance from its manufactures; and hence it ſeems proper to give a ſlight ſketch of the riſe, and of the progreſſive changes which theſe have undergone at different periods ſince their firſt eſtabliſhment. At the time of the union, and for ſome years after, ſcarcely any other goods were produced here, but coarſe linen checks, and a kind of ſtriped cloths, called Bengals; and even theſe were manufactured only on a very limited ſcale. When a free trade, however, was opened with England, the ſpirit of manufacture began to diſplay itſelf in Paiſley, with a vigour ſeldom paralleled. This effect reſulted in a great meaſure from the exertions of pedlars, or, as they are called in Scotland, packmen, many of whom, having accumulated a ſmall capital, ſettled in this town and its vicinity, and became reſident manufacturers. The experience of what would ſuit the taſte of the people, and the connections they had eſtabliſhed in the courſe of their travelling career, preſented many advantages in their new occupation, of which they did not fail to avail themſelves. They firſt improved the quality of the linen cloths above-mentioned; but theſe in a few years gave way entirely to articles of a lighter and more fanciful deſcription; ſuch as linen gauze and lawns; both plain and ornamented. The manufacture of thread was introduced about the year 1750, and ſtill continues to afford employment to a large portion of the inhabitants. In 1760 the manufacture of ſilk gauze was begun by Mr. M'Kerral of Hillhouſe, and ſoon diſplaced the linen cloths as the ſtaple produce of Paiſley. Before that period, the patterns and deſigns of all fancy goods were made at Paris; but the Paiſley manufacturers diſdaining the ſervility of imitation, eſtabliſhed draughtſmen of their own, whoſe productions were thought not only to rival, but to excel thoſe of the French artiſts. Hence ſuch a variety of elegant and richly ornamented gauzes was iſſued from this town, as ſurpaſſed every thing that had hitherto appeared. Spitalfields was compelled almoſt to abandon the manufacture; and ſeveral companies came down from London to carry it on, on the banks of the Cart, where it flouriſhed beyond any manufacture which any town in Scotland could boaſt of till the invention of Arkwright's machinery for ſpinning cotton, by rendering fabrics of that material both cheap and elegant, almoſt excluded ſilks from any ſhare in female dreſs, when it of courſe declined, and is now almoſt abandoned. Following the tide of faſhion, the manufacturers of Paiſley turned their exertions into the new channel, and ſoon brought their cottons into competition with thoſe of Mancheſter itſelf. The whole neighbouring waters were ſpeedily occupied with ſpinning mills and bleach-fields, and many thouſand perſons took up the employment of weaving cottons here and in the ſurrounding villages.

Beſides theſe principal manufactures, Paiſley has ſome others of a more local deſcription, likewiſe conducted on an extenſive ſcale; tan works, and ſoap and candle works are numerous, and there is alſo a calico printing work, a copperas work, and ſeveral manufactories for tape and ribbons.

The moſt important remain of antiquity in Paiſley, or indeed in the county of Renfrew, is the monaſtery already mentioned, as having probably been the nucleus which determined the origin of the town. It was firſt bounded as a priory by Walter lord high ſteward of Scotland, and filled by him with monks of the order of Clugni; but afterwards attained the rank of an abbacy. The lands belonging to it were further erected by Robert II. into a regality under the juriſdiction of the abbot. At the reformation this abbey was ſecularized; and towards the cloſe of the ſixteenth century, it was conſtituted a temporal lordſhip in favour of lord Claude Hamilton, who was created lord Paiſley in 1591. His ſon James, earl of Abercorn, afterwards ſold it to the earl of Angus, by whom it was alienated, in 1653, to William, earl of Dundonald, and continued in his poſterity till the year 1764, when it was repurchaſed by the late earl of Abercorn. The monks here are ſuppoſed to have been the authors of the "Chronicon Clugnienſe," or "The Black Book of Paiſley," as it is uſually called, from the colour of its boards. This curious monument of antiquity is a chronicle of the public affairs of Scotland during ſeveral centuries, and is frequently quoted by Buchanan. It was long in the poſſeſſion of the preſident Spottiſwood; after his death it was carried into England by general Lambert, and was ſubſequently depoſited in the king's library at St. James. Many additions have been made to the buildings of this abbey at different eras ſince its original erection. Abbot Shaw, in particular, enlarged and beautified the whole monaſtery, and indeed may properly be regarded as a ſecond founder. He built the refectory and other offices neceſſary for the monks, the church and the precinct of the convent; and incloſed the gardens and orchards by a wall of hewn ſtone, which meaſured about a mile in circuit. This wall, obſerves Mr. Pennant, (Tour in Scotland) "is a very noble and extenſive one, and indicates the ancient grandeur of the place." On a ſtone at the north-weſt corner is this very ſingular inſcription.

"They call it the Abbot George of Shaw
About my Abbey gart mak this waw;
An hundred four hundredth zeir
Eighty-four the date, but weir
Pray for his ſalvtie
That laid this noble foundation."

All the buildings of this abbey are much dilapidated, excepting the chancel of the church, which is ſtill entire, and has of late years been fitted up for parochial ſervice. Judging from this member, and ſome additional ruins, the church appears to have been, when complete, a very grand and magnificent ſtructure. It was in the form of a croſs, but the only part of the tranſept ſtanding is the great north window, the arch of which is uncommonly lofty and elegant. The chancel is ſeparated into a middle and two ſide aiſles, by two ranges of columns, ſupporting pointed arches, and having their capitals ornamented with groteſque figures. The exterior of this building diſplays much ſculptural embelliſhment, eſpecially the north and ſouth doors.

Near the abbey church is an old chapel, which is appropriated as the burying place of the Abercorn family. It is remarkable for its echo, which is probably the fineſt in Europe, as its effects are ſaid to ſurpaſs thoſe of the whiſpering gallery at St. Paul's. "When the end door (the only one it has) is ſhut, the noiſe is equal to a loud and not very diſtant clap of thunder; if you ſtrike a ſingle note of muſic, you hear the ſound gradually aſcending till it dies away, as if at an immenſe diſtance, and all the while diffuſing itſelf through the circumambient air; if a good voice ſings, or a muſical inſtrument is well played upon, the effect is inexpreſſibly agreeable." In this chapel is the monument of Marjory Bruce, daughter of Robert I. king of Scotland, and mother of Robert II. Here were likewiſe interred Elizabeth Muir, and Euphemia Roſs, both conſorts to the monarch laſt mentioned. The former died previous to his acceſſion to the Scottiſh throne.

Of the Roman camp mentioned by Camden, as ſituated cloſe to Paiſley, very few veſtiges remain; the valla are nearly levelled, and the ditches filled up. Of the outworks no diſtinct marks are now viſible, excepting of one which was conſtructed at a ſpot ſtill bearing the name of Caſtle Head. A military road led to this entrenchment, which is ſuppoſed to have been the Vanduara of Ptolemy.

Elderſlie, in the vicinity of this town, is noted, in the annals of Scotland, as the birth place of the illuſtrious ſir William Wallace. (See WALLACE.) Pennant's Tour in Scotland. Beauties of Scotland, vol. iii.

PAIT, a provincial term applied to a badger.

PAITA, GIOVANNI, of Genoa, in *Biography*, flouriſhed early in the laſt century, and was called by all the great maſters, king of *tenors;* they ſpeak ſtill in Italy of the merit of this admirable ſinger, who was likewiſe an excellent actor, and a fine performer on the harpſichord.

Paita, in *Geography*. See **Payta**.

PAITAN, a town on the N. coaſt of the iſland of Borneo. N. lat. 6° 32′. E. long. 117° 28′.

PAITLEY, or **Pateley-Bridge**, a ſmall market town in the pariſh and liberty of Rippon, lower diviſion of the wapentake of Claro, and weſt riding of Yorkſhire, England, is ſituated on the river Nidd, at the diſtance of twelve miles W.S.W. from Rippon. The market is held on Saturday, and here are four fairs annually. Neither the town nor its vicinity preſent any thing remarkable. It is ſomewhat ſingular that it ſhould not be mentioned in the late population reports, though ſeveral townſhips in the ſame pariſh are there noticed. Beauties of England and Wales, vol. xvi. by J. Bigland.

PAITSEPOO, a town of Little Bucharia; 50 miles E.N.E. of Caſhgar.

PAKA, a town of Bohemia, in the circle of Konigingratz; 18 miles N.W. of Konigingratz. N. lat. 50° 25′. E. long. 15° 22′.

PAKANG-YAY, a town of the Birman empire, ſituated on the Irawaddy, containing ſeveral neat temples, and ſurrounded by lofty palmyra, tamarind, and banyan trees; 25 miles S. of Pagahm.

PAKASHASANA, a name of the Hindoo deity Indra, regent of the viſible heavens.

PAKIR, or **Pachir**, in *Geography*, a ſea-port town of Arabia, in the province of Oman, the inhabitants of which carry on a conſiderable trade to India. Its environs abound in cattle, grain, dates, raiſins, and other fruits; 25 miles E. of Döfar.

PAKOLTSZ, a town of the duchy of Warſaw; 34 miles N. of Gneſna.

PAKRATZ, a town of Sclavonia; 20 miles N.W. of Potzega.

PAKUPZKI, a town of Croatia, on the Kulpa; 20 miles E. of Carlſtadt.

PALA, in *Botany*, a name by which ſome authors have called the nutmeg-tree.

Pala, in *Geography*, a town on the W. coaſt of the iſland of Celebes. S. lat. 2° 32′. E. long. 119° 9′.

Pala, in *Ichthyology*, a name uſed by ſome authors for a fiſh of the truttaceous kind, more uſually known by the name of *ferra*. See **Guiniad**.

PALACE, **Palatium**, a name generally given to the dwelling houſes of kings and princes.

Procopius derives the word from a Grecian called Pallas, who gave his own name to a magnificent houſe he had built; adding that Auguſtus, after him, gave the name *palatium* to the houſe of the Roman emperors on the hill which for that reaſon was called the *Palatine* mount. Others take it the contrary way; and ſay that Romulus's houſe, in which Auguſtus lived, was properly called *palatium*, becauſe ſituate on the Palatine mount. Be this as it will, it is certain, *palatium*, from a proper name, in time became common to all houſes of kings.

And as the kings uſually heard and determined cauſes in their houſes, in what part of the realm ſoever they were ſituate; hence alſo *palatium* became a name for a court of juſtice, which uſage is ſtill retained, eſpecially in France.

In courſe of time the name *palace* has alſo been applied to the houſes of other perſons: taking different epithets, according to the quality of the inhabitants; as imperial palace, royal palace, pontifical, cardinal, epiſcopal, ducal palace, &c.

PALACIOS, Los, in *Geography*, a town of Spain, in the province of Seville; 10 miles S.E. of Seville.

Palacios, a town of Spain, in the province of Leon; eight miles S. of Aſtorga.

PALADA, a town of Hindooſtan, in the circar of Aurungabad; 48 miles S.E. of Aurungabad.

PALÆMON, Quintus Remmius, in *Biography*, a celebrated Roman grammarian in the reigns of Tiberius and Claudius, was a native of Vicenza, and domeſtic ſlave to a woman of that place, but by attending her ſon to the academy he acquired ſo much knowledge, that ſhe gave him his freedom, and he opened a grammar ſchool at Rome. He gained great reputation as a rhetorician and poet, but his morals were ſo looſe, as to be conſidered a very improper preceptor for young people. His income, however, as teacher was very conſiderable, but quite inadequate to his luxurious mode of living. The remains of this writer, who was ſo arrogant as to ſay that letters were born, and would die with him, are "Ars grammatica," printed among the "Grammatici Antiqui," of which the beſt edition is that of 1605; and a treatiſe "De Ponderibus et Menſuris," printed at Leyden in 1587, which has been aſcribed to another writer of the ſame name.

PALÆPHATUS, a Greek philoſopher of whom a treatiſe περι των Απιστων remains; its ſubject is the explication of ancient fables. It has been ſeveral times reprinted in the Greek and Latin; the beſt edition is that of Fiſcher, Lipſ. 1761. It muſt be obſerved that there are ſeveral ancient writers of this name; one an Athenian, placed by the poets before the time of Homer; one a native of Paros, who lived under Artaxerxes Mnemon; and one, a grammarian and philoſopher, born at Athens or in Egypt, poſterior to Ariſtotle. Which of theſe is author of the work already noticed, is not at all certain.

PALÆSTE, the name of a Greek meaſure of length, being the ſame with the *dochme* and *doron*, and containing four finger-breadths, or digits.

PALÆSTRA, παλαιστρα, among the ancient Greeks, a public building, where the youth exerciſed themſelves in wreſtling, running, playing at quoits, &c.

Some ſay, the palæſtra conſiſted both of a college, and an academy; the one for exerciſes of the mind, the other for thoſe of the body. But moſt authors rather take palæſtra to be a xyſtus, or mere academy for bodily exerciſes, according to the etymology of the word, which comes from παλη, *wreſtling*, one of the chief exerciſes among the ancients. See **Pale′**.

The length of the palæſtra was marked out by ſtadia, each equal to one hundred and twenty-five geometrical paces; and hence the name *ſtadium* was given to the arena whereon they ran.

PALÆSTROPHYLAX, formed from παλαιστρα, and φυλαξ, *guardian*, or *keeper*, among the *Ancients*, was the director of a palæſtra; and of the exerciſes performed therein.

This officer was alſo called *xyſtarcha* and *gymnaſiarcha*.

PALAFOX y Mendoza, D. Juan de, in *Biography*, a Spaniſh prelate, was born of a noble family at Arragon, in the year 1600. He ſtudied at Salamanca, after which he was appointed a member of the council of war, and next of that of the Indies; but he renounced civil diſtinctions for the eccleſiaſtical ſtate, and was made a biſhop in Spaniſh America, with the title of judge of the adminiſtration of the three viceroys of the Indies. Zeal for the intereſts of the church involved him in ſome difficulties, and he was compelled to ſecrete himſelf to ſave his life. His conduct was, however, in every reſpect approved by the king, and he was appointed to the biſhopric of Oſma in 1653, in which he continued till his death, in 1659. He was a voluminous writer, but the works by which he is chiefly known, are the "Hiſtory of the Siege of Fontarabia," and "The Hiſtory of the Conqueſt of China by the Tartars."

PALAFUGELL, in *Geography*, a town of Spain, in Catalonia; 20 miles S.E. of Gerona.

PALAIS, LE, a ſea-port town of France, and capital of the iſland of Belle Iſle, ſituated on the E. coaſt, and defended by a citadel, with good anchorage in the road; containing two churches, and about 500 houſes; 24 miles S.E. of L'Orient. N. lat. 47° 21′. W. long. 3° 4′.

PALAIS, *St.*, a town of France, in the department of the Lower Pyrenées, and chief place of a canton, in the diſtrict of Mauléon, ſeated on the Bidouze; 21 miles S.E. of Bayonne. The town contains 1000, and the canton 14,673 inhabitants, on a territory of 330 kiliometres, in 42 communes. N. lat. 43° 19′. W. long. 0° 50′.

PALAIZEAU, a town of France, in the department of the Seine and Oiſe, and chief place of a canton, in the diſtrict of Verſailles; ſeven miles S.E. of Verſailles. The place contains 1750, and the canton 9560 inhabitants, on a territory of 130 kiliometres, in 17 communes.

PALAKA, a town of Turkiſh Armenia, in the government of Kars; 60 miles N.N.E. of Kars.

PALALACA, in *Natural Hiſtory*, the name given by the people of the Philippine iſlands to a bird common among them, and ſomewhat reſembling the *upupa*, or hoopoe. From the deſcription which father Camelli gives of this bird, it ſeems very plainly to be a ſpecies of woodpecker, of a very large and beautiful kind. See PICUS *Bengalenſis*.

PALAMADA, in *Geography*, a town of Bengal; 28 miles S.E. of Doeſa.

PALAMBANG, or PALEMBANG, a river of Sumatra, which takes its riſe in the country of Mooſee, near the W. coaſt, and within a day or two's journey from that of Bencoolen, and is the moſt advantageous for navigation of any in the iſland. High up, on its banks, the pepper is cultivated, and purchaſed of the natives at a very cheap rate.—Alſo, a town and kingdom of Sumatra. The town is ſituated on the above mentioned river, and is the capital of the kingdom, which is very extenſive, and comprehends the iſland of Banca. Palambang is peopled moſtly by Javans, in conſequence of that part of the iſland being formerly under the juriſdiction of the Bantam empire, whence its ſovereigns derived their appointment. It has been ſince under the immediate protection of the Dutch government at Batavia, who have had a chief and factory there, and procure from it pepper and tin. It has likewiſe been an uſeful mart to them, for vending opium and other commodities from the weſt of India. The inhabitants of Paſſummah are moſtly ſupplied with opium, ſalt, and piece goods from Palambang. The king's agent comes up the river in large boats, which are towed againſt the ſtream. Thus the goods are conveyed to a place called "Mooarro Moolang," from whence they are tranſported on men's backs to that country. The voyage by the river is ſaid to take up 14 days; but the journey from Mooarro Moolang, where they diſembark, to Paſſummah, is performed in one. Their returns are moſtly in a ſpecies of twine called poolay, ſilk in its roughеſt ſtate, and elephants' teeth. The tin, though exported from Palambang, is dug up in the iſland of Banca, which covers the mouth of the river, and conſtitutes a trade of conſiderable importance. The king of Palambang, whoſe dominions are very extenſive, reaching as far as the hills of Lampoon to the ſouthward, and comprehending the iſland of Banca, accumulates immenſe riches. It is ſaid that the quantity of pepper brought annually from Palambang is about 2,000,000 lbs. which is purchaſed at the rate of two ſtivers *per* lb. The Dutch company likewiſe take about 1000 carats of rough diamonds, and a conſiderable quantity of canes and rattans. For theſe commodities a large ſum in ſpecie is yearly required to balance with the king. In 1771 the Dutch company rebuilt there an old ruined fort in a pentagonal form, at the charge of about 7322*l.* ſterling. S. lat. 2° 50′. E. long. 104° 59′. Marſden's Sumatra. Stavorinus's Voyage, vol. i.

PALAMBUAN. See BALAMBUAN.

PALAMCOTTA. See TINEVELLY.

PALAMEDEA, the Screamer, in *Ornithology*, a genus of birds of the order Grallæ, of which the generic character is; bill conic, the upper mandible hooked; noſtrils oval; feet four-toed, cleft, a very ſmall membrane connecting the toes at the root. There are only two ſpecies of this genus.

Species.

CORNUTA; Horned Screamer. Wings with two ſpines at the bend; the front is horned; hence its ſpecific name. The birds of this ſpecies are about as large as a turkey; they have on the crown of their head a ſlight horn riſing perpendicularly, about three inches in length. They feed on herbs and ſeeds, and perhaps on reptiles. They are found in Guiana and other neighbouring territories of South America, chiefly in the low and marſhy grounds. Theſe birds are never obſerved but in pairs, and ſo faithful, tender, and conſtant is their attachment, that the death of one is generally attended with a degree of diſtreſs and grief which deſtroys the other. While young they are eaten, but their fleſh is of very dark colour, though not ill taſted. The legs are black, and ſo is the bill; the irides golden; body above blackiſh, beneath white; wings reddiſh beneath; ſpines ſtrong, ſharp, horny, triangular, yellow; horn on the front recurved, round, whitiſh, three inches long; the hind-toe is ſtraight. They lay two eggs, which are about the ſize of thoſe of a gooſe.

CRISTATA; Creſted Screamer. Wings unarmed; front creſted. It inhabits Braſil, and is about the ſize of a heron. The bill and legs are yellowiſh; the irides golden; creſt black varied with cinereous, erect; the body is mixed with rufous and brown; the hind toe is placed ſo high as not to touch the ground in walking. The birds of both ſpecies, on hearing the leaſt noiſe, or ſeeing any perſon, though at a diſtance, riſe from the ground, and make a loud ſcreaming noiſe.

PALAMEDES, in *Biography*, a diſtinguiſhed Greek, was the ſon of Nauplius, king of the iſle of Eubœa. At the time of the Grecian confederation for the expedition againſt Troy, Palamedes is ſaid by a ſtratagem to have detected the counterfeited inſanity of Ulyſſes, who had acted the madman, in order that he might be excuſed from accompanying the other princes. In reſentment for this expoſure, Ulyſſes contrived to bury a ſum of money in the tent of Palamedes, and then to charge him with having received a bribe from Priam. The diſcovery of the treaſure was deemed evidence of the fact, and Palamedes was ſtoned to death for the crime of treaſon. To him are attributed the invention of weights and meaſures; the art of drawing up a battalion; the regulation of the year by the courſe of the ſun, and of the month by that of the moon; likewiſe the games of dice and even cheſs are aſcribed to him. Pliny affirms that during the ſiege of Troy he invented the four letters in the Greek alphabet θ, ξ, φ, χ; but Philoſtratus aſcribes to him only the υ, φ, and χ. He has been mentioned as a poet, and Suidas ſays his poems were ſuppreſſed by Agamemnon, or by Homer.

PALAMOS, in *Geography*, a ſea-port town of Spain, in Catalonia, on the coaſt of the Mediterranean, fortified and defended with a caſtle; 22 miles S.E. of Gerona. N. lat. 41° 50'. E. long. 2° 58'.

PALAMOW, a town of Bengal, and capital of a circar to which it gives name. The circar is bounded on the N. by Bahar, on the E. by Koondah, Torea, and Nagpour, on the S.E. by Burwah, on the S.W. by Sirgooja, and on the W. by Bittounja, about 80 miles long and 40 in its greateſt breadth. The capital is 120 miles S.S.W. of Patna. N. lat. 23 48'. E long. 84° 20'.

PALAMPONG, a town on the W. coaſt of the iſland of Leyta. N. lat. 10° 58'. E. long. 124° 14'.

PALANA, a town of Peru, in the audience of Quito; 50 miles S. of Loxa.—Alſo, a town on the W. coaſt of the iſland of Luçon, at the entrance of Caigaran bay. N. lat. 16° 45'. E. long. 122° 14'.

PALANDO, a town of South America, in the province of Quito; 45 miles S of Loxa.

PALANE, a river of Africa, which runs into the Indian ſea, near Mozambique.

PALANKA, a town of European Turkey, in Bulgaria; 40 miles S of Sophia.—Alſo, a town of European Turkey, in Beſſarabia, on the Dneiſter; 32 miles N.W. of Akerman.

PALANQUIN, or PALANKEEN, a kind of chaiſe, chair, or litter, borne by men on their ſhoulders; much uſed by the people of China, and the Eaſt, as a vehicle for their eaſy conveyance from place to place.

PALANTONE, in *Geography*, a town of Italy, in the department of the Lower Po; 12 miles N.W. of Ferrara.

PALANY, a town of Hindooſtan, in Bahar; 7 miles S.E. of Bahar.

PALANZA, a town of Italy, on the W. ſide of lake Maggiora; 15 miles S.E. of domo d'Oſcello.

PALAOS. See *New* PHILIPPINES.

PALAPARIJA, in *Zoology*, the name of a ſpecies of Eaſt India ſerpent, found in the iſland of Ceylon. It is a large kind, and beautifully variegated in colour, with a great deal of red about it. It is one of thoſe ſpecies which naturally live underground.

PALAPETTY, in *Geography*, a town of Hindooſtan, in the province of Dindigul; 18 miles N. of Dindigul.

PALAPOUR, a town of Bengal; 22 miles E. of Boglipour.

PALAPRAT, JOHN, in *Biography*, a poet and dramatic writer, was born at Toulouſe in the year 1650. He diſtinguiſhed himſelf from his youth by a talent for poetry, and obtained ſeveral prizes at the Floral games of that city. He was brought up to the legal profeſſion, and obtained ſome offices of conſideration, in which he conducted himſelf with great credit. At length an attachment to literature, and a natural ſimplicity of character, gave him a diſtaſte for buſineſs; and after a viſit to the wits of Paris, he went to Rome in 1686 for the purpoſe of being introduced to the celebrated queen Chriſtina, then reſident in that metropolis. Thence he returned to Paris, which afterwards became his principal abode. In 1691 the duke of Vendome attached him to his perſon in quality of ſecretary. He employed himſelf, at Paris, chiefly in theatrical compoſitions, and he contracted an intimacy with the abbé Brueys, in concert with whom he wrote ſeveral pieces for the ſtage. Of their conjunct performances, three have kept their place on the ſtage, with one of his ſole compoſition. He alſo wrote eight diſcourſes on different ſubjects, and publiſhed a volume of poems. He died at Paris in 1721, in the ſeventy-ſecond year of his age. The character of his works is gaiety and vivacity, with an air of ſimplicity, but with little regard to correctneſs. His dramatic pieces are contained in the collection of thoſe of Brueys.

PALARIA, among the Romans, a kind of exerciſe performed at a ſtake by the ſoldiers.

The ſtake being fixed immoveable in the ground, and ſix feet high above it, the young undiſciplined ſoldiers advanced againſt it armed with a hurdle and cudgel, inſtead of a ſhield and ſword, and went through all the rules of attack and defence, as if actually engaged with an adverſary. Sometimes they ſtood at a diſtance, and attacked it with miſſive weapons, at the ſame time uſing all the requiſite motions for defending themſelves, and warding off what might be thrown againſt them.

PALASBARY, in *Geography*, a town of Bengal; 6 miles N.N.E. of Goragot.

PALASBONA, a town of Bengal; 16 miles S. of Rajemul.

PALASCO, a town of Corſica; 14 miles N. of Corte.

PALASZ, a town of European Turkey, in Servia; 15 miles S.W. of Belgrade.

PALATCHA, or PALATSA, a town of Aſiatic Turkey, in Natolia, near the coaſt of the Archipelago; 8 miles N. of Milets. N. lat. 37° 31'. E. long. 27° 12'.

PALATCHY, a town of Hindooſtan; 15 miles S. of Coimbetore.

PALATE, the upper part or roof of the mouth in animals of different kinds.

In a horſe it ſhould be lean, for if it be full and high, ſo as to be nearly level with the extremities of the upper teeth, the leaſt height in the liberty of the bit will be troubleſome, and make him either check in the bridle, and be always throwing up his head, or otherwiſe carry it too low, which, beſides the unſightlineſs, much annoys the rider's hand.

PALATE, in *Anatomy*, the roof of the mouth. It is the arched ſuperior boundary of that cavity, and, at the ſame time, the inferior ſurface or floor of the noſe. The anterior two-thirds of it are made up of the palatine plates of the ſuperior maxillary and palatine bones, ſurrounded by the teeth and covered by a firm membrane: the poſterior third is a moveable membranous and muſcular organ, called the ſoft palate, velum palati or palatum molle. Theſe parts are more minutely deſcribed in the article DEGLUTITION.

PALATE, *Diſeaſes of*. See TONSILS and UVULA. A deſcription of the defective ſtate of the palate, frequently accompanying the hare-lip, is noticed in the article HARE-LIP.

PALATI OSSA, in *Anatomy*, two ſmall bones of the upper jaw. See CRANIUM.

PALATINATE, PALATINATUS, a province or ſignory, poſſeſſed by a palatine, and from which he takes his title and dignity.

The palatinates now ſubſiſting, are either thoſe of Germany or Poland. Thoſe of Germany are the principalities of the Upper and Lower Rhine, *i. e.* of Bavaria, and the Rhine.

The palatinates in Poland are the provinces and diſtricts of the Poliſh grandees or ſenators, who are the governors thereof.

PALATINATE *of the Rhine*, or *Lower Palatinate*, in *Geography*, a country of Germany, in the circle of the Lower Rhine; bounded on the N. by the electorate of Mentz and Catzenelnbogen, on the E. by Catzenelnbogen, the electorate of Mentz, the biſhopric of Worms, and a part of Franconia, on the S. by Wurtemberg and the biſhopric of Spire, and on the W. by France, the duchies of Deux Ponts and Simmern, and the county of Sponheim. Its greateſt extent is about 80 miles. Although the country is mountainous, it is uncommonly fertile, and produces plenty of corn, pulſe, fruit, cheſnuts and walnuts, and its paſturage ſeems to yield a good breed of cattle. It has plantations of tobacco, particularly between Heidelberg and Manheim, and alſo good Nectar and Rheniſh wines (See BERGSTRASS.) The Rhine traverſes this electorate palatine; and out of the lands near Germerſheim and Veltz is waſhed the beſt Rheniſh gold, to which the Rheniſh gold florins owe their origin. The electorate palatine contains 41 towns and ſeveral boroughs. The eccleſiaſtical ſtate has undergone many changes, as the doctrines of Calvin and Luther have alternately prevailed ever ſince the reformation was firſt introduced in the year 1518. The name and origin of the "Palatines" are deduced from the palatia, or palaces, which the old Frankiſh and German kings and emperors poſſeſſed in various places, and over which they appointed ſtewards and judges, who were ſtyled "Pfallenzgraves" or "Pfalzgraves." The addition of *by* or *on the Rhine* firſt occurs in the year 1093. The electoral palatinate, ever ſince the reſignation of the Upper Palatinate to the elector of Bavaria, paid only one-half of the electoral evaluation. All that part of the palatinate which lay on the left ſide of the Rhine was by the peace of Luneville ceded to France, and forms the department of Mont Tonnerre.

PALATINATE, *Upper*, a part of Bavaria, bounded on the W. and N.W. by Franconia, on the E. and N.E. by Bohemia, and on the S. by the duchy of Neuburg and Lower Bavaria. In the 12th century this country belonged to the dukes of Swabia: it was afterwards annexed to the palatinate of the Rhine. By the peace of Baden, in 1714, it was ceded, after ſome previous changes of maſters, to the elector of Bavaria. The capital is Amberg.

PALATINE, PALATINUS, in *Anatomy*, an epithet applied to many parts about the roof of the mouth: as the palatine artery, a branch of the internal maxillary, ſee ARTERY; the palatine glands, ſee DEGLUTITION; the palatine ducts, which were ſuppoſed communications between the noſe and mouth through the anterior palatine holes or foramina inciſiva; the palatine nerves, branches of the ſuperior maxillary, ſee NERVE; the palatine proceſſes, of the ſuperior maxillary and palate bones. See CRANIUM.

PALATINE, *Count Palatine, Comes Palatinus*, in *Ancient Cuſtoms*, was a title given to all perſons who had any office or employment in the prince's palace.

The appellation is derived hence, that anciently the emperors ſent the judges of their palace, whom they called *comites palatini*, or *pals-graves*, to correct the abuſes of the other judges in the provinces of Saxony, Bavaria, Franconia, and the Rhine.

Matthæus ſays, that the palatines were originally thoſe who had the ſuperintendance of the palace, the ſame with what the Greeks called *curopalatæ*, and the French *maîtres du palais:* though in time the name became more general.

The title of count palatine is now appropriated to the princes of Sultzbach, Deuxponts, and Berkenfeld, who are three branches of the ſame family. The elector palatine is a prince of the firſt of theſe branches, *i. e.* the prince palatine of the Rhine.

PALATINE was afterwards a title conferred on thoſe delegated by princes to hold courts of juſtice in the provinces; and on ſuch among the lords as had a palace, *i. e.* a court of juſtice in their own houſes.

The French writers make the palatines of Champagne to be the firſt who bore that title; which, they will have it, the Germans and other people borrowed from them, not they from the Germans.

At preſent the word palatine is reſtrained to a prince of Germany, or a lord of Poland, poſſeſſed of a palatinate. In the code we find a title "De palatinis ſacrarum largitionum." Theſe were a kind of treaſurers of the empire.

PALATINE, in *Geography*, a poſt-town of America, in Montgomery county, New York, on the N. ſide of Mohawk river and W. of Caghnawaga; containing 3517 inhabitants. The compact part contains a reformed Dutch church, and 20 or 30 houſes; 36 miles above Schenectady.

PALATINE *Bridge*, a bridge of ancient Rome, now called *St. Mary's* bridge, which croſſes over from the preſent church of St. Mary the Egyptian, at the lower end of the forum boarium to the via Trans-tiberina. This bridge is ſuppoſed to be that which Livy ſpeaks of (Decad. 4. l. 10.), built by M. Fulvius, waſhed down by the Tiber, and afterwards rebuilt by the cenſors Scipio Africanus and L. Mummius. Another inundation having damaged it, pope Gregory XIII. repaired it, partly upon the old piles, in the year 1575. But another inundation ſweeping away ſome of it in 1598, it has never ſince been repaired, ſo as to be ſerviceable.

PALATINE, *County*. See COUNTY.

PALATINE *Mount*, one of the ſeven principal hills incloſed within the walls of ancient Rome. Whether the Palatine hill received its name, from a people called Palantes or Palatini, or from the bleating or ſtrolling of cattle, in Latin balare and palare; or from Pales, the paſtoral goddeſs; or from the burying place of Pallas, is diſputed among the learned, and undetermined. Here, however, Romulus laid the foundation of his city, in a quadrangular form; and here the ſame king and Tullus Hoſtilius kept their courts; as did afterwards Auguſtus and all the ſucceeding emperors; on which account the word "palatium" came to ſignify a royal ſeat. To the E. of this hill is Mons Cælius, to the S. Mons Aventinus, to the W. Mons Capitolinus, and to the N. the forum. Its compaſs is 1200 paces. Romulus's houſe, preſerved for ſeveral ages by the care of the ſenate, was on this hill, near the ſpot where the church of St. Anaſtaſia now ſtands; as was alſo that of his foſter-father Fauſtulus, near the place now occupied by the church of Sancta Maria Liberatrice.

PALATINE *Games, ludi Palatini*, among the Romans, were games inſtituted in honour of Julius Cæſar, as ſome will have it, or, as others ſay, of Auguſtus, and celebrated in his palace during eight days, from the ſixth calends of January. Suetonius informs us, that Caligula attended theſe games when he was aſſaſſinated. "Cum placuiſſet palatinis ludis ſpectaculo egreſſum meridie aggredi."

It is pretended, that Dion calls them *Auguſtalia;* which ſhould ſeem to confirm the ſecond opinion. Indeed, it is certain, that he ſays Livia inſtituted particular games in the Palatine Mount, in honour of that prince, but he apparently diſtinguiſhes them from thoſe called Auguſtalia. The Romans had alſo their Apollo Palatinus, a ſurname of that deity, given him in reſpect to the temple erected to him by Auguſtus on the Palatine Mount, in conſequence of a report of the aruſpices, which required it to be done: Auguſtus enriched it alſo with a noble library; as is intimated by Horace, lib. i. epiſt. iii. ver. 17.

PALATINE *Tribe*, was one of the four tribes into which Rome was anciently divided by Servius Tullus.

Servius Tullus added a fourth tribe to the three tribes into which Rome was divided by Romulus; and having incloſed the ſeven hills within the city, and divided it into four quarters, which he named from the principal hills they contained, he aſſigned to each tribe its appropriate diſtrict. Thus, the inhabitants of the Capitoline mount, the Palatine mount, and the ſpace between theſe two hills, compoſed the firſt tribe, called "Tribus Palatina." They who dwelt in the quarter called Suburra, containing mount Cælius, formed the ſecond tribe, which retained the name of "Tribus Suburrana." The inhabitants of the Eſquiline mount were called "Tribus Eſquilina." And they who lived on the mounts Viminalis and Quirinalis, bore the name of the hills on which they were placed, and were called "Tribus Collina" or "Collatina."

PALATINI. See Acolythi.

PALATO-PHARYNGEUS, in *Anatomy*, a muſcle of the palate. See Deglutition.

PALATO-STAPHYLINUS, a ſynonym of the azygus uvulæ.

PALATULUNGA, in *Geography*, a town of Hindooſtan, in Coimbetore; 15 miles S.W. of Erroad.

PALATUM Molle, in *Anatomy*. See Palate.

PALAVAI, in *Geography*, a town of the iſland of Ceylon; 48 miles W.N.W. of Candy.

PALAVASOURY, a town of Hindooſtan, in the circar of Joodpour; 15 miles E. of Joodpour.

PALAVIA, in *Botany*, ſo named in honour of Don Antonio Palau y Verdera, profeſſor of Botany in the royal garden at Madrid, who tranſlated the *Philoſophia Botanica* of Linnæus into Spaniſh, and who, according to Cavanilles (ſee his Diſſ. faſc. 1. 5.), has given much attention to the genera and ſpecies of plants. This gentleman is the author of ſeveral botanical or economical treatiſes in his native tongue. His name appears, with that of *Ortega*, (ſee Ortegia,) in the title-page of a *Curſo elemental de botanica*, publiſhed at Madrid, in 8vo. anno 1785, which perhaps is the tranſlation of Linnæus above-mentioned; but it contains, moreover, a Spaniſh verſion of the eſſential generic characters of that author. Cavanilles wrote the name of this genus *Palava*, which Schreber has properly corrected. Schreb. 464. Willd. Sp. Pl v. 3. 767. Mart. Mill. Dict. v. 3. (Palava; Cavan. Diſſ. 1. 40. Juſſ. 271. Lamarck Illuſtr. t. 577.)—Claſs and order, *Monadelphia Polyandria*. Nat. Ord. *Columniferæ*, Linn. *Malvaceæ*, Juſſ.

Gen. Ch. *Cal.* Perianth ſimple, inferior, of one leaf, cloven half way down into five ſegments, permanent. *Cor.* Petals five, roundiſh, inſerted into the baſe of the tube of the ſtamens. *Stam.* Filaments numerous, united below into a tube, ſeparate above; anthers roundiſh. *Piſt.* Germen ſuperior, globoſe; ſtyle ſhort, divided in the upper part into many ſegments; ſtigmas capitate. *Peric.* Capſule roundiſh, of many cells, which do not burſt, and are cluſtered about an elevated central receptacle. *Seeds* ſolitary, roundiſh, angular.

Eſſ. Ch. Calyx ſimple, five-cleft. Capſule of numerous ſingle-ſeeded cells, cluſtered irregularly together.

Obſ. This genus differs from *Malope*, merely in having a ſimple calyx. We have already (ſee Malope) mentioned profeſſor Martyn's remark concerning it, and we now adopt it on the authority of the above authors.

1. P. *malvifolia*. Willd. n. 1. Cavan. Diſſ. 1. 40. t. 11. f. 4. (Malope parviflora; L'Herit. Stirp. Nov. faſc. 5. 105. t. 50.)—Leaves ſmooth. Flower-ſtalks the length of the footſtalks. Stem proſtrate.—Native of Peru and Lima, in ſandy ground. See Malope, ſp. 2.

2. P. *moſchata*. Willd. n. 2. Cavan. Diſſ. 1. 41. t. 11. f. 5.—Leaves downy. Flower-ſtalks longer than the footſtalks. Stem erect.—Native of ſandy ground about the town of Lima, where it was gathered by the celebrated and unfortunate Dombey, flowering in September. The *root* is annual, long and fibrous. Whole *plant* clothed with ſoft ſhort down, and ſmelling of muſk. *Stem* erect, branched, leafy, two feet high. *Leaves* on ſhortiſh ſtalks, alternate, roundiſh-heart-ſhaped, obtuſe, waved and crenate, about two inches long. *Stipulas* ſmall, lanceolate, dark-coloured. *Flowers* ſolitary, on ſimple axillary ſtalks, longer than the leaves. *Calyx* bell-ſhaped. *Petals* yellowiſh-purple, about an inch long.

PALAWAN, in *Geography*. See Paraguay.

PALAZOL, a ſmall iſland in the Adriatic. N. lat. 44° 46′. E. long. 14° 47′.

PALAZZUOLO, a town of Italy, in Friuli; 14 miles S.W. of Palma la Nuovo.—Alſo, a town of Italy, in the department of the Mela; 15 miles W. of Breſcia.—Alſo, a town of the iſland of Sicily, in the valley of Noto; 20 miles W. of Syracuſe.

PALCATI Nor, a lake of Tartary, in the country of the Eluths, called alſo "Tchoi;" 30 miles W. of Harcas.

PALCIPAS, a town of South America, in the province of Tucuman; 50 miles W.N.W. of St. Fernando.

PALCOOR, a town of Hindooſtan; 30 miles S. of Tinevelly.

PALCOTE, a town of Bengal; 16 miles S.S.W. of Doeſa. N. lat. 22° 48′. E. long. 84° 53′.

PALDAMO, a town of Sweden, in the province of Cajana; 5 miles N. of Cajanaborg.

PALDIANO, a town of Italy, in the Campagna di Roma; 5 miles E.S.E. of Paleſtrina.

PALE, Palus, a little pointed ſtake, or piece of wood, uſed in making incloſures, ſeparations, &c.

The pale was an inſtrument of puniſhment and execution among the ancient Romans; and ſtill continues ſo among the Turks. Hence *empalement;* the paſſing a ſharp pale through the fundament up the body.

Pale, in *Heraldry*, is one of the honourable ordinaries of an eſcutcheon; being the repreſentation of a pale or ſtake, placed upright; conſiſting of two perpendicular lines, drawn from the top of the baſe to the eſcutcheon, and containing the third middle part of the field.

When there are ſeveral, more properly called *pallets*, they are proportioned ſo as that two take up two-fifths of the field; and three take up three-ſevenths: and, in thoſe caſes, the number of ſpecies are ſpecified, as well as that of thoſe they are charged with, &c.

Pales are borne various ways, as *wavy*, *crenellé*, *faillis*, *indented*, *ingrailed*, &c. There are alſo the *cometed*, and *flaming pale*, which are pointed, ſometimes waved, &c.

Pale, *Paled*. A coat is ſaid to be *paled*, when it is equally charged with pales of metal, and colour. It is *counter-paled* when it is cut, and the two *demi-pales* of the chief, though of colours the ſame with thoſe of the point, yet differ in the place where they meet; ſo that if the firſt of the chief be metal, that correſponding to it, underneath, is of colour.

The coat is ſaid to be *paliſſe*, when the pales are pointed like thoſe uſed in the defence of places.

Pale, *in*, is applied to things borne one above another, in manner of a *pale*.

Pale, *Party per*, is where the ſhield is divided by a ſingle line through the middle, from top to bottom. See Paly.

Palé, *Wreſtling*, in *Antiquity*, one of the exerciſes of the Olympic ſtadium, firſt introduced into it in the 18th Olympiad; and Eurybalus, a Spartan, was the firſt who received the wreſtler's crown. Theſeus, according to Plutarch, is reported to have been the firſt who reduced wreſtling into a ſcience; and in proceſs of time, though the rules which he laid down are unknown, it was much cultivated by the ancients. The moſt remarkable difference between the ancient and modern practice of this art is, that the ancient wreſtlers contended naked, and that their bodies were rubbed all over with oil, or with a certain ointment, compoſed of a due proportion of oil, wax, and duſt, mixed up together, which they called "ceroma." Theſe unctions, as ſome ſay, were peculiar to the wreſtlers, or pancratiaſts, whoſe combats were thus rendered more toilſome and various; while each combatant endeavoured to ſeize upon the other, whoſe efforts to eſcape or break the hold of his antagoniſt were aſſiſted by the ſlipperineſs, as well as the force and agility of his body. In order, however, to qualify this extreme lubricity of the ſkin, occaſioned by this unction, the athletæ were accuſtomed, before they came to an engagement, either to roll themſelves in the mud of the palæſtra, (from which ſome perſons derive the words pale and palæſtra, πηλος ſignifying mud), or in the ſand kept for that purpoſe, in a place called κονιϛηριον, or that with which the place of combat ſeems to have been covered. It is certain, whatever was the mode of doing it, that the athletæ, who were anointed, were always, before they engaged, ſprinkled with duſt or ſand; ſo that to ſay an athleta gained a victory, ακονιτι, and without being ſo ſprinkled, was the ſame thing as to ſay he gained a victory without engaging; which, indeed, ſometimes happened, when, either from the great reputation of the champion, or other reaſons, none appeared to encounter him. This office of anointing and ſprinkling the combatants was ſometimes performed by themſelves to one another, and ſometimes by the officers of the palæſtra, called from thence *aliptæ*, or anointers.

After the wreſtlers were thus prepared for the engagement, they were matched by the judges or preſidents of the games in the following manner. Into a ſilver urn, conſecrated to Jupiter, and brought forth upon this occaſion, were caſt ſo many lots or dice, about the bigneſs of a bean, as anſwered to the number of the competitors. Theſe lots were all marked with letters; as for example, upon two of them was written the letter A, B upon two others, and ſo on in an alphabetical order; if the number of combatants required more, there were always two lots marked with the ſame letter. This being done, the athletes approached in order, and invoking Jupiter, put their hands into the urn, and drew out each his lot: to prevent all fraud, an officer appointed for that purpoſe attended upon every one as he came to draw, and held up his hand before him, to hinder his ſeeing the letters written upon the lot. When every one had drawn, the Alytarches, or one of the preſidents of the games, going round to every athlete in order as they ſtood, inſpected the lots. And thus the two, whoſe lots were both marked with the ſame letter, as with A or B, were by him matched and appointed to engage with each other. This was the caſe when the number of the combatants was even, as four, eight, twelve; but when the number was odd, as five, ſeven, nine, &c. there was put into the urn, together with the duplicate lots, an odd one, marked with a letter to which there was none that correſponded. The athlete who was fortunate enough to obtain this lot, was named *ephedrus*, was to wait till the others had contended, and was then to take up one of the conquerors. This, as Lucian obſerves, was a very conſiderable advantage; as the champion, who by virtue of his lot was to wait till the others had contended, and then engage with one of the conquerors, came freſh and vigorous to the encounter, againſt an adverſary, animated indeed and fluſhed with conqueſt, but ſhattered and exhauſted in obtaining it.

The wreſtlers, being thus matched, proceeded to the combat, in which the victory was adjudged to him who gave his adverſary *three falls*; as ſeems to be evident, from the famous epigram upon Milo, which will be produced in the ſequel of this article.

If one of the combatants in falling drew his antagoniſt with him, the conteſt began afreſh, or was rather continued upon the ground, until one getting uppermoſt, conſtrained his adverſary to yield the victory. This combat was called *anaclinopalé*, and ſeems not ſo much to be a diſtinct ſpecies from, as a modification of the palé; or an accidental, or perhaps artificial variation of the battle: for he who found himſelf in danger of being thrown, had ſometimes recourſe to this ſtratagem of dragging his adverſary with him, and trying upon the ground a combat in which he thought himſelf better qualified to ſucceed. However, thoſe authors who have written upon the palé, have made this a diſtinct exerciſe; and it is not unlikely but it may have been treated as ſuch in the gymnaſia, or ſchools of exerciſe; where there were maſters whoſe buſineſs it was to give their ſcholars diſtinct leſſons in every branch of the ſcience they profeſſed to teach: from which cuſtom one may very well account for the many diviſions and ſubdiviſions of the palé, and other gymnaſtic exerciſes, of which modern writers have made ſo many diſtinct ſpecies. Of this kind in all likelihood was the *acrocheiriſmus*; ſo named, becauſe the combatants, during this part of their engagement, held one another only by the fingers, without ſeizing on any part of the body. This has been reckoned a diſtinct exerciſe, and another diviſion of the palé; though, as Monſ. Burette very well obſerves, it ſeems rather to have been the prelude of the combat, in which the antagoniſts made trial of each other's ſtrength, or endeavoured, perhaps, by ſeizing each other's hands, mutually to prevent one another from taking a firmer and more advantageous hold.

The champion who diſtinguiſhed himſelf the moſt in this exerciſe, was Milo of Crotona, who gained no leſs than ſix Olympic, and as many Pythian crowns. There are ſo many inſtances of the prodigious ſtrength of this famous wreſtler, and moſt of them ſo well known, that it would be endleſs and impertinent to cite them all: but we cannot forbear producing one, as remarkable for the ſingularity, as the iſſue of the experiment.

This Milo, to give a proof of his aſtoniſhing force, was wont to take a pomegranate, which, without ſqueezing or breaking it, he held ſo faſt by the mere ſtrength of his fingers, that nobody was able to take it from him; nobody but his miſtreſs, ſays Ælian. But however weak he may have been with regard to the fair ſex, his ſuperior force was univerſally acknowledged by the men, as will appear by the following epigram:

> When none adventur'd, in th' Olympic ſand
> The might of boiſt'rous Milo to withſtand;
> Th' unrivall'd chief advanc'd to ſeize the crown,
> But 'mid his triumph ſlip'd unwary down.
> The people ſhouted, and forbade beſtow
> The wreath on him, who fell without a foe.
> But riſing, in the midſt he ſtood, and cry'd,
> Do not *three falls* the victory decide?
> Fortune indeed hath giv'n me one, but who
> Will undertake to throw me th' *other two?*
>
> Weſt's Pindar.

PALEARIUS, Aonius, in *Biography*, an elegant and liberal ſcholar, and martyr to the cauſe of the reformation, was born about the beginning of the ſixteenth century, at Veruli, in the Campagna of Rome. The name of his family was Della Paglia, and his baptiſmal name was Antonio, both which he changed to the claſſical form under which he is known. Having ſtudied ſix years at Rome, he quitted it on the approach of the imperial army in 1527, and took up his abode at Perugia, Sienna, Padua, and other places, improving himſelf by attendance on the moſt celebrated profeſſors. He fixed at length at Sienna, where he married in 1536, and opened a private ſchool for ſome young men of rank. Here he paſſed ſome years tranquilly in the boſom of his family, till the freedom of his opinions began to excite againſt him many enemies. The ſuſpicion into which he fell, as being a favourer of the new opinions, gave the monks a handle, and they publicly accuſed him of hereſy. He was brought before the archbiſhop and governor. On this occaſion he wrote an oration, in which, though he did not avow the opinions imputed to him, he ſpoke of them in a way that ſhewed what he thought upon thoſe points. He was acquitted, but was ſucceſsfully oppoſed in his attempts to obtain a profeſſorſhip in the univerſity. In 1544 he publiſhed a work "On the Merits of Chriſt," which was written on the principles of the reformers. He received an invitation, in 1546, to take the profeſſorſhip of eloquence at Lucca, with which he complied, and exerciſed that office for ſeveral years. In 1555 he was invited to Milan, to ſucceed Majoragio in the chair of eloquence. He reſided quietly in that city till the acceſſion of pope Pius V., who having been a Dominican and Inquiſitor, began his reign with the ſevere perſecution of hereſy. Palearius was one of the firſt victims to his cruelty; the charges exhibited againſt him were very ſerious, and of theſe he was found guilty, and condemned to the flames. The ſentence was executed in July 1570. Such was the lamentable fate of one who was univerſally admitted to be moral, pious, and learned. Of the writings of Palearius, the beſt known is his poem "De Immortalitate Animorum," in three books, firſt printed at Lyons in 1536. Its verſification is formed upon that of Lucretius, rather than that of Virgil. It has been reprinted in ſeveral collections of ſelect Latin poetry by Italians. His other works are fourteen orations on different ſubjects, letters, and poems, all written in a pure Latin ſtyle. After his death was printed a work entitled "Actio in Pontifices Romanos et eorum Aſſeclas," which he had compoſed a ſhort time before the meeting of the council of Trent, with an intention of getting it preſented by the embaſſadors of the emperor. It is ſaid to be an eloquent plea in favour of the reformed religion.

PALECKE, in *Geography*, a town of Pruſſia, in the province of Oberland; 14 miles S.E. of Mohrungen.

PALED Flowers, in *Botany*, are thoſe which have thin leaves ſet about, or ſurrounding a head, or thrum; as in marigolds, &c.

PALEE, in *Geography*, a town of Hindooſtan, in Oude; 45 miles W. of Kairabad.

PALEMON, in *Mythology*, a deity ſo called by the Greeks, the ſame with the Melicartus of the Phœnicians, and Portumnus among the Romans. See Portumnus.

PALENCIA, in *Geography*, a city of Spain, in the province of Leon, which has a very ancient biſhopric, ſuffragan to Burgos: the biſhop enjoys a revenue of 2500*l.* to 2900*l.* and bears the title of count. This town is ſituated in a fertile territory, watered by the little river Carrion, on the banks of which it ſtands. Moſt of the edifices of this town are in the Gothic ſtyle; and the moſt remarkable is San-Antolin, a church built and dedicated to that ſaint by king Sancho, after having eſcaped great danger in hunting wild boars. At the beginning of the 13th century, this town had an univerſity, eſtabliſhed by Rodrigo the biſhop, and the firſt founded in Spain after the invaſion of the Moors. In 1239, this univerſity was removed to Salamanca. Its diſtrict, called the Tierra de Campos, is remarkable for its fertility. It contains 5 churches, 11 convents, and 2 hoſpitals; 57 miles S.E. of Leon. N. lat. 41° 59′. E. long. 4° 34′.

PALENO, a town of Naples, in Abruzzo Citra; 9 miles E. of Sulmona. N. lat. 43° 3′. E. long. 14° 2′.

PALENQUE, a town of Mexico, in the province of Chiapa; 60 miles S.E. of Chiapa dos Eſpagnoles.—Alſo, a ſmall iſland in the Spaniſh main. N. lat. 9° 30′. W. long. 79° 5′.

PALENSEN, a town of Weſtphalia, in the principality of Calenberg; 6 miles S. of Hanover.

PALENZUELA, a town of Spain, in Old Caſtile; 25 miles S.W. of Burgos.

PALEO-CASTRO. See Policastro.

Paleocastro, a town on the N. coaſt of the iſland of Lemno. N. lat. 40°. E. long. 42° 55′.

PALEOTTI, Gabriel, in *Biography*, a learned Italian cardinal, deſcended from an illuſtrious family, was born at Bologna in the year 1524. He was intended for the profeſſion of the civil and canon law, and made a rapid and very ſucceſsful proficiency in the ſtudy of literature and juriſprudence, at the univerſity in his native city. He was in early life appointed to the canonry of Bologna; after which he was appointed profeſſor at the univerſity. Here he acquired high fame by his lectures and publications, and was diſtinguiſhed by the accuracy of his judgment and the goodneſs of his taſte. Being led to viſit Rome, he was appointed by cardinal Alexander Farneſe, who had been his fellow-ſtudent at Bologna, and who was juſt appointed perpetual legate of Avignon, governor of Vaiſſon, in the county of Venaiſſin, which he was led to decline, on account of ſome family concerns which he was obliged to attend to at Bologna, where he reſumed the profeſſor's chair. The Farneſe family were, however, reſolved to make his fortune, and obtained for him the poſt of auditor of the rota, when he was only thirty-three years of age. When pope Pius IV. opened the council of Trent, he ſent Paleotti thither in the capacity of proctor and counſellor to his legates, who took no ſtep of importance without his advice. Of this council Paleotti wrote a hiſtory, which ſtill remains in MS. In 1565 he was raiſed to the dignity of the purple by Pius IV. and by Pius V. he was created biſhop of Bologna, and that ſee was erected into an archbiſhopric by the ſame pope, to do honour both to Paleotti and his native country. So exemplary was Paleotti in his dioceſe, that it was with the greateſt reluctance that the popes ſummoned him to attend the conſiſtories and other buſineſs at Rome. He died at Rome in the year 1597, when about the age of ſeventy-three. He was author of ſeveral works of conſiderable merit, on ſubjects in antiquities, juriſprudence, and morals. Of theſe the moſt conſiderable are the following, "Archiepiſcopale Bononienſe;" De imaginibus Sacris, et Profanis" "De Sacri Conſiſtorii Conſultationibus;" "De Nothis, Spuriiſque Filiis;" "De Bono Senectutis;" Paſtoral Letters, &c. Moreri.

PALEPARTO, in *Geography*, a town of Naples, in Calabria Citra; 10 miles S. of Roſano.

PALEPOLI, a ſea-port of Aſiatic Turkey, in Caramania, on the S. coaſt; 220 miles S. of Cogni.

PALERMO, an ancient city of Sicily, in the valley of Mazara, the ſeat of the viceroy, and the ſee of an archbiſhop, was built on the ſcite of the ancient *Panormus*, (which ſee,) and ſituated on a bay to which it gives name, on the north coaſt, well fortified, with a harbour, the entrance of which is defended by two ſtrong citadels. This bay, as well as Palermo, is at the bottom of a great gulf, formed to the eaſtward by cape Zofarano, and the mountain of Catalfano, and to the weſtward by mount Pellegrino, the ancient Ereta. Under this hill, which is both high and ſteep, and the top of which affords a very beautiful and extenſive proſpect, and commands the moſt advantageous view of the ſituation of Palermo, a mote has been formed, where veſſels of all ſizes obtain a ſecure ſhelter. This city, according to Brydone's account, is greatly ſuperior to Naples in beauty and elegance. Although it is not ſo large, yet the regularity, the uniformity, and the neatneſs of its ſtreets and buildings render it much more pleaſing; it is full of people, who have moſtly an air of affluence and gaiety. It ſtands near the extremity of a kind of natural amphitheatre, formed by very high and rocky mountains; and the country that lies between the city and theſe mountains is one of the richeſt and moſt beautiful ſpots in the world. The whole appears a magnificent garden, filled with fruit-trees of every ſpecies, and watered by clear fountains and rivulets, that form a variety of windings through this delightful plain. From the ſingularity of this ſituation, as well as from the richneſs of the ſoil, Palermo has had many flattering epithets beſtowed upon it, particularly by the poets; who have denominated it "Conca d'Oro," the golden ſhell, expreſſing both its ſituation and richneſs. It has likewiſe been ſtyled "Aurea balli," "Hortus Siciliæ," &c. and to include all theſe together, the laſting term of "Felix" has been added to its name, by which it is even diſtinguiſhed in the maps. Palermo is built upon a very regular plan; its two great ſtreets interſect each other in the centre of the city, where they form a beautiful and regular ſquare called the Ottangolo, adorned with very handſome and uniform buildings. The centre of this ſquare commands the whole of theſe noble ſtreets and the four great gates of the city which terminate them, and which are at the diſtance of about half a mile; the diameter of the city being no more than a mile. Theſe are elegant pieces of architecture richly adorned; particularly the Porta Nova and Porta Felice, that terminate the ſtreet called the Corſo, which runs S.W. and N.E. The leſſer ſtreets in general run parallel to theſe great ones. The Porta Felice (which is by much the handſomeſt of the gates) opens to the Marino, a delightful and much frequented walk; bounded on one ſide by the wall of the city, and on the other by the ſea, from which there is, in the hotteſt weather, an agreeable breeze. In the centre of the Marino there is an elegant kind of temple, which ſerves as an orcheſtra for muſic in the ſummer months. This city contains, beſides an univerſity, many churches, abbies, ſeminaries, convents, and hoſpitals. Many of the churches are extremely rich and magnificent. The cathedral (Madre Chieſa) is a very venerable Gothic building, of a large ſize, ſupported within by 80 columns of oriental granite, and divided into many chapels, ſome of which are extremely rich, particularly that of St. Roſalia, the patroneſs of Palermo, who is held here in greater veneration than even the Virgin Mary herſelf. Her relics are preſerved in a large ſilver box, curiouſly wrought and enriched with precious ſtones. Theſe perform many miracles, and are looked upon as the greateſt treaſure of the city. The Sachriſtie too is very rich. The Jeſuits church is ſingularly magnificent; and the Chieſa del Pallazzo is entirely covered over with ancient Moſaic. The church of Monreale, about five miles diſtant from this city, is the next in dignity in the iſland, after the cathedral of Palermo. About a mile without the city is the famous convent of Capuchins, remarkable for its burial place. This is a vaſt ſubterraneous apartment, divided into large commodious galleries, in the walls of which are numerous niches filled with dead bodies, amounting to about 300, ſtanding upright, and dreſſed in the clothes which they uſually wore. The ſkin and muſcles are rendered, by a certain preparation, as dry and hard as a piece of ſhell-fiſh; and although many of them have been here upwards of 250 years, none of them are reduced to ſkeletons. The bodies of the princes and firſt nobility are lodged in handſome cheſts or trunks, the keys of which are kept by the neareſt relations of the family. There are two ſmall diſtricts, one to the E. called La Bagaria, and the other to the W. of the city, called Il Colle, where the principal nobility have their country houſes. The population of this city is much greater, in proportion to its ſize, than that of Naples, and the number of carriages is aſtoniſhing. One of the grandeſt exhibitions is that of the feaſt of St. Roſalia. Palermo had anciently two ports, mentioned by Polybius and Diodorus; which were deſtroyed by an earthquake in 1327. At preſent it has two, one for barks, and another for veſſels of war, with a light-houſe at its entrance. This city is commercial, and exports, in favourable years, 40,000 bales of ſilk. It has ſome manufactures of ſtuff and ſilk. It has occaſionally ſuffered much from earthquakes. Its population is eſtimated at 130,000 perſons. N. lat. 38° 10'. E. long. 13° 25'.

PALERNO, a town of Naples, in Principato Ultra; 12 miles W.N.W. of Conza.—Alſo, a town of Naples, in Calabria Citra; ſix miles S.S.W. of Coſenza.

PALES, or Piles, in *Carpentry*, denote rows of ſtakes driven deep in the ground to make wooden bridges over rivers, and to erect other edifices on.

Du-Cange derives the word from the Latin name *palla*, *a hanging*, or *piece of tapeſtry:* the ancients gave the name pales to the hangings or linings of walls: thus a chamber was ſaid to be *paled* with cloth of gold, with ſilk, &c. when covered with bands or ſtuffs of two colours. Hence alſo the original of the word pale, *a ſtake*, &c. The arms of Arragon are paled, *or* and *gules*.

Tertullian obſerves, that the Romans planted pales to ſerve as boundaries of inheritances; and that they conſecrated them to the god Terminus, under the name of *pali Terminales*.

Ovid tells us, they were crowned and adorned with flowers, feſtoons, &c. and that the god was worſhipped before theſe pales. See Terminalia.

Pales for building, ſerve to ſupport the beams which are laid acroſs them, from one row to another; and are ſtrongly bound together with croſs-pieces.

Pales, in *Mythology*, the divinity of ſhepherds, or the tutelar deity and protectreſs of flocks. Her feſtival was called *Palilia*, which ſee.

PALESCIANO, in *Geography*, a town of Naples, in the province of Otranto; three miles S.E. of Motola.

PALESTINE, in *Ancient Geography*, a province of Aſia, firſt called the land of Canaan from Noah's grandſon, by whom it was peopled; but ſince diſtinguiſhed by other appellations, ſuch as the Land of Promiſe, the Land of Iſrael, the Holy Land, and by way of pre-eminence, the Land. It derived its name of Paleſtine from the Paleſtines, or Philiſtines, who poſſeſſed great part of it; and that of Judea, or Judea-Paleſtina, from Judah, whoſe tribe was the moſt conſiderable of the twelve, and poſſeſſed the fineſt and moſt fertile part of the whole. Chriſtians, as well as Jews, have dignified it with the title of "Holy Land;" partly on account of its metropolis, ſuppoſed to have been the centre of God's worſhip, and his peculiar habitation, but chiefly becauſe it was the native country of Jeſus Chriſt, and the ſcene on which he accompliſhed the great work of our redemption. See Judea and Judah.

Paleſtine was encloſed on the W. by the Mediterranean, and on the E. by the lake Aſphaltites, the Jordan, the ſea of Tiberias or of Galilee, and the Samachonite lake;

to the N. it had the mountains of Libanus, or rather of Antilibanus, or the province of Phœnicia, and to the S. Edom, or Idumæa, from which it was likewiſe parted by another ridge of high mountains. This was, ſtrictly ſpeaking, the "Land of Promiſe." Its extent has been variouſly aſſigned; ſome allowing it no more than 170 or 180 miles in length from N. to S., and 140 in breadth from E. to W. where wideſt, as it is towards the S., and about 70, where it is narroweſt, as it is towards the N. But of late it has been made to extend to nearly 200 miles in length, and about 80 in breadth, about the middle, and 10 or 15, more or leſs, where it widens or ſhrinks. In the ſacred writings it is repreſented to have been exceedingly fertile, rich, populous, and powerful. Before the Iſraelites took poſſeſſion of it, Moſes has deſcribed its fertility and productiveneſs in Deut. viii. 7, &c. And it is ſaid to have exceeded even the celebrated land of Egypt, in the number of cattle which it bred, and in the quantity and excellence of the oil, wine, corn, and various fruits which it yielded. To this wonderful fecundity ſeveral circumſtances are ſuppoſed to have contributed; ſuch as the temperature of its climate, the regularity of its ſeaſons, and the richneſs of its ſoil. In order to juſtify the ſcripture accounts of this country, it ought to be conſidered that, in the times to which they refer, it was inhabited by an induſtrious people, who ſpared no pains to improve its natural fertility, and to render even its rocks, naturally barren, productive. The fecundity of Paleſtine has been extolled even by Julian the apoſtate, the avowed enemy both of Jews and Chriſtians, who frequently mentions the perpetuity, as well as excellence, and great abundance, of its fruits and products. The viſible effects of divine diſpleaſure, which this country has experienced, not only under Titus Veſpaſian, but much more ſince that emperor's time, in the inundations of the northern barbarians, of the Saracens, and of the more cruel and deſtructive Chriſtians, during the holy war, and in the oppreſſion it now feels under the Turkiſh yoke, are cauſes more than ſufficient to have reduced the far greater part of the country into a mere deſert. If, indeed, we were to judge by its preſent appearance, nature itſelf ſeems to have rendered it incapable of cultivation. The principal river of Paleſtine was Jordan. Under the Romans, Paleſtine began to be divided into tetrarchies and toparchies; the larger were thoſe of Judæa, Samaria, and Galilee, Upper and Lower; the leſſer thoſe of Geraritica, Sarona, and others of leſs note, which lay on this ſide of the Jordan. The reſt, on the other ſide, were thoſe of Gilead, Peræa, Gaulonitis, Auranitis, Batanea, and Decapolis. In the reigns of the Chriſtian emperors, it was divided into Palæſtina prima, ſecunda, tertia, or Salutaris, which laſt included the far greater part, if not the whole country.

Paleſtine, in its preſent ſtate (ſays Volney), comprehends the whole country included between the Mediterranean to the weſt, the chain of mountains to the eaſt, and two lines, one drawn to the ſouth, by Kan Younes, and the other to the north, between Kaiſaria and the rivulet of Yafa. This whole tract is almoſt entirely a level plain, without either river or rivulet in ſummer, but watered by ſeveral torrents in winter. Notwithſtanding this dryneſs, the ſoil is good, and may even be termed fertile, for when the winter rains do not fail, every thing ſprings up in abundance; and the earth, which is black and fat, retains moiſture ſufficient for the growth of grain and vegetables during the ſummer. More dourra ſeſamum, water-melons, and beans, are ſown here than in any other part of the country. They alſo raiſe cotton, barley, and wheat; but though the latter be moſt eſteemed, it is leſs cultivated, for fear of too much inviting the avarice of the Turkiſh governors, and the rapacity of the Arabs. This country is indeed more frequently plundered than any other in Syria, for being very proper for cavalry, and adjacent to the deſert, it lies open to the Arabs, who are far from ſatisfied with the mountains: they have long diſputed it with every power eſtabliſhed in it, and have ſucceeded ſo far as to obtain the conceſſion of certain places, on paying a tribute, from whence they infeſt the roads, ſo as to render it unſafe to travel from Gaza to Acre. They might even have obtained the entire poſſeſſion of it, had they known how to avail themſelves of their ſtrength; but, divided among themſelves by jarring intereſts, and family quarrels, they turn thoſe weapons on each other which they ſhould employ againſt the common enemy, and are at once enfeebled by their diſregard of all good order and government, and impoveriſhed by their ſpirit of rapacity.

Paleſtine, ſays Volney, is a diſtrict independent of every Pachalic. Sometimes it has governors of its own, who reſide at Gaza under the title of Pachas; but it is uſually, as at preſent, divided into three appanages, or *Melkana*, *viz.* Yafa, Loudd, and Gaza. The former belongs to the *Walda*, or ſultana mother. The captain Pacha has received the two others as a recompence for his ſervices, and a reward for the head of Daher. He farms them to an aga, who reſides at Ramla, and pays him two hundred and fifteen purſes for them, *viz.* one hundred and eighty for Gaza and Ramla, and thirty-five for Loudd.

PALESTRINA, Giovanni Pierluigi da, in *Biography*. It has been frequently obſerved, that the life of a ſtudious man, whoſe mind is more active than his body, affords few materials for biography, even if every tranſaction of his life were known; but at a remote period, when every lineament and trace of character is obliterated, it is with difficulty that the time and place, even of his exiſtence, can be eſtabliſhed, or the works enumerated which his genius and diligence have produced. Paleſtrina, whoſe works have been ſo long juſtly admired, is of this claſs; for little more has been recorded of his life, than if it had been wholly ſpent in a hermitage. His birth, however, has been fixed, with ſome degree of certainty, in the year 1529, at Paleſtrina, the Præneſte of the ancients. Italy being divided into many independent ſtates, each of which has a diſtinct and ſeparate honour to maintain, the natives are not only very careful in ſettling the ſpot where a man of genius was born, but of recording the place where he was educated, with the name of his maſter; and as the painters of Italy are appropriated to different ſchools, ſo are the muſicians; and a compoſer or performer of great abilities is ſeldom mentioned without his country, by which it is known, that he is of the Roman, Venetian, Neapolitan, Lombard, or Bologneſe ſchool, each of which has ſome peculiar characteriſtic, that enables one intelligent muſician of Italy immediately to diſcover the ſchool of another, by his works, or performance. To theſe diſtinctions the natives of other countries ſo little attend, that when it is known that a muſician comes from Italy, no further enquiry is made.

From this ancient cuſtom of naming the maſter with the ſcholar and his country, all the writers of Italy, who have given any account of Paleſtrina, have thought it neceſſary to ſay, that he was a ſcholar of Gaudio Mell, Fiamingo, a Fleming; by whom they have been generally underſtood to mean Claude Goudimel, a native of Franche-Comté, and a Huguenot, who was one of the firſt that ſet the tranſlation of the Pſalms, by Clement Marot and Theodore Beza, to muſic; and who was murdered at Lyons in 1572, on the fatal day of the maſſacre of Paris.

Who Mell was, if different from Goudimel, we know not; of his works or name we have met with no memorial.

Indeed, as the fact is not of ſufficient importance to merit a long diſcuſſion, we ſhall leave it as we found it; for who can be very ſolicitous to know of what maſter Paleſtrina learned the mechanical rules of his art, which were eſtabliſhed and very well known, at leaſt a century before his ſuperior genius turned them to ſo good an account.

However, the few circumſtances and outlines of Paleſtrina's life that have been preſerved from oblivion, and ſeem the moſt indiſputable, are, that he was born in the year 1529; that having diſtinguiſhed himſelf as a compoſer, about 1555, he was admitted into the Pope's chapel, at Rome; in 1562, at the age of thirty-three, he was elected maeſtro di capella of Santa Maria Maggiore, in the ſame city; as upon the death of Giovanni Animuccia, in 1571, he was honoured with a ſimilar appointment at St. Peter's; and laſtly, having brought choral harmony to a degree of perfection, that has never ſince been exceeded, he died in the year 1594, at the age of ſixty-five.

The following account of his death and burial was entered in the regiſter of the Pontifical chapel by Ippolito Gamboce, Puntatore, who at that time had the care of the records.

"February the 2d, 1594. This morning died the moſt excellent muſician, ſignor Giovanni Pierloiſci, our dear companion, and maeſtro di capella of St. Peter's church, whither his funeral was attended not only by all the muſicians of Rome, but by an infinite concourſe of people, when Libera me Domine was ſung by the whole college." To this account Adami adds that of Torrigio, who ſays: "In St. Peter's church, near the altar of St. Simon and St. Jude, was interred, in conſequence of his extraordinary abilities, Pierluigi da Paleſtrina, the great muſical compoſer, and maeſtro di capella of this church. His funeral was attended by all the muſicians of Rome, and Libera me Domine, as compoſed by himſelf, in five parts, was ſung by three choirs. Upon his coffin was this inſcription: Joannes Petrus Aloyſius Præneſtinus Muſicæ Princeps."

It would be uſeleſs to tranſcribe all the eulogia that have been beſtowed on Paleſtrina by muſical writers, though he has ſeldom been mentioned by others; but it is left to artiſts to take care of their own fame: none but painters have written the lives of painters, or muſicians thoſe of muſicians. Heroes indeed are conſigned to hiſtorians; and the learned are ſeldom negligent of themſelves.

Indeed very honourable mention was made of our great contrapuntiſt during his life-time by Giovanni Guidetto, chaplain to pope Gregory XIII. who being appointed to collate, correct, and regulate the choir ſervice of St. Peter's church, 1582, ſays that he was unwilling to depend ſolely on his own judgment in this undertaking, and therefore had applied to that prince of muſicians, Giovanni Pierluigi da Paleſtrina, to ſuperintend and correct the whole work, an office which he was ſo obliging as to undertake; "and if," ſays he, "the compilation be found to have any merit, it muſt be chiefly aſcribed to his kind aſſiſtance."

Some judgment may be formed, ſays the learned author of the "Eſſay on Counterpoint," ſo often mentioned, of the great veneration in which he was held by the profeſſors of his own time, from a collection of pſalms, in five parts, that was publiſhed in 1592, and dedicated to Paleſtrina, by fourteen of the greateſt maſters of Italy at that time; among theſe were Pietro Pontio, already mentioned, and Coſtanzo Porta, who will be diſtinguiſhed hereafter as a compoſer, whoſe abilities, in point of learning and contrivance, are truly wonderful.

By the aſſiſtance of ſignor Santarelli, we procured at Rome a complete catalogue of all the genuine productions of Paleſtrina, with the ſeveral dates and forms of their publication, title of each work, the name and reſidence of the printer, which the Italians never fail to record. Theſe are claſſed in the following manner: Maſſes in four, five, and ſix parts, twelve books; of which lib. i. appeared at Rome in folio, 1554, when the author was in the twenty-fifth year of his age; and in that city only went through three ſeveral editions during his life. Lib. ii. of his maſſes, which includes the celebrated compoſition entitled "Miſſa Papæ Marcelli," was publiſhed likewiſe at Rome, in 1567. Of this production it has been related by Antimo Liberati, in the letter above cited, and after him by Adami, Berardi, and other muſical writers, that the pope and conclave having been offended and ſcandalized at the light and injudicious manner in which the maſs had been long ſet and performed, determined to baniſh muſic in parts entirely from the church; but that Paleſtrina, at the age of twenty-ſix, during the ſhort pontificate of Marcellus Cervinus, intreated his holineſs to ſuſpend the execution of his deſign, till he had heard a maſs, compoſed in what, according to his ideas, was the true eccleſiaſtical ſtyle. His requeſt being granted, the compoſition, in ſix parts, was performed at Eaſter, 1555, before the pope and college of cardinals; who found it ſo grave, noble, elegant, learned, and pleaſing, that muſic was reſtored to favour, and again eſtabliſhed in the celebration of ſacred rites. This maſs was afterwards printed, and dedicated to the ſucceſſor of Marcellus, pope Paul iv. by whom Paleſtrina was appointed maeſtro di capella to the pontifical chapel.

The reſt of his maſſes appeared in the following order: Lib. iii. Romæ per Valerium Doricum, 1570, in folio. Ven. 1599. Lib. iv. Venet. per Ang. Gardanum, 1582, quarto. Lib. v. Romæ, 1590. Lib. vi. Ven. 1596. Lib. vii. 1594. Lib. viii. and ix. Ven. 1599. Lib. x. and xi. Ven. 1600. And lib. xii. without date, or name of the printer. Beſides this regular order of publication, theſe maſſes were reprinted in different forms and collections, during the ſixteenth and ſeventeenth centuries, in moſt of the principal cities of Italy; of which editions we were furniſhed with memoranda.

The next diviſion of Paleſtrina's works conſiſts of Motets for five, ſix, ſeven, and eight voices, five books, at Rome and Venice, 1569, 1588, 1589, 1596, and 1601. Motets for four voices, lib. i. Romæ, 1590. Lib. ii. Venet. 1604. Two books of Offertorij, a 5 and a 6 voc. Romæ, 1593. Lamentationi, a 4 voc. Romæ, 1588. Hymns for five voices, Ven. 1598. Litanie, a 4, Ven. 1600. Magnificat, 8 tomum. Romæ, 1591. Madrigali Spirituali, two books, Rome and Venice, 1594.

To the above ample liſt of the works of this great and fertile compoſer, are to be added, La Cantica di Salomone, a 5; two other books of Magnificats, a 4, 5, & 6 voc. One of Lamentationi, a 5; and another of ſecular Madrigals. Theſe have been printed in miſcellaneous publications after the author's death; and there ſtill remain in the Papal chapel, inedited, another maſs, a 4, upon the hexachord, *ut, re, mi, fa, ſol, la*; with his Miſſa Defunctorum, a 5, and upwards of twenty motets, chiefly for eight voices, *à due cori*.

Nothing more intereſting remains to be related of Paleſtrina, than that moſt of his admirable productions ſtill ſubſiſt. Few of his admirers are indeed poſſeſſed of the firſt editions, or of all his works complete, in print or manuſcript; yet curious and diligent collectors in Italy can ſtill, with little difficulty, furniſh themſelves with a conderable number of theſe models of counterpoint and eccleſiaſtical gravity.

If we conſider the operoſe and ſlow manner in which works of this kind are conducted, from the many real parts they contain, and of which ſome are generally moving in canon, and the reſt always in fugue, we ſhall be as much aſtoniſhed at the number of his productions, as pleaſed with their effects. Indeed the works of Ariſtotle, Cicero, or the elder Pliny, among the ancients, or of Fabricius, among the moderns, were hardly more numerous. With the union, indeed, of great erudition and great induſtry we are not ſurpriſed; but genius is not often ſo voluminous.

Paleſtrina having brought his ſtyle to ſuch perfection, that the beſt compoſitions, which have been produced for the church ſince his time, are proverbially ſaid to be *alla Paleſtrina*, it ſeems as if this were the place to diſcuſs its merit.

Though good taſte has baniſhed fugue, canon, and elaborate compoſitions from dramatic muſic, yet ſound judgment has ſtill retained them in the church; to which, from the little uſe that is made of them elſewhere, they are now in a manner appropriated. Indeed there ſeems no more impropriety in their being occaſionally uſed in the chamber, than private prayer or family devotion. It is the church and ſtage which we wiſh to be wholly ſeparated; for it has long appeared to us, that whoever lightly brings the rites of the church to a theatre, or theatrical levity to the church, is guilty of want of taſte, judgment, and due reverence for the religion of his country.

In the compoſitions of Paleſtrina there is, indeed, no unity of melody; but as all the parts have an equal ſhare of importance, and as hardly a note appears in them without ſome peculiar intention and effect, they cannot, like the *rempliſſage* of a modern concerto or opera ſong, be compoſed with as much rapidity as they could be tranſcribed; little invention and few flights of fancy are required; yet there is a degree of happineſs and genius in finding a few uncommon notes that are favourable to fugue and canon, as well as in creating new and graceful paſſages in melody. Indeed both the choral and ſecular ſtyle have their peculiar difficulties, beauties, and defects.

Whoever is accuſtomed to the vocal fugues of Paleſtrina, Cariſſimi, or Handel, will be faſtidious with reſpect to thoſe of other compoſers of equal learning. Preaching upon a text has been called a Gothic contrivance; and yet what admirable leſſons of piety and virtue have been produced under the denomination of ſermons! Fire, genius, and harmonical reſources are diſcoverable in fugues, as well as in modern ſongs, ſolos, or concertos: a muſical ſtudent, therefore, unacquainted with the laws of fugue, is advanced but a little way in compoſition; as the hearer, who receives no pleaſure from ingenious contrivance and complicated harmony, is but a ſuperficial judge. Our wiſh is to reſolve the diſcords of contention, to augment the pleaſure of both parties, and extend the compaſs of their views; that, like the muſic compoſed *à due cori*, the friends of harmony and melody may *agree*, though performing different parts, at a diſtance of each other, and to terminate this long article concerning the moſt venerable patriarch of choral muſic, of whoſe ſtyle it has always appeared to us, that notwithſtanding its general gravity and elaboration, that genius glows in all his productions, in ſpite of the trammels of canto firmo, canon, fugue, inverſions, diminutions, augmentations, double counterpoint, or whatever would chill or petrify any other than himſelf.

It is hoped, therefore, that no apology will be neceſſary for the length of this article, which "the reader can make as ſhort as he pleaſes." In a general hiſtory of ancient poetry, Homer would doubtleſs occupy the moſt ample and honourable place; and Paleſtrina, the Homer of the moſt ancient muſic that has been preſerved, merits all the reverence and attention, which it is in a muſical writer's power to give.

PALESTRINA, in *Geography*, one of the iſlands near the city of Venice, 12 miles long, but narrow. Its market-town is of the ſame name and large, containing above 7000 inhabitants; ſix miles S. of Venice.—Alſo, a town of Italy, in the province of Campagna, anciently "Præneſte," (which ſee,) the ſee of a biſhop; 18 miles E.S.E. of Rome. N. lat. 41° 51′. E. long. 12° 49′.

PALESTRIUM, a town of European Turkey, in Livadia; 34 miles N. of Lepanto.

PALETTE, CAPE, a cape on the S. coaſt of the iſland of Celebes, in Bony bay. S. lat. 3° 20′. E. long. 120° 48′.

PALEY, WILLIAM, in *Biography*, a juſtly celebrated divine and philoſopher, was born at Peterborough, in July 1743, of the cathedral church of which place his father was a minor canon. Soon after the birth of his ſon he was appointed head-maſter of Giggleſwick ſchool, in Yorkſhire, to which place he removed. Young Paley was now educated under his father's eye; at ſchool he ſoon ſurpaſſed his contemporaries, and at length obtained a pre-eminence over them all. He was even at this period more attentive to things than to words, and was ardent in the purſuit of knowledge of every kind. He was very curious in his enquiries about mechaniſm, whenever he had an opportunity of converſing with any workmen, or others capable of affording him information. In his *mind* he was uncommonly active; in his *body* quite the reverſe.

Soon after he had completed his fifteenth year he accompanied his father to Cambridge, and was admitted a ſizar of Chriſt's college, November 16th, 1758. Soon after his return, as the claſſics alone were taught at his father's ſchool, he went for mathematical inſtruction to Mr. William Howarth, a teacher of ſome eminence at Diſhforth, near Topcliffe, three miles from Rippon, under whoſe care he laid an excellent foundation of knowledge in algebra and geometry. In October 1759, he became a reſident member of Chriſt's college, and on the 5th of December he was appointed to one of the ſcholarſhips founded by Mr. Carr; was elected a ſcholar on the foundation of his college, and appointed to the exhibition founded by ſir Walter Mildmay. At college he diſtinguiſhed himſelf by his diligence and great proficiency, and attracted conſiderable notice in the univerſity, at the firſt opportunities which he enjoyed of diſplaying his talents in the public ſchools. In 1763 he was admitted to the degree of B. A. having had the honour of appearing the firſt man of his year in the previous examinations.

After he had become a graduate, Mr. Paley was engaged as ſecond aſſiſtant in an academy at Greenwich, kept by Mr. Bracken, and chiefly reſorted to by young men intended for the army and navy, where his department of teaching was in the Latin language. He retained this ſituation about three years. In 1765 he became a candidate for one of the prizes given annually by the repreſentatives of the univerſity of Cambridge to ſenior bachelors, to the authors of the two beſt diſſertations in Latin proſe. The ſubject propoſed was "A compariſon between the Stoic and Epicurean philoſophy, with reſpect to the influence of each on the morals of a people." Mr. Paley took the Epicurean ſide, and obtained the firſt prize.

Being ordained a deacon, at a proper age, he engaged himſelf as curate to Dr. Hinchliffe, then vicar of Greenwich, and afterwards biſhop of Peterborough Soon after this he left the academy, but continued to officiate in the church. In June 1766, he was elected a fellow on the foundation of Chirſt's college, which was worth about 100*l.* *per annum*, in conſequence of which he returned to a reſidence in the univerſity, took his degree of maſter of arts, and engaged in the buſineſs of private tuition, which was ſoon followed by his appointment to the office of one of the college tutors. On the 21ſt of December 1767, he was ordained a prieſt by biſhop Terrick.

The duties of college tutor Mr. Paley diſcharged with uncommon aſſiduity and zeal. Not contented with following the uſual method of college-lectures, by which the progreſs of a ſtudent is left to depend chiefly on his own induſtry, or private aſſiſtance, he endeavoured to introduce his pupils to an acquaintance with the moſt important truths, by arguments and illuſtrations, which were equally pleaſing and forcible. His lectures on moral philoſophy, and on the Greek Teſtament, contained the outlines of the works, by which he afterwards ſo much benefitted the world, and extended his own reputation; and thoſe works may be ſaid to have owed their origin to the ſituation, which impoſed upon him the duty of delivering the lectures. Mr. Paley at this time acted in conjunction with Dr. John Law, the late biſhop of Elphin, and ſon of the celebrated biſhop of Carliſle. The exertions and talents of theſe kindred ſouls rendered Chriſt's college extremely popular; and while they retained their offices, that ſociety roſe to a flouriſhing ſtate, unequalled, perhaps, in the hiſtory of the univerſity. Mr. Paley maintained an intimate acquaintance with almoſt every perſon of celebrity in the univerſity. Among his moſt particular friends were Dr. Waring, and Dr. John Jebb, well known by his talents, his integrity, and his zeal in religious and political controverſy. Through his friendſhip with Dr. Law, he became intimately acquainted with his father, Dr. Edmund Law, who was maſter of Peter-houſe, and who continued chiefly to reſide in the univerſity, after he was created biſhop of Carliſle. The learned prelate's theological opinions fell greatly below the eſtabliſhed ſtandard of orthodoxy, and Dr. Jebb's ſentiments were equally obnoxious to the zealous friends of the church; on the ſame account, of courſe the intimate friendſhip that ſubſiſted between theſe learned men and Mr. Paley was viewed with a jealous eye by many, who were cloſely attached to the eſtabliſhed ſyſtems. Becauſe he was liberal, he was ſuſpected to be a latitudinarian, and they were prepared to diſcover dangerous tendencies in his moral and political ſpeculations, ſhould they ever be given to the public. After Mr. Paley had ſpent about ten years as college tutor, he quitted the univerſity in 1776, and married. His firſt benefice in the church was the rectory of Muſgrove, in Weſtmoreland, worth only about eighty pounds a-year: this was in the month of May 1775, and in December 1776, he was inducted into the vicarage of Dalſton, in Cumberland, after which he was preſented to the living of Appleby, in Weſtmoreland, worth about 300*l.* *per annum*. and in a ſhort time he was promoted to a prebendal ſtall in the cathedral church of Carliſle.

While vicar of Appleby, he gave the world a ſmall volume ſelected from the Book of Common Prayer, and the writings of ſome eminent divines, entitled "The Clergyman's Companion in viſiting the Sick." This was firſt publiſhed without his name, but it has paſſed through many editions, and is now printed among his works. The profeſſional uſefulneſs of this book to the clergy, is no ſmall recommendation of its merits, but when conſidered as originating in Mr. Paley's perſonal attention to the ſpiritual wants of his own flock, it affords an additional proof of his value as a parochial miniſter.

In the year 1782, upon the reſignation of Dr. John Law, who was created an Iriſh biſhop, Mr. Paley was made archdeacon of the dioceſe, and not long after he ſucceeded Dr. John Burn, author of "The Juſtice of Peace," in the chancellorſhip. For theſe different preferments he was indebted either to the venerable biſhop of Carliſle, or to the dean and chapter of the cathedral church. While his reſidence was divided between Carliſle and Dalſton, Mr. Paley engaged in the compoſition of his celebrated work, "The Elements of Moral and Political Philoſophy." This production would probably have never ſeen the light, had not the inſtigations of Dr. John Law urged him to the undertaking. Mr. Paley for a conſiderable time objected to the riſk of publiſhing, imagining there would be but few readers for a work on that ſubject, and he was the more determined on this point after he had entered on the married ſtate, thinking it a duty that he owed his family, not to print a book that would probably not find purchaſers. To remove the objection, a living having become vacant, of which Dr. Law had the diſpoſal, he preſented it to Mr. Paley, on the promiſe that he would conſider it as a compenſation for the hazard of printing, and he immediately ſet about preparing his work for the preſs. When the MS. was completed, he offered it to Mr. Faulder for 300*l.*, which he refuſed, propoſing 250*l.* as the full value; in the mean time the author was offered by another perſon in the trade 1000*l.* for the copy-right; he felt it his duty to give Mr. Faulder the refuſal, riſing however in his demands from 300*l.* to 1000*l.* which the publiſher agreed to pay. In 1785 the work was brought out in 4to. with an excellent dedication to the biſhop of Carliſle, bearing honourable teſtimony to the purity of the motives by which that prelate was actuated in his religious reſearches, and avowing ſentiments which reflect the higheſt credit on the author's ingenuouſneſs and liberality. "Virtue," ſays Mr. Paley, "is the doing good to mankind, in obedience to the will of God, and for the ſake of everlaſting happineſs." The good of mankind, therefore, is the ſubject, the will of God the rule, and everlaſting happineſs the motive of human virtne. All obligation conſiſts in being urged by a violent motive reſulting from the command of another. As the will of God, then, is the rule, to enquire what is his duty, or what man is obliged to do in any inſtance, is, in effect, to enquire what is the will of God in that inſtance, which conſequently becomes the whole buſineſs of morality. There are two methods of coming at the will of God, *viz.* by having recourſe to the *ſcriptures*, or to the *light of nature*. The tendency of any action to promote or diminiſh the general happineſs, is the criterion for aſcertaining the will of God by the light of nature; ſince the many proofs of benevolence apparent in the works of creation warrant the concluſion, that *He* wills the happineſs of his creatures, and that thoſe actions are agreeable to him, or the contrary, which promote or fruſtrate that effect. Actions in the abſtract, then, are right or wrong according to their tendency. Whatever is expedient is right. It is the utility of any moral rule alone that conſtitutes the obligation of it. The expediency of any action, however, muſt be eſtimated by general rules, and in reference to all its remote conſequences, as well as thoſe that are immediate and direct. Right and obligation are reciprocal, for wherever there is right in one perſon, there muſt be a correſponding obligation upon others: and ſince *moral obligation* depends upon the will of God, *right*, which is correlative to it, muſt depend upon the ſame. *Right*, therefore, ſignifies *conſiſtency with the will of God*. Such is the outline of our author's theory, which, from its great popularity, we have thought it right to ſtate under the article of the author, who has given to it ſo much celebrity. Concerning the merits of this work, we may ſay in the words of an able critic, “thoſe who are fond of novelty, of ingenious theories, curious ſpeculations, abſtract and metaphyſical notions, will find indeed little in it to amuſe or entertain them; but thoſe who are ſolicitous to have their conſciences properly directed in the general conduct of human life, to ſee their duties and obligations delineated with perſpicuity and accuracy, will be fully gratified.” His reaſoning on ſubſcription to articles of religion; and on the Britiſh conſtitution, in which he diſputes the expediency of reform in the houſe of commons, and vindicates the undue influence of the crown in that branch of parliament, is liable to great objection, and has been attacked, deſervedly and ſeverely, by perſons of conſiderable reputation in the literary world. “It may, however,” ſays Mr. Meadley, “be eſteemed the laſt effort of an ingenious mind to ſoften by interpretation the rigour of practice, which he could not ſeriouſly approve; and ſo to enlarge the pale of conformity to liberal and conſcientious men.” Mr. Paley's caſuiſtry, in this inſtance, on the nature and extent of obligation incurred, may be moſt effectually anſwered by his own better reaſoning on the propriety of ſubſcription, in his “Defence of Biſhop Law's Conſiderations,” and in this chapter, “of religious eſtabliſhments and of toleration, in the preſent work.” “In the one caſe,” ſays Dr. Diſney in the works of Jebb, “he ſeems to betray the yoke of bondage, in the diſplay of a very feeble apology; in the other he reſumes ſomewhat more of his Chriſtian liberty, and recollects the principles of his Proteſtant faith.”

On the death of the venerable biſhop of Carliſle in 1787, Mr. Paley drew up a ſhort memoir of him, which has been inſerted in Hutchinſon's Hiſtory of Cumberland, and in the Encyclopædia Britannica, and which, in 1803, was prefixed, with notes ſuppoſed to have been written by the Rev. Dr. Diſney, to an edition of the biſhop's Reflections on the Life and Character of Chriſt, intended for popular circulation.

The next work which Mr. Paley preſented to the public, places him in a high rank among the advocates for the truth and authenticity of the Chriſtian ſcriptures. It is entitled “Horæ Paulinæ; or, the Truth of the Scripture Hiſtory of St. Paul evinced, by a compariſon of the Epiſtles which bear his name, with the Acts of the Apoſtles, and with one another,” which he dedicated to his friend Dr. Law, at that time biſhop of Killala. The grand object of this work is to ſhew, that by a compariſon of ſeveral indirect alluſions and references in the Acts and Epiſtles, independently of all collateral teſtimony, their undeſigned coincidence affords the ſtrongeſt proof of their genuineneſs, and of the reality of the tranſactions to which they relate. Inſtead of requiring the truth of any part of the apoſtolic hiſtory to be taken for granted, he leaves the reader at liberty to ſuppoſe the writings to have been lately diſcovered, and to have come to our hands deſtitute of any extrinſic or collateral evidence whatever. The deſign was original, and the execution admirable. Notwithſtanding the title, the utility of the work was not confined to the learned: the “Horæ Paulinæ” will furniſh the common reader, as well as the biblical ſtudent, with ingenious criticiſms and remarks, which will afford valuable aſſiſtance in the right underſtanding of St. Paul's epiſtles. See ACTS *of the Apoſtles*.

Soon after the appearance of this work, Dr. Yorke, biſhop of Ely, made an offer to Mr. Paley of the maſterſhip of Jeſus college, Cambridge, in which the worthy prelate was ſolely influenced by the reputation of Mr. Paley's extraordinary talents, and by a wiſh to render them ſerviceable in a high academical ſituation. After deliberate conſideration he declined the honour intended him, but his ſenſe of gratitude for his lordſhip's kindneſs he publicly expreſſed in a dedication prefixed to his work, which he publiſhed in 1794, and which is entitled “A View of the Evidences of Chriſtianity, in three Parts; I. Of the direct hiſtorical Evidence of Chriſtianity, and wherein it is diſtinguiſhed from the Evidence alleged for other Miracles. II. Of the Auxiliary Evidences of Chriſtianity; and, III. A brief Conſideration of ſome popular Objections. This work was firſt publiſhed in three volumes, 12mo. but in a few months it was republiſhed in two volumes, 8vo. and has been continued in this form through many ſucceſſive editions. It is perhaps the moſt complete ſummary of the evidences of our holy religion that has ever appeared. It alſo poſſeſſes a merit of offering a defence of Chriſtianity, which every Chriſtian may read without ſeeing the tenets, peculiar to the ſect to which he is attached, in the leaſt decried.

After the publication of the “Evidences of Chriſtianity,” the biſhop of London, Dr. Porteus, inſtituted him to the prebend of St. Pancras, in the cathedral of St. Paul's. This was in Auguſt 1794, and in a very ſhort time he was promoted to the ſubdeanery of Lincoln, a preferment of 700*l. per ann.*, by Dr. Prettyman, biſhop of that dioceſe. In January 1795 he proceeded to Cambridge to take his degree of D.D. and before he left that place, he was ſurprized by a letter from the biſhop of Durham, Dr. Barrington, with whom he had not the ſmalleſt acquaintance, offering him the valuable rectory of Biſhop-Wearmouth, eſtimated at twelve hundred pounds a-year. When he waited on his new patron to expreſs his gratitude, his lordſhip inſtantly interrupted his acknowledgments; “Not a word,” ſaid he, “you cannot have greater pleaſure in accepting the living of Biſhop-Wearmouth, than I have in offering it to you.” After reading himſelf in, as a prebend, at St. Paul's cathedral, March 8th, Dr. Paley, for he now aſſumed that title, immediately proceeded to Biſhop-Wearmouth, took poſſeſſion of his valuable cure, and then returned to Cambridge againſt the Commencement, to complete the Doctor's degree, and on Sunday July 5th, preached before the univerſity his ſermon “On the Dangers incidental to the clerical Character.” From this time he divided his reſidence principally between Lincoln and Biſhop-Wearmouth, ſpending his ſummers at the latter, and his winters at the former of thoſe places. At Biſhop-Wearmouth the principal landowners, wiſhing to remove even the probability of future diſpute, offered him an annual compenſation for the tythes. He readily acquieſced, and granted them leaſes for his life, and thus, by ſacrificing any eventual intereſt of his own in the agricultural improvement of the pariſh, avoided one great ſource of diſquietude and vexation. In his writings he had already reprobated tythes as noxious to cultivation and improvement, and recommended their converſion into corn-rents, as a practicable and beneficial alteration, in which the intereſt of all parties might be equitably adjuſted; and he now acted in ſtrict conformity to theſe principles, leaving to the induſtry of his pariſhioners its full operation and entire reward. He next undertook the compoſition of his laſt work, entitled “Natural Theology; or Evidences of the Exiſtence and Attributes of the Deity, collected from the Appearances of Nature.” In this he proceeded very ſlowly, and was much interrupted by ill-health.

This work was publiſhed in the ſummer of 1802; it was dedicated to the biſhop of Durham, for the purpoſe of making the moſt acceptable return he was able for a great and important benefit conferred upon him. “A weak, and of late, a painful ſtate of health,” he ſays, in his dedication, "deprived me of the power of diſcharging the duties of my ſtation, in a manner at all ſuitable either to my ſenſe of thoſe duties, or to my moſt anxious wiſhes concerning them. My inability for the public functions of my profeſſion, among other conſequences, left me much at leiſure. That leiſure was not to be loſt. It was only in my ſtudy that I could repair my deficiencies in the church. It was only through the preſs that I could ſpeak. Theſe circumſtances, in particular, entitled your lordſhip to call upon me for the only ſpecies of exertion of which I was capable, and diſpoſed me, without heſitation, to obey the call in the beſt manner that I could. In the choice of a ſubject I had no place left for doubt:—the following diſcuſſion alone was wanted to make up my works into a ſyſtem; in which works, ſuch as they are, the public have now before them, the evidences of natural religion; the evidences of revealed religion, and an account of the duties that reſult from both."

In this admirable work the author has traced and ſhewn the marks of wiſdom and deſign in various parts of the creation; but he has dwelt principally on thoſe which may be diſcovered in the conſtitution of the human body. From nature and man he has advanced to Nature's God, and by a train of argument and illuſtration, equally forcible and beautiful, he has eſtabliſhed the moſt ſatisfactory evidence of the perſonality, natural attributes, unity and goodneſs of the Deity.

Mr. Meadley, to whoſe work we are greatly indebted for the facts in this article, ſays, he ſaw him for the laſt time in December 1804. His valuable life was then drawing faſt towards a cloſe; and the powers of nature, gradually exhauſted by repeated ſufferings, were becoming daily leſs able to reſiſt the force of his diſeaſe. At length, on his return from his annual reſidence at Lincoln early in the month of May 1805, he experienced a very violent attack, in which the uſual remedies were found ineffectual. He ſoon ſunk under the accumulated influence of debility and diſeaſe. He met the approach of death with firmneſs, comforted his afflicted family with the conſolation of that religion which he had ſo ſucceſsfully taught, and on Saturday May 25th 1805, he breathed his laſt. His remains were conveyed to Carliſle, and were interred in one of the aiſles of the cathedral by the ſide of his firſt wife, by whom he had eight children, *viz.* four ſons and four daughters. His ſecond wife ſurvived him.

In private life Dr. Paley had nothing of the philoſopher about him. He entered into little amuſements with a degree of ardour, which, when contraſted with the ſuperiority of his mind, had a pleaſing effect, and conſtituted a very amiable trait of his character. He was fond of company, which he had extraordinary powers of entertaining; nor was he, at any time, more happy than when communicating the pleaſure he could give, by exerting his unrivalled talents of wit and humour. No man was ever more beloved by his particular friends, or returned their affection with greater ſincerity and ardour. As a divine, the great aim of Dr. Paley's labours was to maintain the authority of the goſpel, as an authentic revelation, and to enforce the practice of virtue by the ſanctions of a future life. His views of the Chriſtian ſyſtem were at once cheerful and enlightened, and in ſtrict uniſon with the benevolent ſpirit of the founder. It is generally underſtood that Mr. Pitt did once recommend him to his majeſty for a vacant biſhopric, and that an oppoſition was made from a very high quarter of the church, which rendered the recommendation ineffectual. Mr. Meadley has endeavoured to account for this obſtruction to royal patronage, and he preſumes that the promotion of Mr. Paley was impeded by "the freedom of his manner in the ſtory of the pigeons:—by his liberal conſtruction of the oath of allegiance:—by his aſſertion that the government may be too ſecure:—by his limitation of the duty of civil obedience:—by his argument that the obligation of ſubjects and ſovereigns is reciprocal:—by his juſt and ſtriking remark that the divine right of kings is like the divine right of conſtables; and ſtill more by his enlightened views of religious eſtabliſhments and toleration." But whatever was the cauſe, it was not creditable to the age, that ſuch a man, who had laboured ſo hard in the cauſe of religion, natural and revealed, and of pure morality, ſhould not have been raiſed to the higheſt rank in the church.

As a writer, Dr. Paley is not remarkable for what is called fine writing, though in this he could excel, as is evident from certain parts of his "Moral Philoſophy," and the concluſion of the "Natural Theology," which contains ſome paſſages ſcarcely to be excelled in the Engliſh language. He had higher objects in view; he wiſhed to inform the underſtanding, and impreſs the heart with important truth, and for theſe purpoſes his ſtyle and method are admirably adapted. The general characteriſtics of his writings are plainneſs and ſimplicity; but there is, at the ſame time, both in his language and his ideas, a peculiarity of manner ſtamped by the vigour and independence of his mind, which cannot be borrowed, and which will therefore perpetuate his reputation. Dr. Paley was author of ſeveral other works beſides thoſe referred to: of theſe Mr. Meadley has given a complete catalogue. Since his death a collection of thirty-five ſermons has been publiſhed. In compliance with a codicil to his *Will*, they were at firſt printed and given away among the inhabitants of Biſhop-Wearmouth. His family have ſince acquieſced in the general wiſh, and preſented them to the world, as it would not have been poſſible to have prevented a ſurreptitious ſale of them. Monthly Magazine; New Annual Regiſter; and Meadley's Memoirs of William Paley, D.D. particularly the latter, we refer to as our authorities.

PALFA, in *Geography*, a town of the duchy of Stiria; 18 miles N. of Leoben.

PALFREYS, Palfredi, *Palafredi*, *Palefridi*, were an elegant and eaſy ſort of horſes, which, for their gentleneſs and agreeable paces, were uſed upon common occaſions by military perſons and others: their pleaſing qualities ſoon recommended them to the fair-ſex, who, having no coaches, uſed theſe palfreys, and always travelled on horſeback. Camden ſays, that W. de Fauconberge held the manor of Cukeney, in the county of Nottingham, in ſerjeantry, by the ſervice of ſhoeing the king's palfrey, when he came to Mansfield. Co. Lit. 149.

PALFYN, John, in *Biography*, a ſurgeon and anatomiſt of reputation, was born at Courtray, in Flanders, in 1649, or the following year. He ſettled in the practice of his profeſſion, at Ghent, where he obtained conſiderable reputation, and gave lectures to a number of pupils. Being extremely zealous for improvement, he viſited Paris annually, and occaſionally went to Leyden, and even to London, to learn the novelties which were acquired in the practice of his art, in theſe great ſchools of medicine. He was the contriver of ſeveral improvements in the form of chirurgical and obſtetrical inſtruments, and the author of ſeveral uſeful treatiſes on anatomy and ſurgery, which obtained conſiderable popularity. He died at Ghent in the year 1730, at the advanced age of eighty years.

His firſt work, publiſhed at Ghent in 1701, was a treatiſe on "Oſteology," in Flemiſh, which was afterwards much enlarged by himſelf, and tranſlated into German and French. It is particularly full relative to the bones of the head, and was cited with approbation by ſome of the moſt eminent profeſſors of the time. In 1708, he publiſhed his "Deſcription Anatomique des Parties de la Femme qui ſervent à la Generation," together with Licetus' treatiſe on monſters, and a deſcription of one born at Ghent in 1703. This work is chiefly a compilation; but he has given ſome original obſervations on the courſe of the blood in the fœtus, and on monſters. In 1710, he printed his "Anatomie Chirurgicale, ou Deſcription exacte des Parties du Corps humain, avec des Remarques utiles aux Chirurgiens dans la Pratique de leur Art," in French; and in 1718, reprinted it in Flemiſh. It was regarded as a valuable work, and was republiſhed after his death, in France, Italy, and Germany, Palfyn alſo tranſlated the treatiſe of Anthony Petit on "Diſeaſes of the Eyes," into Flemiſh, adding ſeveral other tracts on the ſame ſubject. Eloy Dict. Hiſt. Gen. Biog.

PALGUNGE, in *Geography*, a town of Bengal; 22 miles S. of Currackdeagh. N. lat. 24° 3′. E. long. 86° 20′.

PALIACUR, a town of the iſland of Ceylon, ſituated in a bay on the W. coaſt; 80 miles N.N.W. of Trincomaly. N. lat. 9° 33′. E. long. 80° 14′.

PALIAPADA, a town of Hindooſtan, in the Carnatic; 15 miles S.S.W. of Polore.

PALIAR, a river of Hindooſtan, which runs into the bay of Bengal; four miles S. of Sadras.

PALIBOTHRA, in *Ancient Geography*, a very conſiderable town of India, both with regard to extent and wealth, ſituated on the right bank of the Ganges (intra Gangem), and at the confluence of a large river with it, which river Arrian calls "Erranobos," inferior to none but the Ganges and Indus, and which Pliny denominates Jomanes (Jumnah). This ancient author ſays, in one place, that the Jomanes entered the Ganges by Palibothra, between Methora and Cliſobara or Caryſobara: but in another place he mentions the conflux of the Ganges and Jomanes, and in the next article ſays, that Palibothra is ſituated 425 miles below that point of conflux. Pliny's Palibothra, ſays major Rennell, is clearly Patna; and it is probable that Strabo meant the ſame place, by the diſtance from the mouth of the Ganges. Palibothra was the capital of the Praſii, and in dimenſions 80 ſtadia in length and 50 broad, or about ten miles long and nearly two wide.

PALICAUDCHERY, in *Geography*, a town of Hindooſtan, in the country of Calicut, taken from Hyder Ali, in 1783, by the Britiſh, afterwards evacuated, and at the peace ceded to the Engliſh; 26 miles S.W. of Coimbetore. N. lat. 10° 58′. E. long. 76° 45′.

PALICE GREAN, incorrectly written *Palice* or *Pallas Green*, a ſmall poſt-town of the county of Limerick, Ireland. It is ſituated at the foot of *Knock-Grean*, the hill of the ſun, which is remarkable for its baſaltic pillars, about a mile from the village, towards Limerick, near the houſe of Mr. Apjohn. Theſe pillars, though much inferior to thoſe in the county of Antrim, are calculated to arreſt the attention of the traveller, and have led to an examination of the hill, and of other parts of the county, which will probably be laid before the public. Palice Grean is 12¼ miles E. of Limerick, and about 96 miles S.W. from Dublin.

PALICI DII, in *Mythology*, were the ſons of Jupiter by the nymph Thalia. The inhabitants of Sicily adopted theſe for their deities, and in honour of them erected a magnificent temple at Palica. Their altar became the aſylum of the unhappy, and particularly of fugitive ſlaves. In this temple, according to Diodorus, the moſt important affairs were tranſacted, and the moſt ſevere puniſhment was inflicted on perjury.

The worſhip of the gods Palici is ſaid to have been derived from Phœnicia, and their name, according to Bochart, comes from the Hebrew word "Palichin," of *palach*, colere or venerari, and ſignifies Venerable; which the poet Æſchylus, from whom Macrobius has borrowed the fable of their origin, ſeems to inſinuate, when he ſaid Jupiter ordered the gods Palici to have the title of venerable given to them. However this be, the Palici were very much honoured in Italy; and Diodorus aſſures us, that they had a temple near the city Erice, revered both for its antiquity, and for the wonderful things that happened in it. Accordingly we are told by Macrobius, after Æſchylus and Diodorus, that near this temple were two ſmall lakes of boiling and ſulphurous water, always full without overflowing, which were called "Delli," and held in the higheſt veneration by the credulous people, who imagined that they were the brothers of the Palici, or rather that this was the place whence they themſelves had ſprung, when their mother delivered them. Ovid likewiſe deſcribes them. (Met. l. 5. 405.) It was near theſe two pools that ſolemn oaths uſed to be made, and controverſies determined, which could not otherwiſe be eaſily decided. Thoſe who were called to take this oath purified themſelves; and after having given ſecurity to pay, if the gods condemned them, they approached the pools, and ſwore by the divinity who preſided over them. If this oath was ſincere, they went off unhurt; but perjurers were puniſhed upon the ſpot, as all authors, who have mentioned it, are agreed.

> "Perque lacus altos et olentia ſulphure fertur
> Stagna Palicorum, ruptâ ferventia Terrâ."
> Ovid. Met.
>
> "Et qui præſenti domitant perjura Palici
> Pectora ſupplicio." Sil. Ital.

But they are not quite agreed as to the nature of the puniſhment. Macrobius aſſerts that they fell into one of the lakes, and were drowned; Polemon ſays, that they died ſuddenly; Ariſtotle and Stephanus ſay they were conſumed by a ſecret fire; and according to Diodorus, ſome of them loſt their lives. As the cuſtom of theſe oaths came from the eaſt, as well as the worſhip of the gods Palici, it is not improbable that it was an imitation of what is recorded in the book of Numbers, concerning the trials of the water that was given adulterous women to drink; and the puniſhments above mentioned were merely a tradition of what befel thoſe who were guilty of the crime of which they were accuſed. The temple of the Palici was alſo venerable on account of the prophecies that were delivered there from time to time. Macrobius, after Xenagoras, tells us that Sicily being diſtreſſed with famine, they conſulted the oracle of the Palici, and were anſwered, that if they ſacrificed a certain hero, whom authors have not named, the famine would ceaſe; which accordingly happened. The Sicilians, in acknowledgment of this bleſſing, heaped fruits and preſents upon the altars of theſe propitious deities; and this, according to Macrobius, has induced Virgil to ſay,

> "Pinguis ara Palici."

The ſuperſtition was afterwards carried to ſuch an extreme, that human victims were offered to theſe gods; but this barbarous cuſtom was afterwards aboliſhed, and the Palici contented themſelves with common offerings. To this the above-mentioned poet alludes, when he ſays,

> "Placabilis ara Palici."

PALICONDA, in *Geography*, a town of Hindooſtan, in the Carnatic; 24 miles W. of Arcot.—Alſo, a town of Hindooſtan, in Travancore; 55 miles N. of Anjenga.—Alſo, a town of Hindooſtan, in the circar of Gooty; 20 miles W. of Gooty.

PALICOUREA, in *Botany*, Aublet. Guian. v. 1. 172. t. 66, a *ſhrub* ſeven or eight feet high, whoſe wood is white, hard, and brittle, the *branches* oppoſite, forming a pyramidal head. The *leaves* are oppoſite, on ſhort ſtalks, oval, entire, pointed, about a foot long and five inches wide, ſmooth, with a principal longitudinal rib, and numerous parallel tranſverſe ones. *Stipulas* ovate, in pairs, combined with the baſe of each *footſtalk*, at its inner ſide, ſo as all together to embrace the branch. *Panicles* large, terminal, ſolitary, repeatedly branched, of numerous fragrant ſcarlet *flowers*, with orange tubes. *Calyx* ſuperior, ſmall, with five ſharp teeth. *Corolla* of one petal, funnel-ſhaped, curved; its limb in five acute ſegments, the two lower ones ſmalleſt. *Stamens* five, their filaments capillary, inſerted about the middle of the tube, and extending as far as its orifice; anthers incumbent, oblong, with a longitudinal furrow. *Germen* inferior, roundiſh, crowned with a glandular diſk; ſtyle ſlender, as long as the corolla; ſtigmas two, ſpreading, linear, flat, acute. The young *fruit* appeared to conſiſt of two cells, with one ſeed in each.

Such is Aublet's account of his *P. guianenſis*, the only ſpecies, which he found in the woods of Guiana, in the diſtrict named *Caux*, flowering in February. No explanation is given of the name. Juſſieu ſuſpects this plant to be of the ſame genus as the *Simira* of Aublet, t. 65, and his *Mapouria*, t. 67. Willdenow has, very properly in our opinion, referred them all to PSYCHOTRIA. (See that article hereafter.) Schreber however has made a genus of the *Palicourea*, by the name of *Stephanium*, from ϛεφανος, *a garland* or *ornamental erown*, on account, as it ſhould ſeem, of the beauty and brilliancy of the flowers; Schreb. Gen. 124. He records, in his appendix 822, that Dr. Solander had reduced this ſhrub to *Muſſænda;* but the deſcription of the fruit by no means countenances ſuch a deciſion.

PALIFISCO, in *Geography*, a town of Naples, in Lavora; 5 miles N. of Sezza.

PALIGHERY, a town of Hindooſtan, in the circar of Cuddapa; 24 miles W. of Cuddapa.

PALILIA, a feaſt among the ancient Romans in honour of the goddeſs Pales.

The Palilia, by ſome called *Parilia*, were celebrated by the ſhepherds on the day of the foundation of Rome, which, according to Cato, was the 11th of the calends of May, that is, the 21ſt of April; to beſeech that goddeſs to take care of their flocks, and preſerve them from wolves and diſeaſes. On that day the people purified themſelves, and alſo their folds and flocks with water and brimſtone, and burned the ſhrub, called Savine, whoſe ſmoke diffuſed itſelf all over the fold. After this, they offered in ſacrifice to the goddeſs milk, boiled wine, and millet: then followed the feaſt.

Part of the ceremony conſiſted in lighting heaps of ſtraw, and jumping over them. Ovid (de Feſt. l. iv. 721, &c.) deſcribes this whole ſolemnity at full length. Theſe ceremonies were accompanied with muſical inſtruments, ſuch as flutes, cymbals, and tabours, which played all the day long.

PALILICIUM, in *Aſtronomy*, a fixed ſtar of the firſt magnitude in the Bull's eye; called alſo *Aldebaran*.

Pliny gives the name Palilicium to the Hyades, of which the Palilicium is properly only one. See TAURUS.

PALIMERDI, in *Geography*, a town of Hindooſtan, in Madura; 35 miles N.N.E. of Coilpetta.

PALINCOTOS, a term uſed by Hippocrates to expreſs ſuch diſeaſes as are wont to return with all their violence upon the patient, after their ſeeming to have left him, whether for a longer or ſhorter period of time.

PALINDI, in *Geography*, a town of Hindooſtan; 45 miles N. of Travancore.

PALINDROMIA, a term uſed by Hippocrates, and many other writers, to expreſs a preternatural running of the peccant matter of diſeaſes to the more noble parts.

PALINDROMUS, παλινδρωμος, *retro currens*, *running backward*, formed of παλιν, *again*, and δρομος, *courſe*, a verſe, or ſentence, which reads the ſame, when read either backwards or forwards.

Such is the verſe,

> " Romā tibi ſubito motibus ibit amor."

Some people of leiſure have refined upon the palindromus, and compoſed verſes, each word whereof is the ſame backwards as forwards. As that inſtance in Camden:

> " Odo tenet mulum, madidam mappam tenet Anna."
>
> " Anna tenet mappam madidam, mulum tenet Odo."

PALING, or PALEING, in *Agriculture*, &c. a kind of fence-work for fruit-trees, &c. planted in fields, &c.

It conſiſts of three ſmall poſts driven into the ground, at a foot and a half diſtance; with croſs bars nailed to each other, near the top.

In fixing the pales, in form of a triangle, room is to be left for the tree to play and bow by the high winds without galling. The trees are to be bound to a ſtake for a year or two; after which fern or ſtraw may be ſtuffed in betwixt the tree and uppermoſt rails, to keep it upright.

If the place be open to deer, rabbits, or the like, a poſt is to be nailed to the bar between every two pales.

PALING-*Fence*, that ſort of fence which is conſtructed with pales. See FENCE.

PALINGENESIA, Παλιγγενεσια, formed of παλιν, *anew*, and γενεσις, *generation*, a new birth, or regeneration.

PALINGENESIA is alſo uſed by ſome for the migration or paſſage of the ſoul of a deceaſed perſon into another body.

The palingeneſia is almoſt the ſame thing with the metempſychoſis taught by Pythagoras, and ſtill believed by the Brachmans, Banjans, and other philoſophers of the Eaſt.

PALINGENESIA is uſed among chemiſts for the reproducing a mixed body from its aſhes.

This has been pretended to by many, as well as the philoſopher's ſtone, and other wonderful powers; but as to the palingeneſia, or reſuſcitation of plants, the inſtances produced are no more than ſome of thoſe artificial vegetations which the learned Monſ. Homberg has obſerved and deſcribed many times. See Homberg in Mem. Acad. Sciences, 1710; and Boyle's Works Abridg. vol. i. p. 69.

PALINGENIUS, MARCELLUS, in *Biography*, a modern Latin poet of conſiderable note, who flouriſhed about the commencement of the 16th century, was probably a native of Stellata in the Ferrareſe; whence he aſſumed the addition of Stellatus to his name. Some perſons have imagined that he was phyſician to Hercules II. duke of Ferrara, to whom he inſcribed his poem, entitled " Zodiacus Vitæ," *i. e.* " De Hominis Vita, Studio, ac Moribus optime Inſtituendis," lib. xii. It is denominated the Zodiac of Life, from its diviſion into twelve parts, each inſcribed with one of the ſigns of the zodiac. Its profeſſed object is to guide men in the road to preſent and future happineſs. From his invectives againſt the church of Rome, he is ſuppoſed to have been a convert to the reformation. The poem was placed in the firſt claſs of prohibited books in the Index Expurgatorius; and it has been aſſerted, that his body was dug up, and burned; but very little ſeems to be known with certainty about the circumſtances of his life. The poem has been highly applauded by ſome, and treated with a good deal of diſreſpect by others; but it has gone through a great number of editions, of which the beſt is ſaid to be that of Rotterdam, 1722. It has been tranſlated into the French language.

PALINGMAN, in our *Old Statutes*, ſeems to be a merchant-denizen, one born within the Engliſh pale. Stat. 22 Edw. IV. cap. 23. and 11 Hen. VII. cap. 22.

PALINGUIR, in *Geography*, one of the Philippine iſlands, about 15 miles in circumference, ſituated on the north of cape Engano, on the iſland of Luçon.

PALINIDRYSIS, a word uſed by Hippocrates to expreſs the ſubſiding of a tumour by the diſperſion of the matter that occaſioned it, without its breaking.

PALINODY, Παλινωδια, a diſcourſe contrary to a preceding one.

Hence the phraſe *Palinodiam canere, to ſing palinody*, q. d. to make a recantation.

The word in the original Greek ſignifies *ſinging again*, or *anew*. Hence it has paſſed as a general name for any poem, or the like, which contains a retractation in favour of a perſon whom the poet before had offended.

The poet Steſichorus is ſaid to be the firſt author of the palinody. The ſixth ode of the firſt book of Horace, beginning, "O matre pulchra," is a true palinody.

PALINTOCIA, Παλιντοκια, formed from παλιν, *anew*, and τοκος, of τικτω, *I bring forth*, in *Antiquity*, the birth or delivery of a child a ſecond time.

Thus the ſecond birth of Bacchus, proceeding out of Jupiter's thigh, was a palintocia.

PALINTOCIA is alſo uſed for the reſtitution of uſury, or the refunding of intereſts.

The Megareans, having expelled their tyrant, ordained the palintocia; that is, they made a law, that all the creditors ſhould return to their debtors the intereſts they had received for money lent.

PALINUM, CAPE, in *Geography*, a cape on the coaſt of Naples. N. lat. 40° 2'. E. long. 15° 10'.

PALIRRHŒA, a word uſed by the old Greek authors to expreſs the reflux or retrograde courſe of the humours, as in caſe of the cholera morbus, where people vomit up their ſtools.

PALISADE, or PALISADO, in *Fortification*, an incloſure of ſtakes or piles driven into the ground, each ſix or ſeven inches ſquare, and nine or ten feet long; three of which are hid underground. They are fixed about ſix inches aſunder, and braced together by pieces nailed acroſs them near the tops, and ſecured by thick poſts at the diſtance of every four or five yards.

Paliſades are placed in the covert-way, at three feet from, and parallel to the parapet or ridge of the glacis, to ſecure it from being ſurpriſed. They are alſo uſed to fortify the avenues of open forts, gorges, half-moons, the bottoms of ditches, the parapets of covert-ways; and, in general, all poſts liable to ſurpriſe, and to which the acceſs is eaſy.

Paliſades are uſually planted perpendicularly; though ſome make an angle inclining towards the ground next the enemy, that the ropes caſt over them, to tear them up, may ſlip.

PALISADES, *Turning*, are an invention of M. Coehorn, in order to preſerve the paliſades of the parapet of the covert-way from the beſieger's ſhot.

He orders them ſo, that as many of them as ſtand in the length of a rod, or in about ten feet, turn up and down like traps; ſo as not to be in ſight of the enemy till they juſt bring on their attack; and yet are always ready to do the proper ſervice of paliſades.

PALISADE, in *Gardening*, denotes a ſort of ornament; being a row of trees which bear branches and leaves from the bottom, cut and ſpread in manner of a wall, along the ſide of an alley, or the like; ſo as to appear like a wall covered with leaves.

Theſe paliſades are made of jeſſamine, phillyrea, &c.

PALISSE', in *Heraldry*, a range of paliſades before a fortification repreſented on a feſſe, riſing up a conſiderable height: and pointed at top, with the field appearing through them.

PALISSY, BERNARD DE, in *Biography*, an ingenious artiſt and proficient in natural philoſophy, was born at Agen, a city of France, ſituated on the Garonne, about the year 1524. He was brought up to the trade of a potter, which he carried on at Saintes, and he was alſo employed as a ſurveyor and draughtſman of plans. A thirſt for inſtruction led him to travel, and having by accident got poſſeſſion of a cup of enamelled pottery, his whole attention was turned upon endeavouring to imitate it. For this purpoſe he commenced a ſeries of experiments that abſolutely impoveriſhed him; he even broke up his furniture to ſupply his furnaces with fuel, and ſold his clothes to furniſh his aſſiſtant operator with wages. At length his labours were crowned with ſucceſs, and he ſo perfected himſelf in the manufacture, that he was immediately raiſed to the head of his profeſſion. He now purſued the ſcience of chemiſtry, and applied his knowledge to the improvement of agriculture. He was the firſt perſon who formed a collection of natural hiſtory at Paris, upon which he gave lectures at the rate of half a crown each perſon, a large ſum for that period, but he entered into an obligation to return the money four-fold, provided it were found that he taught any thing that proved falſe. In 1563 he printed at Rochelle "Recepte veritable par laquelle tous les Hommes de la France pourront apprendre à augmenter leur Treſors, &c." which, after his death, was reprinted under the title of "Moyen de devenir riche," in two vols. 8vo. In 1580, he publiſhed "Diſcours admirable de la Nature des Eaux, et Fontaines, de Metaux, des Sols, des Saline, des Pierres, des Terres, &c." This work was exceedingly valuable in the then exiſting ſtate of knowledge, and in it he firſt taught the true theory of ſprings, and aſſerted that foſſil-ſhells were real ſea-ſhells depoſited by the waters of the ocean. He alſo pointed out the uſe of marle, and of lime in agriculture. This excellent philoſopher was ſincerely and ardently attached, with regard to religion, to the principles of Calviniſm, on account of which he was, in the reign of Henry III. in 1584, apprehended and committed to the Baſtille. The monarch, who, it appears, had a true regard for him, plainly ſaid, that if he did not comply with the prevailing religion, he ſhould be conſtrained to leave him in the hands of his enemies, to which Paliſſy replied, with energy, "Your Majeſty has often ſaid that you pity me; for my part I pity you for pronouncing the words *I ſhall be conſtrained*. This is not ſpeaking like a king; but let me inform you in royal language, that neither the Guiſarts, your whole people, nor yourſelf, ſhall conſtrain a potter to bend his knee before images." He uſed commonly to ſay, in alluſion to his religion and his trade as a potter, "I have no other property than heaven and earth." Such are the only facts known of this eſtimable citizen; the time of his death is not aſcertained.

A new and complete edition of his works was publiſhed at Paris in 1777, with notes, by Faujas de Saint-Fonds. Gen. Biog.

PALIURI, Cape, a cape on the coaſt of European Turkey, in the gulf of Saloniki. N. lat. 39° 50′. E. long. 23° 46′.

PALIURUS, in *Botany*, a name adopted from Dioſcorides, but certainly miſapplied here. He ſpeaks of his παλιουρος, as a well-known prickly ſhrub, whoſe ſeed is fat, or oily, reſembling that of flax, and good for coughs, calculous diſorders, &c. Dr. Sibthorp judged that plant to be poſſibly the *Ziziphus vulgaris;* or *Rhamnus Ziziphus* of Linnæus. The deſcription of the third ſpecies of *Rhamnus* in Dioſcorides, ſo exactly accords with our *Paliurus*, that no doubt can exiſt of its being what he there deſcribed, and conſequently not his παλιουρος. "The fruit," ſays he, "is broad, white, thin, ſhaped like a pouch or box, and reſembling a ſocket or vertebra (σφονδυλος.)" He had previouſly deſcribed the very long prickly ſhoots, and dark leaves. Tourn. t. 387. Juſſ. 380. Lamarck Illuſtr. t. 210. Gærtn. t. 43. Claſs and order, *Pentandria Trigynia*. Nat. Ord. *Dumoſæ*, Linn. *Rhamni*, Juſſ.

Gen. Ch. *Cal.* Perianth inferior, of one leaf, in five equal, acute, ſpreading, deciduous ſegments, internally coloured; its baſe permanent. *Cor.* Petals five, minute, with narrow claws, inſerted under the glandular diſk of the flower, between the ſegments of the calyx. *Stam.* Filaments five, ſhort, oppoſite to the petals; anthers ſmall, roundiſh. *Piſt.* Germen ſuperior, roundiſh, bordered; ſtyles three, very ſhort; ſtigmas ſpreading, flat, obtuſe, deciduous. *Peric.* Capſule coriaceous, of three cells, not burſting, globular, ſurrounded at the bottom with the permanent baſe of the calyx, and crowned at the top with a very broad, orbicular, membranous, ſtriated, notched, horizontally ſpreading border. *Seeds* ſolitary, hard, ovate, compreſſed, rather poliſhed.

Eſſ. Ch. Calyx tubular, five-cleft; its baſe permanent. Petals five, oppoſite to each ſtamen. Capſule coriaceous, of three cells, not burſting, crowned with a flat dilated border. Seeds ſolitary.

Obſ. We are at length induced to ſeparate this genus from *Rhamnus*, as well as *Ziziphus*, the fruit affording full as good a diſtinctive character in one caſe as in the other. (See Rhamnus and Ziziphus.) The ſeed-veſſel of *Paliurus* is very peculiar. It has nothing that deſignates a *berry*, nor is it a dry *drupa*, becauſe it conſiſts of more than one cell, and the *ſeeds* can ſcarcely be termed nuts. Its texture and ſtructure are moſt like what is obſervable in *Fraxinus* and *Ulmus*. The cells, naturally three, are occaſionally but two.

1. P. *auſtralis*. Chriſt's Thorn. Gærtn. v. 1. 203. (Paliurus; Dod. Pempt. 756. Ger. em. 1336. Duham. Arb. v. 2. 96. (Rhamnus Paliurus; Linn. Sp. Pl. 281. Pallas. Roſſ. v. 2. 27. t. 64. Rh. tertius; Matth. Valgr. v. 1. 142. Ziziphus Paliurus; Willd. Sp. Pl. v. 1. 1103. Ait. Hort. Kew. ed. 2. v. 2. 18. Sm. Fl. Græc. Sibth. v. 1. 159.)—Common in hedges and buſhy places throughout the ſouth of Europe, as well as in the Levant. Gerarde cultivated it in his garden, and it is ſometimes preſerved in old or curious collections, for the ſake of ſingularity, or rather perhaps for the reputation attached to it of having been the thorn with which our Saviour was crowned. This its pliant and prickly nature ſeems to render probable. It is commonly delineated by Italian painters, and we verily believe that, if the ſacred depoſites of ſuperſtition were ranſacked, this thorn would be found treaſured up in them; at leaſt in Italy. Yet Haſſelquiſt ſent Linnæus from the Holy Land a different ſhrub, which the latter named *Rhamnus Spina Chriſti*. Its habit is much like our *Paliurus*, and the one is as likely to have been uſed for the execrable purpoſe on record, as the other. Neverthelefs, we are moſt inclined to think neither of theſe was employed; but rather the prickly *Acanthus*, a common oriental plant, whoſe leaves would perhaps better ſerve the intention of mockery, as well as cruelty, than either, having ſome reſemblance to the foliage of a victor's crown, and being moſt abundantly beſet with fine ſharp prickles.

The *Paliurus* flowers in June and July, and is perfectly hardy with us. When old, it forms a ſmall upright tree, but in a wild ſtate has long trailing branches, which are alternate, roundiſh, ſmooth and grey, ſomewhat zigzag; armed at the inſertion of every leaf with two ſharp prickles, one of them ſtraight, the other curved. *Leaves* alternate, ſpreading, on ſhort ſtalks, broad-ovate, an inch and a half long, bluntly pointed, crenate, ſmooth, three-ribbed, with many fine tranſverſe veins. *Stipulas* ſmall, pointed, permanent, changing to the above-deſcribed prickles, which are finally deciduous. *Flowers* ſeveral together, in little, ſhort, tufted, axillary cluſters, of a pale greeniſh-yellow. *Fruit* about an inch in diameter, pale brown or ſometimes reddiſh, its texture rather ſpongy, except the middle, which is very hard. Pallas deſcribes only one *ſeed* as perfected in Georgia, and about Mount Caucaſus; other authors ſay two or three, as they, for the moſt part, deſcribed from ſpecimens the produce of more favourable climes.

PALIZEUL, in *Geography*, a town of France, in the department of the Foreſts, and chief place of a canton, in the diſtrict of Neufchateau; 18 miles N.N.E. of Sedan. The place contains 800, and the canton 6203 inhabitants, on a territory of 300 kiliometres, in 10 communes.

PALIZZI, a town of Naples, in Calabria Ultra; three miles E. of Reggio.

PALKANE, a town of Sweden, in the province of Tavaſtland; 23 miles N. of Tavaſthus.

PALL, a circar of Hindooſtan, in Guzerat, S. of Oudipour.

Pall, in *Heraldry*, denotes a kind of croſs, repreſenting the *pallium*, or archiepiſcopal ornament, ſent from Rome to the metropolitans; which is blazoned thus: he beareth gules, a croſs pall, argent.

Pall, *Pallium Epiſcopale*, is a hood of white lamb's wool, to be worn as doctors' hoods upon the ſhoulders, with four croſſes woven into it. And this pallium epiſcopale is the arms belonging to the ſee of Canterbury.

Pall. See Pallium.

PALLA, among the old Romans, a mantle which women wore over the gown called ſtola.

It was borne on the left ſhoulder, whence paſſing to the other ſide, under the right arm, the two ends were bound under the left arm, leaving the breaſt and arm quite bare. It made abundance of plaits or wrinkles: whence, according to Varro, it had its name: *viz.* from παλλω, *vibro, I ſhake*, or *tremble*.

Among the Gauls there was alſo a kind of palla worn by the men, called *Gallica palla*.

Palla, in *Geography*, a ſmall iſland in the Eaſt Indian ſea; N. lat. 3° 4′. E. long. 125° 28′.

PALLADIA, in *Botany*, a name choſen, either by Lamark or his continuator Savigny, for a genus of the ſouthern hemiſphere, which Gærtner had previouſly called *Blackwellia;* ſee Blackwell, Elizabeth; but the latter appellation being given by Lamarck and Juſſieu, as well as Willdenow, to a genus of the claſs *Dodecandria*, nearly related to Homalium, ſee that article, it could not be retained for the plant before us. What *Palladia* means, is no where explained, nor can we form any conjecture worth offering. Lamarck Dict. v. 4. 698. Illuſtr. t. 285. (Blackwellia; Gærtn. t. 117.) Claſs and order, *Octandria Monogynia*. Nat. Ord. *Gentianæ*, Juſſ.

Gen. Ch. *Cal.* Perianth inferior, of one leaf, funnel-ſhaped, coloured; tube ſhort; limb in four obovate ſegments. *Cor.* of one petal, funnel-ſhaped; tube long, with eight plaits; limb in eight oblong ſegments. *Stam.* Filaments eight, rigid, permanent, united to the tube of the corolla for more than half its length; anthers .... *Piſt.* Germens two, ſuperior; ſtyle ſimple, compreſſed, ſituated between the germens and parallel to them, connected with their baſe, its edges finely toothed; ſtigmas two, ſpreading. *Peric.* Capſules two, club-ſhaped, priſmatic, erect, parallel, cloſe together, membranous, rigid, obſcurely angular at one ſide, marked with a deep furrow at the other, each of one cell and two finally ſpiral valves. *Seeds* very numerous, minute, roundiſh, ſomewhat angular. *Receptacle* ſpongy, as long as the capſule, to the edges of whoſe valves, at the furrowed ſide, it is attached, being marked there by a ſimilar furrow, while its other ſide is convex, and its whole ſurface rough with extremely minute tubercles.

Eſſ. Ch. Calyx in four ſegments. Corolla of one petal, in eight ſegments. Capſules two, ſuperior, parallel, each of one cell, with two valves, and many ſeeds.

1. P. *antarctica*. The only ſpecies was given to Gærtner, as far as he could recollect, by Dr. J. Reinhold Forſter, for a ſpecimen of his own *Skinnera*, Forſt. Gen. t. 29. From that it proved, on the ſlighteſt examination, totally diſtinct, for *Skinnera* is the very ſame genus with *Fuchſia*. But it may be queſtioned whether Forſter, who ſtudied the new plants of the Southern hemiſphere, chiefly by the rules of the Linnæan artificial ſyſtem, without regard to natural orders, might not, in the hurry of collecting, confound theſe two plants of the *Octandria Monogynia*, ſo as to lodge them together in his herbarium, and afterwards forget to diſtinguiſh them. Still no two plants can be more diſtinct, what little we know of the *Palladia* being too unlike every thing elſe, to leave a doubt in the mind of any botaniſt. Of its habit, herbage, or infloreſcence nothing is recorded. The *capſules* are nearly two inches long. The figures above cited ſeem to repreſent the remains of the *corolla*, in four abrupt toothed ſegments only, which do not anſwer to the deſcription of Gærtner, the only perſon who appears to have ſeen the plant. As Forſter's ſpecimens have been pretty generally diſtributed, it is much to be wiſhed that ſome relics of this great botanical curioſity might be detected by one or other of their poſſeſſors.

PALLADIO, Andrea, in *Biography*, a famous Italian architect, was born at Vicenza in 1518. He obtained inſtructions from the poet Triſſino, who diſcovering in him a genius for ſculpture and the arts connected with it, taught him the elements of the mathematics, and explained to him the works of Vitruvius. He ſoon obtained diſtinction as an architect, and having an opportunity of accompanying his patron to Rome, he employed all his faculties in examining the remains of ancient edifices in that capital, and formed his taſte upon them. On his return, the conduct of many works of importance was committed to him, which he managed with great ſkill, and obtained for himſelf a high reputation. He was now ſent for to Venice, where he built the palace Foſcari in the ſtyle of pure antiquity. Several other Italian cities were afterwards decorated with magnificent edifices, public and private, of his conſtruction, and he was invited to the court of Emanuel Philibert, duke of Savoy, who received him with diſtinguiſhed honours. To Palladio is chiefly attributed the claſſic taſte which reigns in ſo many of the buildings of Italy. His maſter-piece is reckoned the Olympic theatre at Vicenza, in imitation of that of Marcellus at Rome. He died in that city in 1580, having greatly improved his art, not only by his edifices, but by his writings, which are ſtandard performances. Of theſe the following account is given; "His Treatiſe on Architecture, in four books, was firſt publiſhed at Venice in 1570, folio, and has ſeveral times been reprinted. A magnificent edition, in three volumes folio, was publiſhed at London in 1715, in Italian, French, and Engliſh. Another, equally ſplendid, has ſince been publiſhed at Venice, in four volumes folio, with the addition of his inedited buildings. Lord Burlington publiſhed in London, in 1730, a volume, entitled "Idiſegni delle Terme Antiche di Andrea Palladio." He compoſed a ſmall work, entitled "Le Antichità di Roma," not printed till after his death. He illuſtrated Cæſar's "Commentaries," by annexing to Badelli's tranſlation of that work, a preface on the military ſyſtem of the Romans, with copper plates, deſigned, for the moſt part, by his two ſons, Leonida and Orazio, who both died ſoon after." Palladio was modeſt in regard to his own merit, but he was the friend to all men of talents; his memory is highly honoured by the votaries of the fine arts; and the ſimplicity and purity of his taſte have given him the appellation of the Raphael of architects.

PALLADIUM, in *Antiquity*, a ſtatue of the goddeſs Pallas, three cubits high, holding a pike in the right hand, and a diſtaff and ſpindle in the left, preſerved in Troy, in the temple of Minerva, on which the fate of that city is ſaid to have depended.

The tradition is, that in building a citadel, in honour of Pallas, and a temple in the moſt elevated part of it, the palladium dropped from heaven, and marked out the place which the goddeſs was pleaſed to poſſeſs. After this Apollo gave an oracle, importing, that Troy ſhould never be taken while the palladium was found within its walls: which occaſioned Diomede and Ulyſſes, in the time of the Trojan war, to undertake the ſtealing of it. For this purpoſe, having entered the citadel by night, or by means of ſecret intelligence, they ſtole away this valuable pledge of the ſecurity of the Trojans, and conveyed it into their camp; but they were ſcarcely arrived, when the goddeſs gave teſtimonies of her wrath. To which purpoſe Virgil makes Sinon ſay:

> "Scarce to the camp the ſacred image came,
> When from her eyes ſhe flaſh'd a living flame;
> A briny ſweat bedew'd her limbs around,
> And thrice ſhe ſprung indignant from the ground;
> Thrice was ſhe ſeen with martial rage to wield.
> Her pondrous ſpear, and ſhake her blazing ſhield."
> Pall's Æn. 2. 228.

It is ſaid, there was, anciently, a ſtatue of Pallas preſerved at Rome, in the temple of Veſta; which ſome pretended to be the true palladium of Troy, brought into Italy by Æneas: it was kept among the ſacred things of the temple, and only known to the prieſts and veſtals. This ſtatue was eſteemed the deſtiny of Rome; and there were ſeveral others made perfectly like it, to ſecure it from being ſtolen. See Ancyle.

There was alſo a palladium in the citadel of Athens, placed there by Nicias.

Theſe palladiums, in all probability, were no other than a kind of taliſmans.

Palladium, in *Chemiſtry*, a ſimple ſubſtance and a metal. This metallic ſubſtance was diſcovered by Dr. Wollaſton in 1803, who gives the following proceſs for preparing it. The grains of platina, as they come from South America, are firſt to be roaſted, to diſſipate the mercury, and then digeſted in weak nitromuriatic acid, to ſeparate the gold, and other metals of eaſy ſolubility. The remainder is now to be digeſted in a ſand-bath, with ſtrong nitromuriatic acid. The whole will be diſſolved, with the exception of a black ſcaly powder, from which the metals *iridium* and *oſmium* are obtained, and of which we have given an account under thoſe articles. The ſolution contains platina, rhodium, and palladium, with perhaps other metals. The platina is firſt to be precipitated by a ſolution of muriat of ammonia. Into the remaining ſolution immerſe a clean piece of zinc, which precipitates the palladium and rhodium in their metallic forms, with the other metals that may be preſent. This reſiduum is next to be digeſted, with weak nitric acid, in the cold, in order to diſſolve any eaſily oxydable metal that may be preſent. The remainder, being waſhed with diſtilled water, is now to be diſſolved in nitromuriatic acid. To this ſolution ſome muriat of ſoda is added, for the purpoſe of forming a triple ſalt with palladium, which is ſoluble in alcohol. The ſolution, with the common ſalt added, is now to be evaporated to dryneſs with moderate heat. This reſiduum is next to be waſhed with repeated additions of alcohol, till the liquor becomes colourleſs. The triple muriat of ſoda and palladium, and the ſame of platina, if that metal be preſent, are diſſolved in the alcohol. The ſubſtance which the alcohol leaves undiſſolved is of a deep red colour, and contains the rhodium in the ſtate of triple muriat of ſoda, and the latter metal. If the alcoholic ſolution ſtill contains platina, it may be ſeparated by muriat of ammonia. To the remaining ſolution now add pruſſiat of potaſh, which cauſes an orange precipitate. This being waſhed and expoſed to a tolerable heat, loſes its water, and the acid aſſumes a grey metallic appearance. This ſubſtance is laſtly to be heated with ſulphur and borat in a crucible, when it will afford a metallic button which is pure palladium.

This metal is of a white colour, more of the appearance of platina than any other metal. It is ſomething harder than the above metal, being about the ſtiffneſs of jewellers' gold. It is leſs malleable than ſilver or platina, owing probably to its greater hardneſs. Its ſpecific gravity, according to Dr. Wollaſton, varies from 11.3 to 11.8. When heated to about 30° of Wedgewood, it aſſumes a blue colour, owing to its combination with oxygen, in which property it has ſome reſemblance to iron. If, however, the heat be increaſed, the oxygen flies off, and it re-aſſumes its original luſtre. It does not fuſe at the ordinary temperature of furnaces. Although its oxyd ſeems to be formed at a certain temperature in the open air, it has not been procured by theſe means. An orange oxyd is procured by precipitation from the acids, but not ſufficiently pure to get the proportion of oxygen; hence we are at preſent unacquainted with the oxyds of palladium. It does not combine with carbon, nor is it known to combine with hydrogen, nitrogen, or phoſphorus.

It combines with ſulphur, forming a compound, fuſible at a low red heat. The ſulphur gradually eſcapes, leaving the metal in a ſtate of purity.

According to the experiments of Chenevix, it forms an alloy with gold of a grey colour; leſs ductile than either of the metals. Its fracture was cryſtallized. Its ſpecific gravity 11.079.

It forms an alloy with platina in equal parts. The alloy is as fuſible as palladium. It is leſs malleable than that with gold. Its ſpecific gravity was 15.141.

It forms an alloy with an equal part of ſilver, much harder than the latter metal, and whiter than platina. Its ſpecific gravity was 11.2. Its alloy with lead is very fuſible, hard, and extremely brittle. Its ſpecific gravity was 12. Equal parts of copper and this metal form an alloy of a yellow colour, harder than wrought iron. Its ſpecific gravity was 10.392. Its alloys with tin, iron, biſmuth, and arſenic, were tried by the ſame chemiſt, but had no ſtriking characters.

The oxyd of palladium combines with the acids forming ſaline compounds, which have not been much attended to.

The ſulphuric, nitric, and muriatic acids, when boiled upon palladium, oxydate and diſſolve it; but the nitromuriatic acid acts upon it with the greateſt energy. All the ſolutions are of a red colour. The oxyd is not precipitated from theſe ſolutions in a ſtate of purity by the earths and alkalies, owing to its forming inſoluble triple ſalts with moſt of thoſe ſaline baſes. The weight of the atom of palladium is not yet known with preciſion. Sir Humprey Davy has ſtated it to be about 17 times the weight of the atom of oxygen.

PALLADIUS, in *Biography*, an eaſtern prelate and eccleſiaſtical writer, was a native of Galatia, and born about the year 368. While a very young man he began to travel in foreign countries, and coming to Alexandria, in Egypt, he determined to embrace the monaſtic life. He ſpent three years under the diſcipline of Dorotheus, a celebrated aſcetic of Thebes, and in 391 he viſited the monaſteries, and moſt celebrated ſolitaries in the deſert of Nitria. At length, having wandered over almoſt the whole of Egypt, he was obliged, by the infirm ſtate of his health, to quit that country, and retire to Paleſtine. In the year 400, or 401, he went into Bithynia, where he was ordained biſhop of Helenopolis. It is by no means certain whether Palladius, author of the "Lauſiac Hiſtory;" and Palladius, author of a dialogue of the life of St. Chryſoſtom, written in 408, were different perſons, or one and the ſame. Dupin reckons theſe works to have been written by the ſame hand; Tillemont and Fabricius think them the productions of different perſons. The facts already cited are taken from the "Lauſiac Hiſtory," ſo called from Lauſus, a man of eminence in the imperial court at Conſtantinople, to whom it is inſcribed. Upon the ſuppoſition that it was the ſame Palladius, the author of the hiſtory, who wrote the "Dialogue," the following particulars may be added. He was ordained by St. John Chryſoſtom, to whoſe party he attached himſelf; and upon the baniſhment of Chryſoſtom, in 404, Palladius fell under perſecution, and being obliged to withdraw from his ſee, retired into Italy, and took refuge at Rome. Some time after, venturing to return into the Eaſt, he was baniſhed to Syene, at the ſouthern extremity of Egypt. Having regained his liberty, he reſigned the ſee of Helenopolis, and was appointed to the biſhopric of Aſpona in Galatia. It is not certain when he died, but it was probably ſome time before the year 431, ſince Euſebius, his ſucceſſor at Aſpona, preſided at the council of Epheſus, which was held in that year. He wrote the "Lauſiac Hiſtory" about the year 421, which contains the lives of perſons, who, at that time, were eminent for their extraordinary auſterities in Egypt and Paleſtine. The ſtyle in which it is written is plain and ſimple; the firſt edition of it, in Greek, was publiſhed by Meurſius at Leyden in 1616. In ſeveral manuſcripts, there is ſubjoined to the "Hiſtory" a book concerning the nations of India and the Brahmins, which has been attributed to Palladius, but without any proof of the fact. Cave ſays nothing can be affirmed of this work, only that it is the production of a Chriſtian writer, who lived before the deſtruction of the Roman empire. Dupin. Moreri. Lardner. Cave.

PALLANDROS, in *Geography*, a town of the iſland of Cyprus, ſituated at the foot of the mountain of St. Croix, anciently called "Palea;" 24 miles N. of Limaſol.

PALLANTIA, in *Ancient Geography*, a town of Hither Spain, in the country of the Vaccæi; diſtinguiſhed, according to Appian, by the valour of its inhabitants. See Palencia.

PALLANTIUM, a town of Arcadia, N.E. of Megalopolis, and at the extremity of a plain, which, being enfeebled by a colony detached to Megalopolis, became a village in the time of the emperor Antonine, who embelliſhed it with ſome fine edifices, in honour of Pallas, Ceres, and Proſerpine, freed it from every kind of impoſition, and gave it entire liberty.

PALLAS, ♀, in *Aſtronomy*, a ſmall planet, called aſteroid by Dr. Herſchel, diſcovered 28th March 1802, by Dr. Olbers, at Bremen, in Lower Saxony, and ſituated between Mars and Jupiter. It is ſo ſmall that it does not ſubtend an angle large enough to be meaſured by our beſt inſtruments. Its orbit is very eccentric, and it is much inclined to the ecliptic; aſcending above its plane at an angle of about 35°. The light reflected by it is of a leſs ruddy hue than that of Ceres, and it is attended by more or leſs of a nebuloſity, proceeding, perhaps, from a copious atmoſphere; and extending 468 miles from the body of the planet, whilſt that of Ceres is 675 Engliſh miles high; and in this reſpect, as well as in the great inclination of its orbit, it appears to have ſome affinity to comets.

From Dr. Herſchel's obſervations (Phil. Tranſ. for 1802. vol. 92.) we may conclude that the apparent diameter of Pallas is either 0.″17 or 0.″13: its mean diſtance from the ſun 2.8; its diſtance from the earth, at the time of obſervation, 1.8333; and its apparent diameter, at the mean diſtance of the earth from the ſun, ſubtends an angle of 0.″3199, ſo that its real diameter, if the largeſt meaſure be taken, will be 147 miles; and if the ſmalleſt, reſulting from a more diſtinct obſervation, be taken, the angle under which it would be ſeen from the ſun will be only 0.″2399, and its diameter no more than 110⅓ miles. (See Asteroid.) The elements of the orbit of Pallas, as others have ſtated them, are as follow:

Tropical revolution		4^{y}	7^{m}	11^{d}
Sidereal revolution, from Maſkelyne's Table		1703^{d}	16^{h}	$48'$
Annual motion		2°	$18'$	$11''$
Mean longitude, Jan. 1, 1804	9^{s}	29	52	58
Place of aſcending node in 1802, from Maſkelyne's Table	5	22	28	57
Place of aſcending node in 1804, according to La Lande	5	22	28	0
Place of perihelion	4	1	7	0
Eccentricity, the mean diſtance being 1		0.24630		
Inclination of orbit in 1801, according to Maſkelyne's Table		34°	$50'$	$40''$
Ditto in 1804, according to La Lande		34	39	0
Greateſt equation of centre		28	25	0
Mean diſtance from the Sun, that of the Earth being 1		2.7910		
Mean diſtance in Engliſh miles		266,000,000		
Diameter in Engliſh miles, according to Herſchel		80		
Ditto ditto, according to Schroeter		2099		
Apparent mean diameter, as ſeen from the Earth		0.″5		

See Planet and Solar *Syſtem*.

Pallas is alſo a name given by ſome to the firſt ſatellite of Jupiter. Lowthorp's Abr. Phil. Tranſ. vol. i. p. 407.

Pallas, in *Mythology*. See Minerva.

Pallas, *Dr.* Peter Simon, in *Biography*, ſon of Simon Pallas, a native of Johanniſburg, in Pruſſia, who was ſurgeon-major in the regiment of Dœnhof at Berlin, and was appointed, in 1741, profeſſor of ſurgery at Berlin, and chief ſurgeon of the hoſpital in that city. Simon Pallas, the father, ſignalized himſelf by a treatiſe on chirurgical operations, publiſhed in 1763, to which, in 1770, he added a ſupplement on the diſeaſes of the bowels, and in that year he died, at the age of 76.

Peter Simon Pallas, the celebrated naturaliſt who forms the ſubject of this article, was born at Berlin on the 22d of September 1741. He received the early part of his education at home from private tutors, under whom the progreſs he made in his ſtudies was truly amazing. Of thoſe preceptors, Martin Schœling was one of whom his pupil ever after retained a grateful remembrance. To him he was indebted for a very early attachment to the ſcience of entomology. Being deſtined to phyſic, ſo early as the 15th year of his age he entered upon a courſe of lectures on anatomy, phyſiology, botany, medicine, and ſurgery, under the profeſſors Meckel, Sprœgel, Gleditſch, Rolof, and his father; and applied himſelf with great aſſiduity to anatomical diſſections. He was ſo apt a ſcholar in theſe ſeveral branches of ſcience, that in the beginning of 1758, we find him, according to the account he gave of himſelf to Mr. Coxe, enabled to read a courſe of public lectures on anatomy. Yet, although he was thus occupied in his profeſſional labours, he ſtill found leiſure to proſecute the ſtudy of inſects and other claſſes of zoology, for which he ſeems very early to have conceived a predilection, and in which he particularly and eminently excelled.

In the autumn of the ſame year, young Pallas repaired to the univerſity of Halle; where he attended the lectures of the celebrated Segner on mathematics and phyſics, and improved his acquaintance with mineralogy in the environs of that city.

In the ſpring of 1759 he removed to Gottingen, and though prevented by a long and dangerous illneſs from proſecuting his ſtudies with his uſual ardour, yet he reaped great benefit from the inſtructions of the phyſicians Rœderer and Vœgel, and improved his general knowledge by diligently availing himſelf of the means of conſulting the books in the public library.

During his reſidence at Gottingen, he made numerous experiments on poiſons and the efficacy of other violent remedies, applied himſelf to the diſſection of animals, and made repeated obſervations on the worms which breed in the inteſtines. On this ſubject he compoſed a very ingenious treatiſe, under the title of "De Infeſtis Viventibus intra Viventia;" in which tract he appears to have taken great pains to diſcriminate theſe noxious animals; and has with ſingular accuracy deſcribed particularly thoſe worms which are found in the human body.

In July 1760 he was attracted to the univerſity of Leyden by the fame of the celebrated phyſicians and naturaliſts Albinus, Gaubius, and Muſchenbroeck; and by them he was noticed as a young man of a promiſing genius and indefatigable application. His talents particularly recommended him to the favour of Gaubius, principal profeſſor and doctor of phyſic in that univerſity.

In December he took his doctor's degree, and diſtinguiſhed himſelf by an inaugural diſſertation, in which he defended by new experiments the above-mentioned diſſertation compoſed at Gottingen.

During his ſtay at Leyden, his taſte for natural hiſtory became his predominant paſſion; he employed all the time he could ſteal from his profeſſional ſtudies in viſiting the public and private cabinets of natural hiſtory, with which Leyden abounded, and was particularly charmed with the collection of Gronovius, which he repeatedly examined.

Having viſited the principal cities of Holland, he directed his courſe to London, where he arrived in July 1761. The principal intention of his journey to England was to improve his knowledge in medicine and ſurgery, and to inſpect the hoſpitals. He was now, however, ſo much abſorbed in his paſſion for natural hiſtory, that he neglected every other purſuit, and gave himſelf totally up to this favourite branch of ſcience. At this juncture, his zeal was ſo ardent, that after having paſſed the day in curiouſly examining the various collections in natural hiſtory, and peruſing the principal books he could procure on that ſubject, he would frequently employ the greater part of the night, and occaſionally even whole nights together, whenever he met with new publications that either awakened his curioſity or intereſted his reſearches. With a view of extending his information in this department, he took ſeveral journies to the ſea-coaſts, and particularly in Suſſex.

Being at length ſummoned by his father to return to Berlin, he quitted London with regret in the latter end of April 1762, and repaired to Harwich in order to embark for Holland. Being there fortunately detained ſome days by contrary winds, he embraced that opportunity of examining the ſea-coaſt, and collecting a variety of marine productions. On the 13th of May he landed in Holland, and paſſing through the Hague, Leyden, and Amſterdam, he continued his route through the circle of Weſtphalia, and arrived at Berlin on the 12th of June.

Previouſly to his commencing the practice of his profeſſion, his father ſent him to Hanover for the purpoſe of procuring the poſt of ſurgeon in the allied army; but as, upon his arrival in that city, in the month of July, peace was on the point of being concluded, he returned by Wolfenbuttle, Brunſwick, and Helmſtadt, to Berlin, there he paſſed a year, which he chiefly employed in preparing materials for a "Fauna Inſectorum Marchica," or a deſcription of the inſects in the march of Brandenburg.

Animated by his predilection for natural hiſtory, and encouraged by the favour and patronage of Gaubius, he at length prevailed upon his father to let him go and ſettle in Holland. Thither accordingly he went, and reſided at the Hague.

His reputation as a man of ſcience was, by this time, ſo well eſtabliſhed, that he was, the ſame year, elected fellow of the royal ſociety of London; and in the following year member of the Academie des Curieux de la Nature; to both of which ſocieties he had previouſly ſent very intereſting and ingenious papers.

The intimacy he now contracted with the moſt celebrated naturaliſts in Holland, and particularly with thoſe of the Hague, who had juſt begun to form a literary ſociety; the free acceſs which he had to the muſeum of the prince of Orange, and other curious cabinets; the ſyſtematic catalogues of thoſe collections that he drew up, and ſeveral of which he gave to the public; contributed to advance his knowledge of the productions of nature in the various parts of the globe, and to collect ſuch materials as gave birth to thoſe accurate compoſitions on zoology, which have deſervedly diſtinguiſhed him as the firſt zoologiſt of Europe. One of his earlieſt works in this branch of ſcience, which rendered him eminently conſpicuous, was his "Elenchus Zoophytorum."

The attention which Dr. Pallas had beſtowed on the zoophytes, or animal plants, in the inveſtigation of the worms which infeſt the human body, and particularly the uncommon nature of the *tænia*, or tape-worm, as he acknowledges, ſeems to have led him into this line of natural ſcience, and in which he has ſhewn a great degree of accuracy, and ſurpriſing induſtry. In this work, after having treated on the nature of theſe ambiguous kinds of animals in a general method, and ſtated the various opinions of authors relating to the place they ought to hold in the ſyſtem of nature, he deſcribes from his own inſpection more than 270 ſpecies of thoſe worms and animalcules, known under the ſeveral generical appellations of polypes, corals, madrepores, corallines, ſea-pens, *tænia* or tape-worms, ſponges, ſea-fans, &c.

The free acceſs which he had to the muſeum of the prince of Orange, and other curious collections in Holland, enabled him to enrich his work with the deſcription of a great variety of theſe productions, brought from both the Indies. He has deſcribed each ſpecies at large, and given it a new name, characteriſtic of its real diſcrepances; and, what eſpecially increaſes the merit of his work, he has, with wonderful induſtry, extricated, as far as poſſible, the ſynonyms of former authors, both ancient and modern; thus rendering his book highly uſeful to ſuch as are inquiſitive in this branch of natural hiſtory.

In a dedication prefixed to his "Miſcellanea Zoologica," publiſhed in the ſame year, the author lays before the prince of Orange a plan for a voyage to the Cape of Good Hope, and to the other Dutch ſettlements in the Eaſt Indies, and which, impelled by his wonted ardour for ſcientific knowledge, he offered to undertake and ſuperintend. This project was ſtrongly recommended by Gaubius, and approved by the prince; but was prevented from being carried into execution by the author's father; who not only refuſed his conſent to his taking ſuch a diſtant expedition, but even recalled him to Berlin: in obedience to his father's wiſhes, but with great reluctance, he quitted Holland in November 1766.

On his return to Berlin (continues Mr. Coxe, from whoſe ingenious travels theſe particulars are extracted), his only conſolation in being ſeparated from his friends in Holland, and in having loſt ſo many opportunities of improving himſelf in natural hiſtory, conſiſted in putting into order the numerous materials he had collected, and the obſervations he was inceſſantly making, and in giving them to the public. He had, however, ſcarcely begun to publiſh his "Spicilegia Zoologica," before he was invited by the empreſs Catharine II. to accept of the profeſſorſhip of natural hiſtory in the Imperial Academy of Sciences at St. Peterſburg. Although in this inſtance his father and relations again refuſed their aſſent; yet the author's ardent zeal for his favourite ſcience, joined to an irreſiſtible deſire to viſit regions ſo little explored, induced him, without a moment's heſitation, to accede to the invitation, and to haſten his departure for a country, where his curioſity was ſo likely to be amply gratified. He accordingly quitted Berlin in June 1767, and arrived at Peterſburg on the 10th of Auguſt.

He made his appearance among the Ruſſians at a critical period. The empreſs had already ordered the Academy of Sciences to ſend aſtronomers into various parts of the Ruſſian empire, to obſerve the tranſit of Venus over the ſun's diſk in 1769. Being juſt returned from a voyage down the Volga, and from viſiting the interior provinces of European Ruſſia, the enlightened ſovereign had received the deficiencies of the topographical and geographical accounts, and anticipated the advantage of deputing learned and ſkilful men to viſit the diſtant provinces of her extenſive dominions; with a view to enlarge the bounds of ſcience, and extend the knowledge of uſeful arts among the natives. For this purpoſe Catharine had directed the academy to ſend, in company with the aſtronomers, the moſt able naturaliſts and philoſophers. Pallas inſtantly offered to accompany this expedition; and was as eagerly accepted. He was immediately charged with drawing out general inſtructions for the naturaliſts, and was gratified with the choice of his aſſociates. To him was ſubmitted, at his own requeſt, the conduct of the expedition to the eaſt of the Volga, and towards the extreme parts of Siberia ; and he was the moſt calculated for that expedition, as the elder Gmelin, who had been his precurſor in thoſe regions, had almoſt entirely neglected the zoology of thoſe remote diſtricts. Pallas employed the winter previous to his departure in forming a ſyſtematic catalogue of the animals in the cabinet of the Academy of Sciences ; in putting into order the celebrated collection of profeſſor Breyn of Dantzic, lately purchaſed by prince Orlof, in preparing for the preſs ſix numbers of his “ Spicilegia Zoologica,” which were printed during his abſence, under the direction of Dr. Martin ; and in forming the neceſſary arrangements and notices for his intended expedition.

At length, in June 1768, he quitted Peterſburg, in company with Meſſrs. Falk, Lepekin, and Guldenſtadt, as his aſſociates ; paſſed through Moſcow, Vlodimir, Kaſimof, Murom, Arſamas, to Caſan ; and having examined great part of that province, wintered at Simbirſk. From thence he departed, in March of the following year ; and penetrated through Samara and Orenburg, as far as Gurief, a ſmall Ruſſian fortreſs, ſituated at the mouth of the river Yaik or Ural. There he examined the confines of Kalmuc Tartary, and the neighbouring ſhores of the Caſpian, and returning through the province of Orenburg, paſſed the ſecond winter at Ufa. After ſeveral expeditions in the adjacent parts of that province, he left Ufa on the 16th of May 1770 ; proſecuted his route through the Uralian mountains to Catharinenburgh ; viſited the mines of that diſtrict ; proceeded to Tcheliabinſk, a ſmall fortreſs in the government of Orenburg ; and in December made an excurſion as far as Tobolſk. The next year he was employed in traverſing the Altai mountains, and in tracing the courſe of the Irtiſh up to Omſk and Kolyvan ; where, having inſpected the celebrated ſilver mines, he made for Tomſk, and finiſhed that year's expedition at Kraſnoyarſk, a town upon the Yeniſei. In that place, ſituated only in 56° north latitude, the cold was ſo intenſe, that the learned profeſſor was witneſs to the natural freezing of quickſilver ; which curious phenomenon he has minutely deſcribed. From Kraſnoyarſk he iſſued on the 7th of March 1772 ; and proceeded by Irkutſk, and acroſs the lake Baikal, to Udinſk, Selenginſk, and Kiakta, where the trade between Ruſſia and China is principally carried on. Having penetrated into that part of Dauria which is ſituated in the ſouth-eaſternmoſt part of Siberia, he journeyed between the rivers Ingoda and Argoon, at no great diſtance from the Amoor ; thence tracing the lines which ſeparate the Ruſſian empire from the Mongul hordes dependent upon China, he returned to Selenginſk, and again wintered at Kraſnoyarſk. In the ſummer of 1773 he viſited Tara, Yaitſk, and Aſtracan, and concluded his route for that year at Tzaritzin, a town upon the Volga ; from whence he continued his journey in the enſuing ſpring ; and arrived at Peterſburg on the 30th of July 1774, after an abſence of ſix years.

The account of this extenſive and intereſting tour was publiſhed by Dr. Pallas in five volumes 4to. which greatly extended his fame, and eſtabliſhed his character. The author, in this valuable work, has entered into a geographical and topographical deſcription of the provinces, towns, and villages, which he viſited in his tour, accompanied with an accurate detail of their antiquities, hiſtory, productions and commerce. He has diſcriminated many of the tribes who wander over the various diſtricts, and near the confines of Siberia ; and ſpecified with peculiar preciſion their cuſtoms, manners, and languages ; he has alſo rendered his travels invaluable to the naturaliſt, by the many important diſcoveries in the animal, vegetable, and mineral kingdoms, with which he has enriched the ſcience of natural hiſtory.

Two years afterwards, in 1776, the profeſſor publiſhed his collections relative to the political, phyſical, and civil hiſtory of the Mongul tribes ; in which he throws new light on the annals of a people, whoſe anceſtors conquered Ruſſia, China, Perſia, and Hindooſtan ; and, at more than one period, eſtabliſhed perhaps a larger empire than ever was poſſeſſed by any ſingle nation. Mr. Pallas here proves unqueſtionably that the Mongul tribes are a diſtinct race from the Tartars ; that they differ from them in their features, language, and government ; and reſemble them in nothing except in a ſimilar propenſity to a roving life. He intended a ſecond volume deſcribing their religious eſtabliſhment, conſiſting in the worſhip of the Dalai Lama. It is the religion of Thibet and of the Mandſhur ſovereigns who now ſit upon the throne of China. “ A work,” as Mr. Tooke, in his Ruſſia Illuſtrata, Introd. p. cxi. juſtly obſerves, “ that will enrich the ſtock of human knowledge with diſcoveries, the greateſt part entirely new, and which no perſon but Mr. Pallas is able to communicate.” Whether, however, this ſecond volume ever made its appearance, we have our doubts.

In the ſame year in which Dr. Pallas printed his “ Elenchus Zoophytorum,” he alſo publiſhed a treatiſe under the title of “ Miſcellanea Zoologica quibus novæ imprimis atque obſcuræ animalium ſpecies deſcribuntur, et obſervationibus iconibuſque illuſtrantur.” This work is in a great meaſure incorporated into a ſubſequent publication made the next year on his return to Berlin, intitled “ Spicilegia Zoologica,” and was continued in numbers, or *faſciculi,* till 1780. The works of count Buffon, the illuſtrious French zoologiſt, amply atteſt the labours of Pallas, and our countryman Mr. Pennant makes frequent acknowledgments of his obligations to the ſame ſource, particularly for his hiſtory of quadrupeds and arctic zoology.

In June 1777, the learned profeſſor read before the academy of Peterſburg, in a meeting at which the king of Sweden was preſent, a diſſertation on the formation of mountains, and the changes which this globe has undergone, more particularly as it appears in the Ruſſian empire. This treatiſe appeared ſo curious to Mr. Tooke, who was alſo, as a member of the academy, preſent at that ſitting, that he has given a tranſlation of it in his “ Ruſſia Illuſtrata.” In 1778 the doctor publiſhed “ Novæ ſpecies quadrupedum e Glirium ordine,” deſcribing numbers of the rat genus and their anatomy. In 1781 he brought out “ Enumeratio plantarum quæ in horto Procopii à Demidof Moſcuâ vigent,” or catalogue of the plants in M. Demidof's gardens at Moſcow. His new northern collections on various ſubjects in geography, natural hiſtory, and agriculture, came forth the ſame year, to which were afterwards added two more volumes.

In 1782 he put forth two faſciculi or numbers of “ Icones inſectarum præſertim Ruſſiæ Siberiæque peculiarium.” In 1784 he publiſhed the firſt number of his “ Flora Ruſſica ;” a ſplendid work, executed at the empreſs Catharine's expence. About this period her majeſty conceived the idea of collecting from all quarters of the globe a univerſal vocabulary, the ſuperintendance whereof ſhe committed to our author, which neceſſarily for a time retarded his zoological reſearches. Excluſive of theſe ſeparate publications, he printed in the acts of the imperial academy of ſciences, various zoological and botanical diſſertations.

Not long after this he was diſtinguiſhed by a peculiar mark of imperial favour, in being appointed member of the board of mines, with an additional ſalary of 200*l. per annum*, and honoured with the order of St. Vlodimir. The empreſs alſo purchaſed his ample collection of natural hiſtory, in a manner highly flattering to the author, and honourable to herſelf. Being informed that profeſſor Pallas was deſirous to diſpoſe of that collection, her majeſty ſent to let him know that her country ſhould not be deprived of ſo exquiſite a cabinet; that ſhe would be the purchaſer, and ordered him to make out the catalogue and fix the price. He accordingly named 15,000 rubles. Having examined the catalogue, ſhe ſubjoined with her own hand: "Mr. Pallas underſtands natural hiſtory much better than figures: he ought to have charged 20,000 inſtead of 15,000 rubles for ſo many valuable articles. The empreſs, however, takes upon herſelf to correct the miſtake; and hereby orders her treaſurer to pay 20,000 rubles. At the ſame time Mr. Pallas ſhall not be deprived of his collection, which ſhall ſtill continue to be in his own poſſeſſion during his life, as he ſo well underſtands how to render it moſt uſeful to mankind."

In 1784 the care of putting in order and publiſhing the papers of Gmelin and profeſſor Guldenſtædt was conſigned to Dr. Pallas, which he executed with great diligence and accuracy, though from ſome incidental cauſe to us unknown, only the firſt volume of Guldenſtædt's remains, containing his journal and the deſcription of the diſtricts of mount Caucaſus, ever came to the public eye.

In 1794 Dr. Pallas travelled to the Crimea, and on his return publiſhed an account of that delightful peninſula, under the title of "Phyſical and Topographical Picture of Taurida." On his return, finding his health, by long and inceſſant labours, upon the decline, ſo as to render it neceſſary for him to remove to a warm climate, on preferring his requeſt to the empreſs, he obtained not only immediate permiſſion to chuſe for himſelf a ſettlement in her dominions, but alſo on his pitching upon Taurida for that purpoſe, the grant of an eſtate in that province, and to the forming of his eſtabliſhment a preſent of 10,000 rubles. Here it was that he was viſited by Dr. Clarke on his travels in the year 1800; with whoſe account of his then ſituation we ſhall conclude theſe memoirs. "Akmetchet," ſays that ſpirited and ingenious traveller, "will long be celebrated as the reſidence of profeſſor Pallas, ſo well known to the literary world. His fame would have been ſufficiently eſtabliſhed if he had publiſhed no other work than that begun by him under ſuch favourable auſpices, the "Flora Ruſſica;" yet the barbarity of the people with whom he is compelled to live is ſuch, that they will not allow him to complete the undertaking. The drawings were all finiſhed, and almoſt all the text. To the hoſpitable and humane attentions of this excellent man we were indebted for comforts, equal, if not ſuperior, to thoſe of our own country, and for every literary communication it was in his power to ſupply. When we delivered our letters of recommendation to him, he received us rather as a parent, than a ſtranger to whoſe protection we had been conſigned. We refuſed to intrude by occupying apartments in his houſe: this had more the appearance of a palace, than the reſidence of a private gentleman; but one day when we were abſent upon an excurſion, he cauſed all our things to be moved, and upon our return we found a ſuite of rooms prepared for our reception, with every convenience for ſtudy and repoſe. I conſider myſelf indebted to him even for my life. The fatigue of travelling, added to the effect of bad air and unwholeſome food, rendered a quartan fever ſo habitual to me, that had it not been for his care and ſkill, I ſhould not have lived to make this grateful acknowledgment. He preſcribed for me; adminiſtered every medicine with his own hands; carefully guarded my diet; and, after nurſing me as his own ſon, at laſt reſtored me to health. When I recovered, he ranſacked his muſeum for drawings, charts, maps, books, antiquities, minerals, and whatever elſe might gratify our curioſity or promote the object of our travels; he accompanied us upon the moſt weariſome excurſions, in ſearch not only of the inſects and plants of the country, but alſo of every document likely to illuſtrate either its ancient or its modern hiſtory. His decline of life has been embittered by a variety of unmerited afflictions; this he has borne even with ſtoical philoſophy. Splendid as his reſidence appeared, the air of the place was ſo bad, that the moſt rigid abſtinence from all ſorts of animal food was inſufficient to preſerve his family from fevers. We left him determined to paſs the remnant of his days in cultivating vineyards among the rocks upon the ſouth coaſt of the peninſula. There was reaſon to hope, that by the death of Paul he would have been called to honours and emoluments; but ſubſequent travellers in Ruſſia do not furniſh intelligence ſo creditable to the adminiſtration of the new ſovereign. When the late empreſs Catharine ſent him to reſide in the Crimea, with a grant of lands in the peninſula, it was intended for the re-eſtabliſhment of his health, and as a reward for his long ſervices; neither of theſe purpoſes has, however, been accompliſhed. A magnificent eſtabliſhment in the midſt of unwholeſome air, has been all the recompence he has obtained. Thus it is that we find him, in the ſixtieth year of a life devoted to ſcience, opening his laſt publication with an alluſion to "the diſquietude and hardſhips which oppreſs him in his preſent reſidence, and embitter his declining days."—"We uſed," ſays Dr. Clarke, "every endeavour to prevail upon him to quit the country, and accompany us to England; but the advanced period of his life, added to the certainty of loſing all his property in Ruſſia, prevented his acquieſcence. Our intreaties were to no effect; and perhaps before this meets the public eye, our friend and benefactor will be no more." Happily, however, Dr. Pallas ſurvived the departure of our traveller upwards of ten years; when determining once more to ſee his brother and his native city, he took a journey to Berlin, where he died Sept. 8th, 1811, in the 71ſt year of his age. See Coxe's Travels; Tooke's View of the Ruſſian Empire; and Dr. Clarke's Travels.

PALLASIA, in *Botany*, is deſtined to commemorate the very eminent ſcientific merits of the celebrated Peter Simon Pallas, knight of the Ruſſian order of Wladimir, or Vlodimir, the choſen naturaliſt of the late empreſs Catharine of Ruſſia. See PALLAS.

His *Flora Roſſica*, his ſplendid monograph on the *Aſtragali*, as well as his botanical travels, and other writings, richly entitle him to ſuch commemoration. His liberal communication of finely preſerved ſpecimens to Linnæus, aſſiſted greatly to enrich the herbarium, as well as the later publications, of that diſtinguiſhed man and his ſon; and the whole collection of dried plants, made by Pallas for his own uſe, having been purchaſed of him by Mr. Cripps, the companion of Dr. Clarke, now form a part of the valuable muſeum of A. B. Lambert, eſq.

The original *Pallaſia*, publiſhed by the younger Linnæus, in his *Supplementum*, p. 37, was what Pallas himſelf, in the 2d vol. of his travels, had named *Pterococcus*. He ſubſequently referred it to *Calligonum*, to which it unqueſtionably belongs; and L'Heritier, having adopted the ſame meaſure, choſe a new *Pallaſia*, in the *Encelia* of Adanſon. (See CALLIGONUM and ENCELIA.) Nobody has given any explanation of the name laſt-mentioned, nor can we trace its meaning. Hence, probably, L'Heritier thought himſelf juſtified in ſuperſeding it, notwithſtanding its claim to ſufferance on account of ſound, if not of ſenſe. The latter was, upon principle, diſregarded by its author in moſt of the names he preferred. L'Herit. in Ait. Hort. Kew. ed. 1. v. 3. 498. Mart. Mill. Dict. v. 3. Willd. Sp. Pl. v. 3. 2260. (Encelia; Adanſ. Fam. v. 2. 128. Juſſ. 186. Lamarck

Dict. v. 2. 356. Illuſtr. t. 709. Cavan. Ic. v. 1. 44. Ximeneſia; Cavan. Ic. v. 2. 60. Willd. Sp. Pl. v. 3. 2116.) Claſs and order, *Syngeneſia Polygamia-fruſtranea.* Nat. Ord. *Compoſitæ*, Linn. *Corymbiferæ*, Juſſ.

Gen. Ch. *Common Calyx* of numerous, oblong, imbricated, nearly equal ſcales. *Cor.* compound, radiated; florets of the diſk numerous, tubular, five-cleft, all perfect; thoſe of the radius ligulate, ſpreading, oblong, ſomewhat wedge-ſhaped, with three or four obtuſe terminal teeth. *Stam.* in the florets of the diſk only, filaments five, capillary, very ſhort; anthers united into a cylindrical tube with five teeth. *Piſt.* in the florets of the diſk, germen obovate, compreſſed, fringed; ſtyle thread-ſhaped, the length of the ſtamens; ſtigmas two, ſpreading; in thoſe of the radius, germen obſolete or abortive, ſmooth; ſtyle and ſtigmas imperfect or wanting. *Peric.* none, except the permanent calyx. *Seeds* in the florets of the diſk ſolitary, obovate, compreſſed, notched at the top, bordered and fringed at the margin; thoſe of the radius obſolete and ſmooth. Down none. *Recept.* ſlightly convex, chaffy; its ſcales lanceolate, keeled, acute, nearly as long as the florets of the diſk.

Eſſ. Ch. Receptacle chaffy. Down none. Seeds compreſſed, bordered and fringed. Calyx of numerous, imbricated, nearly equal ſcales.

Obſ. We cannot ſcruple to reduce the *Ximeneſia* of Cavanilles to our *Pallaſia*, their habits being ſo ſimilar, and the ſtructure and appearance of the parts of the flower ſo much the ſame, as to overbalance the artificial diſtinction founded on the florets of the radius in *Ximeneſia* being rather leſs imperfect; though by no means ſo perfect as to juſtify its being referred to the order *Polygamia-ſuperflua.* This genus is ſufficiently different from *Coreopſis*, with which Jacquin confounds it.

1. P. *halimifolia.* Downy Pallaſia. L'Herit. Stirp. Nov. v. 2. t. 19, unpubliſhed. Willd. n. 1. (Encelia caneſcens; Cavan. Ic. v. 1. 45. t. 61. Coreopſis limenſis; Jacq. Ic. Rar. t. 594. Collect. v. 2. 299.)—Leaves blunt, nearly entire, downy on both ſides. Radiant florets deeply and unequally four-toothed, ſcarcely twice as long as thoſe of the diſk. Native of Mexico. It is with us in Europe a ſtove plant, flowering from July to September, but not much cultivated. The *ſtem* is ſhrubby, branched and downy, about two feet high; branches alternate, leafy. *Leaves* alternate, on downy ſtalks about an inch long, broadly ovate, obtuſe, one and a half or two inches long, entire, occaſionally rather wavy or obſcurely toothed here and there, three-ribbed, of a pale glaucous green, denſely clothed on both ſides with denſe, ſoft, fine, ſhort down. *Stipulas* none, but a denſe ſnow-white tuft of accumulated down is more or leſs remarkable, at the inſertion of each footſtalk. *Panicles* terminal, corymboſe, downy, rather leafy, of about four or five *flowers*, ſcarcely ſo large as a French Marigold (*Tagetes patula*), with a yellow radius whoſe florets are broad, ſhort, unequally lobed, and a convex greeniſh diſk.

2. P. *grandiflora.* Smooth Pallaſia. Willd. n. 2. (Encelia halimifolia; Cavan. Ic. v. 3. 6. t. 210.)—Leaves bluntiſh, nearly entire, glaucous, ſmooth. Radiant florets ſlightly three-toothed, thrice as long as thoſe of the diſk.—Native of New Spain. It flowered at Madrid in September. *Cavanilles.* This has the habit of the foregoing, but the *leaves* are ſmooth, and the *flowers* larger, in conſequence of the *florets* of the radius being much longer. Their colour is pale yellow; their apex obtuſe, with only three very ſhallow teeth, inſtead of being deeply and irregularly lobed. The *florets* of the diſk are of a reddiſh-white below, their limb dark brown. Such is the deſcription in Cavanilles. We have ſeen no ſpecimen, nor even heard of this ſpecies in England.

3. P. *ſerratifolia.* Serrated Pallaſia. (Ximeneſia encelioides; Cavan. Ic. v. 2. 60. t. 178. Willd. Sp. Pl. v. 3. 2116.)—Leaves pointed, ſerrated, hoary beneath; with winged ſerrated footſtalks. Radiant florets three-toothed.—Native of Mexico, from whence the ſeeds were ſent to the royal garden at Madrid. The plant flowered there in November. We have not heard of it in England, but are indebted to our late friend Cavanilles for a ſpecimen. *Root* perennial. *Stem* three feet high, branched, leafy, downy, ribbed, pale, apparently ſomewhat ſhrubby, corymboſe and many-flowered. *Leaves* moſtly alternate, not oppoſite, except perhaps ſome of the lowermoſt, ovate, pointed, three-ribbed, with many lateral veins, ſtrongly and ſharply ſerrated; their upper ſide bright green, beſprinkled with ſmall depreſſed briſtles; under denſely downy, pale, or glaucous. *Footſtalks* about a quarter the length of the leaves, bordered with a narrow wing, which is greatly dilated and toothed at the baſe, where it claſps the ſtem or branch. *Flowers* terminating each branch, ſolitary, larger than the laſt, their radiant *florets* ſpreading, bright yellow, each near an inch long; diſk browniſh. Scales of the *calyx* lanceolate, acute, roughiſh, in ſeveral rows, hardly imbricated. Border of the *ſeeds* pale, ribbed, hairy; their diſk beſet with numerous, minute, ſharp tubercles. Scales of the *receptacle* pale, finely fringed at the edges and keel.

Cavanilles named this ſuppoſed genus after Joſeph Ximenes, an apothecary, who undertook a *Flora* of Caſtulo, in four volumes, in which he delineated more than 700 plants, beſides native butterflies and birds of the ſame neighbourhood. Whatever his merits might be, the generic appellation given by Cavanilles could ſcarcely be retained, as the Linnæan ſyſtem already contains a *Ximenia*, long ago conſecrated to one of his countrymen of the ſame name, by Plumier. See XIMENIA.

PALLAVICINO, FERRANTE, in *Biography*, a man of letters, was born at Placentia about the year 1615. He devoted himſelf to the church, and became a canon-regular of Auguſtines; but the turn which he had to ſatire, and which he could not reſtrain, was at length the cauſe of his ruin. During the conteſt between pope Urban VIII. of the Barberini family, and Edward Farneſe, duke of Parma and Placentia, he ſupported the cauſe of his ſovereign with his pen, and wrote ſome ſevere and galling ſatires againſt the pontiff, and all his houſe. The papal court ſet a price upon his head, which obliged him to withdraw to Venice, where he lived in obſcurity. A young Frenchman, by affecting to pity his ſituation, obtained his confidence, and betrayed him to his enemies, who firſt impriſoned, and then beheaded him. The wretch who betrayed him was ſtabbed at Paris, ſome years afterwards, by a friend of Pallavicino. He was author of many works, which are diſtinguiſhed by their ſeverity and indecency. He alſo wrote a hiſtory of the public events in Italy in 1636. A ſelection of his works was publiſhed in two volumes 12mo. 1644, at Geneva, under the title of "Villa-franca." Moreri.

PALLAVICINO, SFORZA, a cardinal, born at Rome in 1607, was the eldeſt ſon of a marquis of that name, in Lombardy. He adopted the eccleſiaſtical profeſſion in oppoſition to the inclination of his parents. He attained, at a very early age, to high preferment in the church, and he was admitted to the prelacy in the pontificate of Urban VIII. The proſpects that opened before him did not, however, prevent his putting into execution a deſign of retiring from the world, and in his thirtieth year he commenced a noviciate in the ſociety of Jeſuits at Rome. When this was completed, he was employed ſeveral years in giving lectures in philoſophy and theology, and in preſiding over the ſtudies of the Roman college. He compoſed a hiſtory of the council of Trent in oppoſition to that of father Paul Sarpi, which labour was rewarded by pope Alexander VII. with a nomination to the cardinalate in 1657. After this elevation he continued to live in the cloiſter occupied in his ſtudies, and in the concerns of the church, and affording an example of Chriſtian virtue and piety till his death in 1667.

The cardinal was author of other works beſides the "Hiſtory of the Council of Trent:" theſe were partly aſcetical, partly moral, and partly theological. He alſo publiſhed a tragedy, entitled "Ermenigildo," which he afterwards republiſhed with a preliminary diſcourſe, ſaid to be more valuable than the tragedy itſelf. To this eccleſiaſtic alſo belongs a grammatical work, entitled "Avvertimenti Gramaticale," publiſhed under the name of Fr. Raimondo. His "Letters," in Italian, were publiſhed two years after his death. The "Hiſtory of the Council of Trent" was alſo written in Italian, and was at firſt printed at Rome in two volumes folio, 1656, 1657. It was, in 1664, republiſhed in three volumes, 4to. with various corrections and additions by the author. A tranſlation of it in the Latin language was publiſhed at Antwerp, in 1672, by father Giattini. Moreri.

PALLEIROS, in *Geography*, a mountain of Arabia, in the province of Oman; 80 miles W.S.W. of Maſcat.

PALLENE', in *Ancient Geography*, one of the three peninſulas, which formed at its extremity a more conſiderable peninſula, between the Thermaic gulf and the Strymon. This peninſula lay to the S.W., and according to Steph. Byz. upon it was alſo a mountain under the ſame appellation, of a triangular form, and had upon it, ſays Scylax, five towns; one of which was called by the ſame name. It belonged to Macedonia.

PALLET, among *Painters*, a little oval table, or piece of wood, or ivory, very thin and ſmooth; on and round which the painters place the ſeveral colours they have occaſion for, to be ready for the pencil.

The middle ſerves to mix the colours on, and to make the tints required in the work. It has no handle, but, in lieu thereof, a hole at one end, to put the thumb through to hold it.

Pallet, among *Potters*, *Crucible-makers*, &c. is a wooden inſtrument, almoſt the only one they uſe, for forming, beating, and rounding their works.

They have ſeveral kinds; the largeſt are oval, with a handle; others are round or hollowed triangularly; others, in fine, are in manner of large knives, ſerving to cut off what is ſuperfluous on the moulds of their work.

Pallet, in *Gilding*, is an inſtrument made of a ſquirrel's tail; uſed to take up the gold leaves from the pillow, to apply and extend them on the matter to be gilt. See Gilding.

Pallet, in *Heraldry*, is the moiety or half of the pale; or a ſmall pale, half the breadth of the uſual one.

The pallet muſt never be charged with any thing either quick or dead; neither can it be divided into two equal parts; but it may be into four; for one-fourth part of the pallet, or two-eighth parts of the pale, is called an endorſe.

If the pale be upon any beaſt, they ſay, the beaſt is *debruiſed* with the pale; but if the beaſt be upon the pale, they ſay he is *ſupported* by it.

Pallets, in *Clock* and *Watch-work*, are thoſe pieces or levers, which are connected with the pendulum or balance, and receive the immediate impulſe of the ſwing-wheel, or balance-wheel, ſo as to maintain the vibrations of the pendulum in clocks, and of the balance in watches. The pallets in all the ordinary conſtructions of clocks and watches, are formed on the verge or axis of the pendulum or balance, and are of various lengths and ſhapes, according to the conſtruction of the piece, or the fancy of the artiſt. For the modern improvements, comparative advantages, and the manner of conſtructing pallets, ſee Escapement.

Pallet, in *Ship Building*, is a room within the hold, cloſely parted from it, in which, by laying ſome pigs of lead, &c. a ſhip may be ſufficiently ballaſted, without loſing room in the hold; which, therefore, will ſerve for ſtowing more goods.

PALLETING, a ſlight platform made over the bottom of the magazine, to preſerve the powder from damps.

PALLI, in *Geography*, a town of Aſiatic Turkey, in the province of Diarbekir; 85 miles N.E. of Diarbekir.

PALLIANO, or Paliano, a town of Campagna di Roma; 28 miles E. of Rome.

PALLIATION, in *Medicine*, ſignifies the act of alleviating the more violent ſymptoms of a diſeaſe, by thoſe means which have no power of removing the diſeaſe radically. Whence alſo the terms

PALLIATIVE Medicines, palliative *indications*, palliative *treatment*, &c. are applied to thoſe remedies which the phyſician adopts, and to the rules of practice to which he is directed by the ſymptoms, under ſuch circumſtances.

The palliative treatment is never reſorted to by a ſkilful practitioner, except under one of two conditions of his patient; namely, when the diſeaſe, under which he labours, is clearly of an incurable nature, or advanced to an incurable ſtage; or, on the other hand, when ſome of the ſymptoms of a diſeaſe, which is in itſelf curable, are ſo violent as to become themſelves the ſource of extreme diſtreſs, or even of danger, to the patient. Both theſe conditions are of frequent occurrence. Every organic diſeaſe, in its advanced ſtage, affords an example of the firſt, eſpecially when it is accompanied by ſevere pain: for in that caſe, it becomes neceſſary to diminiſh the ſufferings of the patient, by a conſtant uſe of narcotic medicines, although theſe will not contribute, in the ſmalleſt degree, to arreſt the progreſs of the diſeaſe. Of the ſecond condition juſt mentioned, many examples might be adduced: but it may be ſufficient to obſerve, that, in *fevers*, many ſymptoms occaſionally occur, which materially aggravate the original diſeaſe, if not palliated; and the palliation, therefore, becomes an object of the firſt importance, although the means to be adopted for that purpoſe do not ſtrike at the root of the fever. Thus an intenſe *heat* of the ſurface will, by the painful irritation which it produces, occaſion extreme reſtleſsneſs, thirſt, loſs of ſleep, and increaſed quickneſs of pulſe; whereas if the heat be palliated by external coolneſs, and by cold drinks, all theſe ſecondary circumſtances will be removed, and the ultimate chance of recovery greatly increaſed. In like manner, a ſevere diarrhœa, great conſtipation, or a violent local pain, often require palliation, by means which have no direct influence upon the primary fever. There are but too many practitioners, however, who form an imperfect knowledge of the principles of phyſiology and pathology, cannot ſee beyond the moſt prominent ſymptoms of a diſeaſe, and whoſe whole practice is compriſed in a ſucceſſion of palliative meaſures: ſuch men are often called *experienced*, becauſe they have ſeen much diſeaſe, but being deſtitute of firſt principles, they never acquire a true experience.

PALLICODE, in *Geography*, a town of Hindooſtan, in Myſore, at the extremity of a paſs leading to the Barramaul country, called either the "Paſs of Pallicode," or the "Paſs of Oodeadurgum." Through this paſs the Myſore armies were generally ſent to invade the Carnatic; 11 miles N.W. of Darempoury.

PALLIER, or Paillier, in *Building*, a landing-place in a ſtaircaſe : or a ſtep, which, being broader than the reſt, ſerves to reſt upon. See Staircase.

The term is pure French, and is not much uſed in Engliſh. In perrons, on large ſtaircaſes, where there are ſometimes ſeveral palliers in the ſame range, or line, they ought to have each at leaſt the width of two ſteps. Thoſe in the turns of ſtaircaſes ought to be as broad as long. Vitruvius calls the palliers on landing-places of the theatres, *diazomata*.

PALLIFICATION, or Piling, in *Architecture*, denotes the piling of the ground-work, or ſtrengthening it with piles, or timber driven into the ground; which is practiſed when people build upon a moiſt or marſhy ſoil.

PALLIGORAM, in *Geography*, a town of Hindooſtan, in Golconda; 25 miles S.E. of Hydrabad.

PALLIJOW, a town of Hindooſtan, in Bahar; 45 miles S.W. of Patna.

PALLIO Cooperire. It was an ancient cuſtom, where children were born out of lawful wedlock, and their parents afterwards intermarried, that thoſe children, together with the father and mother, ſhould ſtand *pallio cooperti*, under a cloth ſpread over them, while the marriage was ſolemnizing; which was a kind of adoption, and had the effect of a legitimation.

Thus Robert Groſthead, the famous biſhop of Lincoln, in one of his letters, ſays; "In ſignum legitimationis, nati ante matrimonium conſueverunt poni ſub pallio ſuper parentes eorum extento, in matrimonii ſolemnizatione."

Selden, in his notes on Fleta, adds, that the children of John of Gaunt, duke of Lancaſter, by Catharine Swinford, though legitimated by act of parliament, yet were *covered with the pall* at the time of the marriage of their parents.

PALLIOT, Peter, in *Biography*, was born at Paris in 1608. He ſettled at Dijon, where he married the daughter of a painter, and followed the ſame profeſſion. From an early age he had attached himſelf to the ſtudies of genealogy and heraldry, which he contrived to purſue with great aſſiduity, publiſhing ſeveral works upon thoſe ſubjects. He died at a very advanced age in the year 1698. His principal works are, "Le Parlement de Bourgogne," 1649: to which another volume was added by Fr. Petitot in 1733. "Science des Armories de Gelliot, augmentée de plus de 6000 Ecuſſons." Beſides theſe he publiſhed genealogical hiſtories of particular families, and he left in MS. thirteen volumes folio, of memoirs concerning the families of Burgundy. He not only printed his own works, but engraved with his own hand all the very numerous heraldic plates by which they were illuſtrated. Moreri.

PALLISADES. See Palisade.

PALLISADOED Crown. See Crown.

PALLISER, Cape, in *Geography*, a cape on the E. coaſt of New Britain. S. lat. 4° 22′. E. long. 191° 25′.

Palliser, *Cape*, a cape on the S. coaſt of Eaheinomauwe, the northern iſland of New Zealand, and N.E. point of Cook's ſtrait. S. lat. 41° 38′. E. long. 175° 23′ 12″.

Palliser's *Iſlands*, a cluſter of iſlands in the South Pacific ocean; the largeſt being about fifteen miles long and nine broad, connected together by a reef of coral rocks, and difficult of acceſs. S. lat. 15° to 16°. W. long. 146° to 147°.

PALLIUM, or Pall, a pontifical ornament worn by popes, patriarchs, primates, and metropolitans of the Romiſh church, over their other garments, as a ſign of their juriſdiction.

It is in form of a band, or fillet, three fingers broad, and encompaſſes the ſhoulder; whence, by ſome authors, it is called *ſuperhumerale*. It has pendants, or ſtrings, about a palm long, both before and behind; with little laminæ of lead rounded at the extremes, and covered with black ſilk, with four red croſſes.

Some, with Euſebius, will have the pallium to have been introduced by pope Linus; adding that as the ephod was the mark of the pontifical authority in the Jewiſh ſynagogue, ſo is the pallium in the Romiſh church.

Others have obſerved, that there is no mention made of it before the year 336.

Laſtly, others will have it to have been firſt granted by Conſtantine the Great, to pope Sylveſter; from whence it paſſed to the other patriarchs and archbiſhops.

The pall, it is certain, was originally part of the imperial habit, being a rich robe of ſtate, very magnificent, and reaching quite to the ground; and it has been ſaid, that the biſhops of Rome were allowed to wear it by Conſtantine the Great, and that in proceſs of time the ſame honour was granted by the emperors to the other patriarchs. Hence, when they were either driven from their ſees, or voluntarily quitted them, they returned their palls to the emperors. When the popes firſt took upon them to grant that honorary badge, which they did before the pontificate of Gregory the Great, choſen in 590, they did not preſume to do it till they had obtained leave of the emperor. But the ſucceſſors of Gregory, upon the decline of the empire, took upon them to beſtow that mark of diſtinction independently of them, and as a gift of their own. However, that it might no longer be deemed part of the imperial habit, which it was treaſonable to wear without leave from the emperors, they changed its ancient form to the preſent. At what time the popes aſſumed the diſpoſing of the pall, independently of the emperors, is not well known; but it is certain, that no biſhop was obliged to apply to Rome for it till the year 742, when Boniface, biſhop of Mentz, perſuaded the biſhops of France and Germany to paſs a decree, obliging their metropolitans to apply to the pope for that ornament, and to promiſe, upon their receiving it, a canonical obedience to the commands of St. Peter. This practice proving very favourable to the ambitious deſigns of the biſhops of Rome, they ſpared no pains to impoſe it upon all metropolitans; iſſuing, with this view, various decrees concerning the nature, virtue, and neceſſity of the pall; till, at length, they proceeded to declare it unlawful for a metropolitan, archbiſhop, or primate, to exerciſe any branch of his power, till he had received his pall from Rome; nay, in ſeveral decrees, the metropolitical juriſdiction and power were ſaid to be conferred by the pall; and thus they made the pope the fountain of all eccleſiaſtical power and authority. This doctrine ſeems to have been firſt broached in the ninth century, though vigorouſly oppoſed by Hincmar, archbiſhop of Rheims, and ſeveral others. However, the doctrine prevailed; and the pall was declared by Innocent III. in the thirteenth century, to be an enſign or token of the plenitude of the apoſtolic power, and ſaid to communicate a competent ſhare of that power to thoſe who received it from the hands of the popes. Till the time of Gregory VII. the new metropolitans were only required to ſend for their palls within the ſpace of three months after their ordination; but this pope obliged all, unleſs prevented by ſome lawful impediment, to come for them in perſon to Rome; and the promiſe of canonical obedience, upon receiving their palls, was changed into an oath of allegiance, ſuch as vaſſals by the feudal laws were obliged to take to their princes. Gregory the Great conferred the pall without fee or reward; and in a council held at Rome in 595, decreed, that it ſhould be given gratis; but it is well known, that in ſucceeding times the grant of the pall became one of the chief funds of the popiſh ſee. Exorbitant ſums were exacted not only for the palls that were ſent to preſbyters, or private biſhops, when raiſed to the archiepiſcopal dignity, but likewiſe for thoſe that were ſent to archbiſhops on their tranſlation from one ſee to another. For by the canons, an archbiſhop is not to carry away his pall with him, but to demand a new one; and his ſucceſſor is not to make uſe of the pall, which his predeceſſor had left, but to apply to Rome for another. Bower's Hiſt. of the Popes, vol. iii. p. 6. note (*e*).

The pope pretends to the ſole right of conferring the pallium; though ſome patriarchs have granted it to their ſuffragans, having firſt received it themſelves from the Roman ſee.

Anciently, the pope uſed to ſend the pallium to certain of his dioceſan biſhops, on whom he laid a good part of his authority, and who were a kind of collaterals to him, as the patricii were to the emperors.

The firſt who received it in France was Vigilius, archbiſhop of Arles: this was done, in order, as Paſquier obſerves, to give him the precedency over the other biſhops.

Anciently they went to Rome to ſeek the pallium in perſon; afterwards it was ſent by the pope's legates. At laſt the cuſtom was introduced of ſending perſons expreſs to demand it, with this form, *Inſtanter*, *Inſtantius*, *Inſtantiſſime*.

By the popiſh canon laws, a metropolitan, till he have received the pallium, cannot conſecrate biſhops, or churches, and he may not be called archbiſhop, &c. Upon a tranſlation, he muſt have the pallium afreſh; and till then he cannot hold a ſynod, nor perform any of his archiepiſcopal functions.

The pallium was anciently interred with the perſon.

The uſe of the pallium is reſtrained to certain ſeaſons and occaſions; none but the pope having a right of wearing it always, and in all places.

The pope ſometimes ſends it to biſhops of his own accord; and has ſometimes given the right hereof to particular churches.

Among the Greeks all the biſhops wear the pallium.

In ancient records, we find mention made of another pallium, which was a long garment ſpread over with croſſes, Tertullian ſays it was a diſtinguiſhing garment of the Chriſtians; that of the heathens being called *toga*.

Pallium *Epiſcopale*. See Pall.

Pallium *Ducale*, in *Natural Hiſtory*, a name given by writers on ſhells to a kind of pecten, or ſcallop, of a large ſize and beautiful appearance, though ſimple colour. There are two ſpecies of this, a red and a yellow one.

Pallium-*purpureum*, a name given by Baſil Valentine, and other of the affected writers in chemiſtry, to a powder of a purple colour, prepared from gold. It is made by preparing an amalgam of gold and mercury; and after the mercury is driven off by the retort, the remaining matter is mixed with ſulphur, and calcined by a well regulated fire till reduced to a purple powder. This is called alſo the *ſolar powder*, and has, like the other preparations of this metal, many imaginary virtues aſcribed to it.

PALLS, in *Ship Building*, ſtrong ſhort pieces of iron or wood, ſo placed near the capſtan or windlaſs as to prevent its recoil or giving way, which may very much endanger the men at the bars, in the act of heaving up the anchor, or otherwiſe, when charged with any great effort.

PALLUAU, in *Geography*, a town of France, in the department of the Vendée, and chief place of a canton, in the diſtrict of Les Sables-d'Olonne; 16 miles E.S.E. of Challans. The place contains 328, and the canton 8794 inhabitants, on a territory of 230 kiliometres, in 10 communes.

PALM, Palmus, an ancient long meaſure, taken from the extent of the hand.

The Roman palmus was of two kinds: the *great* palm, taken from the length of the hand, anſwered to our ſpan, and contained 12 fingers, digits, or fingers' breadths, or 9 Roman inches, equal to about $8\frac{1}{2}$ Engliſh inches. See Digit, and Span.

The *ſmall* palm, taken from the breadth of the hand, contained 4 digits or fingers, equal to about 2 Engliſh inches, 9 tenths.

The Greek palm or *doron* was of two kinds. The ſmall contained 4 fingers, equal to little more than 3 inches. The great contained 5 fingers. The double Greek palm, called *dichas*, contained alſo in proportion. See Measure.

The modern palm is different in different places where it obtains. At Rome, the canna for woollens and ſilken ſtuffs $= 78\frac{1}{3}$ Engliſh inches = 8 palms; but the builders' canna $= 87\frac{15}{16}$ Engliſh inches = 10 palms; at Naples, the palm, is the 8th part of the canna $= 10\frac{3}{8}$ Engliſh inches; at Genoa, the palm is $9\frac{29}{40}$ inches; at Oporto, it is 8 inches: the Engliſh palm is 3 inches.

At Leghorn there are two kinds of palms, the one for woollens, the other for ſilks; the firſt one-third ſhorter than the latter. See the Tables under Measure.

Palm, *Palma*, in *Anatomy*, denotes the inſide of the hand; called alſo *vola* and *metacarpion*.

Palm, in *Naval Language*, is an implement uſed inſtead of a thimble, in making and mending ſails. It is formed of a piece of leather, ſeal's ſkin, or canvas, on the middle of which is fixed a round plate of iron, of an inch in diameter, whoſe ſurface is pierced with a number of ſmall holes, to catch the head of the ſail-needle. The leather is formed ſo as to encircle the hand, and button on the back of it, while the iron remains in the palm; ſo that the whole ſtrength of the hand may be exerted to thruſt the needle through the canvas, when it is ſtiff, and difficult to be penetrated. Falconer.

Palm, *Dwarf*, or Palmetto, in *Botany*. See Chamærops.

Palm-*Oil*. See Oil.

Palm-*Tree*. See Palmæ.

Palm-*Wine*, called in the Eaſt *toddi*, is obtained by inciſion of the trunk of a ſpecies of palm-tree, whence iſſues a liquor very grateful to the palate, but liable, eſpecially on account of the heat of the climate, ſoon to turn ſour.

Palm *Iſlands*, in *Geography*, a chain of iſlands near the N.E. coaſt of New Holland; extending about 30 miles in length, at the entrance of Halifax bay. S. lat. 18° 53'. W. long 213° 25'.

PALMA, Filippo, in *Biography*, a Neapolitan ſinging-maſter, totally without voice that could be called tuneful, yet he ſung, or ſeemed to ſing, with ſuch exquiſite taſte, as to revive the miraculous powers of muſic equal to thoſe aſcribed to Orpheus, Amphion, and Linus. Beſides his want of voice, he was ſo ignorant of counterpoint, that he could not make a baſe to the moſt ſimple melody. And though the airs which he compoſed for his own ſinging were univerſally applauded, he was ſo humble as to condeſcend to aſk a young apprentice to Dr. Arne to furniſh a baſe; and yet he touched the harpſichord in ſo original and ſeemingly maſterly a manner, that this apprentice would have given the world to exchange all his knowledge in counterpoint for ſignior Palma's "Toccatini." Gluck's celebrated air in Artamene, "Raſſerena il meſto ciglio," admirably ſung by Monticelli at the opera, and encored every night, when ſung by Palma without voice in private, the fine voice, figure, action, and knowledge of Monticelli were annihilated and forgotten. A ſinger in a room may hazard embelliſhments, which, on a ſtage, accompanied by a powerful orcheſtra, would have no effect. Palma's manner of ſinging and varying

ing " The Laſs of Paties Mill," had more effect, even upon the moſt enthuſiaſtic admirers of grand airs, than the performance of the greateſt ſingers.

The author of " Traité ſur la Melodrame," (le chevalier de Chaſtellux) relates an anecdote of Palma, which is perhaps as ſtrong an inſtance of the power of ſong in a modern, as can be found in the legends of ancient muſic. Palma was always in " love and in debt, though (being an Italian) ſeldom in drink." Having been caught at home by ſurpriſe by one of his deepeſt and moſt enraged creditors, from whom he had been long ſkulking, in order to eſcape his gripe; and on the inexorable creditor informing him of his buſineſs, and of the care that would be taken of his perſon by the gentleman whom he had brought with him; Palma made no other reply to his abuſe and his threats, than by ſitting down to the harpſichord and ſinging two or three of his moſt pleaſing and touching airs to his own accompaniment: when the fury of the creditor was ſo ſoftened by degrees, that at length he was entirely appeaſed, and not only forgave him his debt, but lent him ten guineas to ſtop the mouth of other creditors, who threatened him with a gaol.

But this ſecurity was of ſhort duration, for he was ſoon after thrown into the king's bench, where we viſited him, and found him writing to his brother, then a priſoner likewiſe in York gaol; when finding that the male Siren was putting his letter into a cover, we informed him of the expence in which it would involve his brother, by a double letter, when he ſaid—" Che fare? é capo di caſa, ci vaol riſpetto. What can I do? He is my elder brother, and head of our houſe, we muſt ſhew him reſpect."

Palma, Giacopo, was born at Serinalto, in the territory of Bergamo, and was a diſciple of Titian. He had genius and judgment, and his manner much reſembled that of his maſter. His colouring had extraordinary ſtrength and brightneſs, and his pictures are wrought to great perfection, though the execution of them is free and not over laboured.

Vaſari deſcribes, with great fervour, a compoſition of the elder Palma, at Venice; repreſenting the ſhip in which the body of St. Mark was brought from Alexandria to Venice. " In that grand deſign," he ſays, " the veſſel was ſtruggling againſt the fury of an impetuous tempeſt, and is expreſſed with the utmoſt judgment: the diſtreſs of the mariners, the violent burſting of the waves againſt the ſides of the ſhip, the horrid gloom only enlivened with flaſhes of lightning, and every part of the ſcene filled with images of terror, are ſo ſtrong, ſo lively, and naturally repreſented, that it ſeems impoſſible for the power of colour or pencil to riſe to a higher pitch of truth and perfection; and that performance very deſervedly gained him the higheſt applauſe."

Notwithſtanding this deſerved praiſe, his pictures in general are not correct in deſign, and his latter works did not maintain his early reputation. He died, according to Vaſari, at the age of 48; but in what year is not abſolutely known.

Palma, in *Geography*, one of the Canary iſlands, about 60 miles in circumference, anciently called " Capraria," ſaid by ſome to have derived this name from a volcano ſo called; though others aſcribe it to the great number of goats that are fed here. The ſoil is fertile in corn, wine, and ſugar-canes, as well as in fruits, quadrupeds, and birds of all kinds. This iſland has a handſome town and a ſafe harbour, much frequented for its wines, which are reckoned equal to Malmſey, and thought by ſome to be the beſt of any produced in the Canaries. (See Canary *Iſlands*.) N. lat. 28° 36′. W. long. 18°.

Palma, the capital of Grand Canary. (See Canary.)—Alſo, a town of South America, in the province of New Granada; 36 miles N.W. of Santa Fé de Bogota.—Alſo, a town of Naples, in the province of Lavora; 14 miles E. of Capua.—Alſo, a town of Naples, in the province of Calabria Ultra, near the ſea, which was a great mart for oil; deſtroyed by an earthquake; 11 miles W.N.W. of Oppido.—Alſo, a town of Sicily, in the valley of Mazara, in the vicinity of which is a rich ſulphur mine; and on a lake near the ſea, not far from it, are white partridges; 6 miles S. of Naro.—Alſo, a town of Spain, in the province of Cordova, on the Guadalquivir; 27 miles S.W. of Cordova.—Alſo, a town of Portugal, in Eſtramadura, on the right ſide of the river Cadaon; 18 miles E. of Setuval.—Alſo, a river of Braſil, which runs into the Tocantin, S. lat. 14° 16°.—Alſo, the capital of the iſle of Majorca, the ſee of a biſhop, and the reſidence of the captain-general of the Balearic and Pityuſe iſles. The city is ſituated on the banks of a large bay formed by the ſea, between the capes Blanco and Cala Figuera, which is ſaid to be 3½ leagues wide; the port, though ſmall, is good and ſafe. The city is built on a declivity on the ſea-ſhore, in the part where the port makes a bend. It is ſurrounded with walls, flanked by twelve baſtions; here are a half-moon, horn-work, and ſeveral redoubts; on the land ſide there is a dry ditch; but all theſe fortifications could not ſuſtain a well-conducted ſiege. It has eight gates, three of which are on the ſide of the ſea. The ſtreets in ſome parts of the city are narrow, and badly paved; thoſe in the lower parts, as well as of the ſquares, are large and regular. The population of the city is reckoned at 33,000 inhabitants. The biſhopric is a ſuffragan of Valencia; the dioceſe comprehends 40 pariſhes, and the revenue amounts to 45,000 piaſtres a-year. The chapter conſiſts of ſix dignitaries, whoſe ſtipend amounts to 10,000 piaſtres among them, and the prebends are eſtimated all together at 42,500 piaſtres. Here are five rich pariſh churches, twelve monaſteries, eleven convents, beſides one in the ſuburbs, a number of chapels or oratories, four hoſpitals, two religious houſes, nine penitentiaries, two colleges, and ſeveral remarkable public edifices. The adminiſtration is compoſed of a captain-general and royal audience, who have the entire government of the kingdom, and decide as a ſupreme court on civil, criminal, and military affairs. The cathedral church, which ſtands in the higheſt part of Palma, is handſome and large, of Gothic architecture, with three aiſles and lofty vaulted roofs. The pariſh of St. Michael is one of the moſt ancient; it was a moſque in the time of the Moors. The other churches have been built ſince, and are all large, and ornamented with turrets or ſpires of different forms. The epiſcopal palace is large, adjoins the cathedral, and is built of beautiful ſtone. The palace royal of government, where the captain-general and intendant-general reſide, is the moſt conſiderable, and commands the ſea-ſhore. The houſe of Contractation, built in the 14th century, is of Gothic architecture, and is the place where the merchants aſſemble, and where the public fetes and maſked balls are held; near it is the conſulate, where the board of commerce holds its ſittings, and which gives its audience gratuitouſly. The manſion-houſe has a quantity of ſculpture on its entablature, and a number of Gothic ornaments. The clock of this building marks and ſtrikes the different hours of the day and night, according to the progreſs of the ſun, and the different ſolſtices, and is generally allowed to be the only one of the kind in the world. The houſes in the town of Palma are pleaſant; ſome are even built of marble.

Palma *la Nuova*, a town of Italy, in the country of Friuli, on the borders of Goritz, ſituated on a canal, which communicates with the Lizonzo. It is fortified and ſurrounded with nine baſtions, which bear the names of nine Venetian noblemen; 55 miles N.E. of Venice. N. lat. 46° 2′. E. long. 13° 16′.

PALMA *di Solo*, a ſea-port town of the iſland of Sardinia, on the S. coaſt. N. lat. 39° 20′. E. long. 6° 24′.

PALMA, *Cape*, a cape on the coaſt of Ancona. N. lat. 43° 3′. E. long. 13° 50′.—Alſo, a cape on the W. coaſt of Africa, in the country of Angoy. S. lat. 5° 50′.

PALMA *Chriſti*, in *Botany*, &c. See RICINUS and CASTOR *Oil*.

PALMÆ, the Palm tribe, a moſt diſtinct and important, as well as ſtately and beautiful, natural order of plants, ſo named from *Palma*, the ancient appellation of the moſt valuable among them, the Date tree; whoſe foliage was conſecrated, firſt by the Greeks and then by the Romans, as an emblem of victory, and whoſe fruit has been a principal article of food in the Eaſt, from the remoteſt antiquity to the preſent day. The word *Palma* is ſuppoſed to have been applied to this tree, from the diviſions of its leaves having ſome reſemblance to the fingers and palm of the hand, whence perhaps, by an aſſociation of ideas, the fruit came to be called *dactyli*, from δακτυλος, *a finger*, to which its likeneſs is, at firſt, not apparent. The Greeks named this kind of Palm φοινιξ, which Linnæus has retained. (See PHOENIX.) That great botaniſt terms the natural order in queſtion "Princes of the Vegetable kingdom, of Indian origin, diſtinguiſhed by their ſheathed and many-ſpiked flowers, their flowing habit, their lofty ſtature, the ſimple elegance of their unbranched long-enduring ſtem, the leafy evergreen garlands with which they are crowned, and their princely treaſures of rich fruit. They are tributary to the firſt order, or *Primates*, amongſt animals; more eſpecially to the lord of the animal creation, who is deſtined, in a ſtate of nature, to dwell among them."

Palmæ conſtitute the eleventh order in the ſyſtem of Juſſieu, the firſt of his third claſs. The character of that claſs is a ſimple *cotyledon*, with *ſtamens* inſerted into the *calyx* or *corolla*. The claſs is thus defined at length by Juſſieu.

Calyx of one leaf, tubular or deeply divided, ſuperior or inferior, ſometimes naked, but moſtly accompanied by a ſheath, containing one or many flowers, rarely by an involucrum, reſembling an outward calyx. *Corolla* none, for what is ſo termed by Tournefort, Linnæus and others, Juſſieu reckons a true calyx, as above. *Stamens* definite in number, rarely indefinite, inſerted into the lower or the upper part of the calyx, oppoſite to its ſegments; their filaments uſually diſtinct, rarely combined, with diſtinct two-celled anthers. In a few caſes the *germens* are more than one, ſuperior, with the ſame number of *ſtyles* and of *ſtigmas*, each *germen* becoming a *capſule* of one cell, either with a ſingle *ſeed* or with ſeveral, in which latter caſe the capſule conſiſts internally of two valves, to whoſe margins the *ſeeds* are annexed. More frequently, however, the *germen* is ſolitary, either ſuperior or inferior; the *ſtyle* ſolitary, rarely three, or wanting; *ſtigma* ſimple, or divided; *fruit* pulpy, or capſular, of three cells, containing three or many *ſeeds*; ſometimes two of the cells prove abortive, and one *ſeed* only of the whole is perfected. The *ſeeds* of the pulpy kinds are attached to the internal angle of their cells; in thoſe furniſhed with *capſules*, uſually of three valves, they are inſerted here and there, upon the margin of an elevated receptacle, conſtituting the partition, in the middle of each valve, and ſeparating along with it. The *corculum* is ſmall, in a large horny *albumen*.

The orders of this claſs are eight, *Palmæ*, *Aſparagi*, *Junci*, *Lilia*, *Bromeliæ*, *Aſphodeli*, *Narciſſi* and *Irides*.

The ſame author thus characterizes the *Palmæ*. *Calyx* in ſix deep ſegments, often permanent, the three outer ſegments often ſmalleſt. *Stamens* ſix, rarely more or fewer, inſerted into the baſe of the ſegments of the calyx, or rather perhaps into a glandular body ſituated beneath the germen, their filaments often combined at the bottom. *Germen* ſuperior, ſimple, rarely three-fold (in *Chamærops*); *ſtyle* one or three; *ſtigma* ſimple or three-cleft. *Fruit* a berry, or a drupa, in the latter caſe internally reticulated, each of one or three cells, and with one or three bony *ſeeds*. *Corculum* very ſmall, in a cavity at the baſe or ſide, rarely at the baſe, of a large *albumen*, which is at firſt ſoft and eatable, but ſubſequently hardened and horny.

The *ſtem* is ſimple, cylindrical, like the trunk of a tree, ſhrubby or arboreſcent, either ſcaly with the permanent baſes of the leaves, or rough with the circular ſcars where the baſes of old leaves have been. *Leaves* terminal, crowded, alternate, ſheathing at their baſe; the young ones folded, and either covered or ſurrounded with the reticulated ſheaths of laſt year's leaves, remaining between their baſes. *Spadix* central among the leaves, terminal, many-flowered, either ſimple, or more frequently branched, each branch accompanied by a pair of *ſheaths*, and the whole enfolded in one very large common *ſheath*, moſtly ſimple, rarely of ſeveral leaves. *Flowers* either diœcious or monœcious, but perhaps from the abortion of one or other of the organs of impregnation in each; the ſexes ſituated on the ſame ſpadix or on a ſeparate one; rarely hermaphrodite, each flower accompanied by two ſhort ſheaths.

Mr. Brown, *Prodr. Nov. Holl.* v. 1. 266, remarks that the *flowers* are hermaphrodite (or united), though often polygamous, and that the *ſtamens* in ſome of the polygamous palms are indefinite in number. The *ſtem*, when ſhrubby, is ſometimes branched. The ſame author adds that *Palmæ* are certainly widely removed from *Gramina*, having apparently more affinity to the *Junci*, through the medium of *Xerotes* and *Flagellaria*.

This order is divided into two ſections, according to the ſtructure of the foliage.

1. Leaves pinnate, contains *Calamus*, *Phœnix*, *Areca*, *Elate*, *Cocos*, *Elais*, *Caryota*, *Nipa*; to which Willdenow has added GEONOMA, and Brown SEAFORTHIA; ſee thoſe articles.

2. Leaves palmate, or fan-ſhaped, comprehends *Corypha*, *Licuala*, *Latania* of Commerſon, *Boraſſus*, which Juſſieu is pleaſed to call *Lontarus* after the example of Rumphius, and *Chamærops*; to which are to be added *Thrinax* of Swartz, and *Rhapis* of the younger Linnæus, ſee Ait. Hort. Kew. ed. 1. v. 3. 473; as well as LIVISTONA, Brown Prodr. 267; ſee that article.

Of the internal ſtructure of the *Palmæ* we have already given ſome idea, in ſpeaking of the great natural claſs to which they belong. (See MONOCOTYLEDONES.) The following account of their vegetation, extracted from Deſfontaines, is publiſhed in Lamarck's Dict. v. 4. 701.

"When the ſeed of a Palm-tree is committed to the earth, the leaves unfold in ſucceſſion, and increaſe in number, during four or five years. The crown of the root dilates in the ſame proportion. The bulb, formed by the re-union of the footſtalks of the leaves, ſwells inſenſibly, its ſolidity gradually augments, and at length the ſtem riſes above the ſurface of the ground, of the full diameter that it ever will acquire. The leaves, produced every ſpring, originate always from the ſummit. The older ones, ſtanding below the others, gradually dry up, and, on ſeparating from the ſtem, leave behind them circular impreſſions, which furrow its ſurface, and mark the years of its age, as long as it continues to grow. The ſtem is exactly cylindrical from top to bottom, and if its meaſure be taken at different periods, no increaſe of diameter will ever be diſcovered. This fact did not eſcape Kæmpfer." The ſame able writer remarks nevertheleſs, that Palm-trees are liable to accidental irregularities in their growth, either from a deficiency of nouriſhment, whence they become ſlender in that portion of their ſtems elongated under ſuch circumſtances; or from a ſuperabundance of food, whence the new part proves of a greater diameter than the old; for the latter retains, in both caſes, its original dimenſions. Such being the mode of increaſe in the plants of this natural order, and their duration very long, amounting ſometimes to 800 years or more, no wonder that they attain an extraordinary degree of elevation, much exceeding the generality of trees, though ſcarcely equal to the Norfolk Iſland Pine. (See DOMBEYA.) Yet, notwithſtanding this great loftineſs of growth, botaniſts have doubted whether they ſtrictly ought to be denominated trees or herbs. They certainly have not the proper trunk, gradually augmented by ſucceſſive annual concentric layers, which is characteriſtic of a tree or ſhrub. Their annual circles of leaves all ſpring in reality from the root, or at leaſt from its ſingularly protruded crown; but ſo little of any ſuch protruſion is diſcernible in herbaceous plants, which die down to the ſurface of the earth every winter, that the difference between them and the Palm tribe is abundantly marked. Linnæus, not knowing whether to call their foliage leaves, adopted the term *frons*, a frond or bough; but, as it ſeems to us, without any neceſſity. That they were, by the ancients, very improperly termed branches, we readily allow, but the objections that "they have no bud for the following year, neither have they the ſubſtance of leaves, nor do they, like leaves, all wither and fall off together," ſee *Linn. Prælect. in Ord. Nat.* 23, appear to us very unſatisfactory. They have, in fact, a central bud, like trees of tropical countries, though not the ſcaly *hybernacula* appropriated to thoſe of cold climates; their ſubſtance is much like that of a variety of other leaves; and they fall off in ſucceſſion, like the foliage of other evergreen plants. When their whole ſummit is cut off, the plant periſhes, they having no power of producing lateral buds.

The botanical arrangement of *Palmæ* was, in the early days of Linnæus, a work of conſiderable difficulty. Tournefort had diſtinguiſhed no proper genera in this order, nor Plumier more than one. So imperfect were the accounts of their flowers in early botanical works, and ſo impoſſible was it for the author of the ſexual ſyſtem to procure acceſs, in moſt inſtances, to the reality, that he could not aſcertain enough of their ſtructure to refer more than a very few to his claſſes and orders; hence he aſſembled as many as he knew of the family, in an appendix to his ſyſtem, except *Calamus*, of whoſe relationſhip to the reſt he was not aware. Linnæus, on the other hand, confounded with the *Palmæ Cycas* and *Zamia*, which are more nearly allied to the *Filices*, though properly diſtinct from both. Theſe genera are now referred by Pearſon and Brown to a ſeparate order, under the name of *Cycadeæ*. See *Br. Prodr. Nov. Holl.* v. 1. 346.

Mutis paid great attention to the *Palmæ* of South America, but his remarks and deſcriptions have only in part reached us. Dr. Roxburgh's work, on the plants of Coromandel, has thrown much light on the Eaſt Indian Palms. Thunberg has, long ago, aſcertained ſo much of their fructification, as to refer moſt of the eſtabliſhed genera to their places in the Linnæan artificial ſyſtem, where they chiefly belong to the claſs *Hexandria*, like their near relations the *Liliaceæ*. The native country of the greater part of the *Palmæ* is within the tropics. The requiſite degree of heat, and the ſpace, which they occupy in a hot-houſe, as well as their tardy growth, and backwardneſs in flowering, render them difficult of cultivation, and prevent their being general in collections. The ſtoves of the late marchioneſs of Rockingham at Hillingdon were ſplendidly furniſhed with ſome of theſe Princes of the vegetable kingdom, as are thoſe at Kew, and the long eſtabliſhed ones of J. Blackburn, eſq. at Orford, Lancaſhire.

PALMAJOLA, in *Geography*, a ſmall iſland in the Mediterranean, near the coaſt of Italy. N. lat. 42° 53'. E. long. 9° 35'.

PALMAR, a river of Africa, in Benin, which runs into the Atlantic, N. lat. 6° 25'. E. long. 3°.

PALMAR *Point*, a cape on the weſt coaſt of Africa. S. lat. 5° 30'.

PALMAR, a town of South America, in the audience of Quito; 40 miles S.W. of Riabamba.

PALMARIA, a ſmall iſland in the Mediterranean, about 45 miles from the coaſt of Naples; 3 miles W. from the iſland of Ponza. N. lat. 40° 58'. E. long. 12° 53'.—Alſo, a ſmall iſland in the Mediterranean, near the coaſt of Genoa, at the entrance of the gulf of Spezza; 8 miles S. of Spezza. N. lat. 44° 4'. E. long. 9° 40'.

PALMARIGI, a town of Naples, in the province of Otranto; 3 miles W.S.W. of Otranto.

PALMARIS *Longus et Brevis*, in *Anatomy*, two muſcles of the fore-arm. See FASCIA.

PALMARIS *Faſcia*. See FASCIA.

PALMAROLA, in *Geography*, a ſmall iſland in the Mediterranean, near the coaſt of Naples, about three miles long from north to ſouth, and very narrow; 4 miles W. of Ponza. N. lat. 41° 3'. E. long. 12° 55'.

PALMAS, a ſmall iſland in the Pacific ocean, near the coaſt of Peru. N. lat. 4° 35'.—Alſo, a town of South America, in the province of Tucuman; 30 miles S. of St. Miguel de Tucuman.—Alſo, one of the Philippine iſlands, near the ſouth-eaſt coaſt of Mindanao.—Alſo, a river of Mexico, which runs into the bay of Campechy, N. lat. 18° 20'. W. long. 94° 20'.—Alſo, a town of North America, formed by the union of the rivers Nicas and Sauceda, in New Biſcay, and which, thus united, traverſes the province of New Leon, and then falls into the gulf of Mexico, N. lat. 25°. W. long. 98° 56'.

PALMAS, or *Palmez*, the chief town of Gomera, one of the Canary iſlands.

PALMAS, *Cape*, a cape of Africa, on the Grain coaſt. N. lat. 4° 30'. W. long. 7° 41'.

PALMATED-ROOTS, in *Botany*, are tuberoſe roots of a flattiſh ſhape, and divided into ſeveral oblong and ſlender branches, reſembling ſo many fingers. Of this ſort are the roots of ſome of the orchis kind, called hence palmated.

PALMATED-*Stones*, *Palmati Lapides*, in *Natural Hiſtory*, a name given by the ancients to a ſort of ſtones, which were always found of the ſhape of a hand with its fingers. They were frequent in Spain; and ſome, which were found of a fine black, were reputed to be a kind of marble. The greater number were white, and were compoſed of the matter of one of the ſofter and leſs beautiful quarry-ſtones.

PALMATIAN HORSES, in the *Manege*, Cappadocian horſes, which, together with the *Hermagenian*, were reckoned the nobleſt and firſt in merit. They were ſo prized, that they were devoted to the ſole uſe and pleaſure of the emperors, and they were not allowed to be ſold without expreſs licence or permiſſion. With the Palmatian and Hermagenian horſes it was uſual to couple Phrygian mares; and the produce of this mixture, eſpecially if derived from the horſes of Argæus, a mountain in Cappadocia, were thought the fineſt and beſt for the labours of the circus, to which they were always pre-eminently devoted, both at Conſtantinople and at Rome. The Palmatian horſes owe their name to a perſon called Palmatus or Palmatius, who was rich in a moſt valuable breed of horſes, whoſe poſſeſſions being ſeized and confiſcated, his horſes were appropriated to the emperor, and formed the moſt valuable part of the grex dominicus, or imperial ſtables. Palmatius is ſaid to have reſided at Andibilis, a town of Cappadocia, not far from mount Taurus; and living in a country productive of fine horſes, by his knowledge and care he raiſed ſo generous a breed, that they have at the ſame time perpetuated his fame and their own. The Hermagenian horſes were reckoned next, if not equal in repute, to the Palmatian race. Theſe were ſo denominated from Hermagenes Ponticus, who was a general of horſe under the emperor Conſtantius, and is ſuppoſed to have been the founder of this diſtinguiſhed kind of horſes, whoſe praiſes have deſcended to theſe times. Berenger's Hiſtory, &c. of Horſemanſhip, vol. i.

PALMATUM FOLIUM, in *Botany*, a Palmate Leaf, is, like thoſe of the Common Fig, and the *Alcea ficifolia*, with ſeveral of the Mallow tribe, deeply divided into oblong finger-like ſegments; but ſtill ſo as to leave an entire portion, like the palm of the hand, of greater or leſs extent, at the baſe. See LEAF.

PALMAW, in *Geography*, a town of Bengal; 24 miles S.S.W. of Rogonatpour. N. lat. 23° 13′. E. long. 86° 54′.

PALMEIRA, a ſmall iſland in the Perſian gulf, near cape Bardiſtan.

PALMELA, a town of Portugal, in Eſtramadura, with a caſtle on a rock; 6 miles N. of Setuval.

PALMER, in our *Ancient Writers*, is uſed for a pilgrim, and ſometimes for a croiſe, on account of a ſtaff made of the palm-tree, which they ever afterwards bore as a badge of their devotion. See PILGRIM and CROISES.

PALMER, in *Geography*, a townſhip of America, in Hampſhire county, Maſſachuſetts, on the ſouth ſide of Chickapee river, and bounded eaſtward by Weſtern or Worceſter county; incorporated in 1752, and containing 1039 inhabitants.

PALMERA, CAPE, a cape on the eaſt coaſt of the iſland of Formentera. N. lat. 38° 42′. E. long. 1° 30′.

PALMERIN, a town of Africa, in Beol, where is a mart for hides and teeth. N. lat. 13° 50′. W. long. 16° 21′.

PALMERO, CAPE, a cape on the eaſt coaſt of the iſland of Sardinia. N. lat. 39° 40′. E. long. 9° 56′.

PALMERSTON, CAPE, a cape on the north-eaſt coaſt of New Holland. S. lat. 21° 30′. W. long. 210° 54′.

PALMERSTON'S *Iſland*, an iſland in the South Pacific ocean, diſcovered by captain Cook in June 1774. In the "Miſſionary Voyage," it is deſcribed as a group of ſmall iſlets, eight or nine in number, connected together by a reef of coral rocks, and lying in a direction nearly circular. Captain Wilſon and ſome of his companions landed upon one of theſe iſles, which is not a mile in circuit, and which, at high water, is not more than four or five feet above the level of the ſea. The ſoil is coral ſand, with an upper ſtratum of blackiſh mould, produced from rotten vegetables. The inner area of the iſlet is covered with cocoa-nut trees, which, decaying and falling, form a thick underwood. They ſaw a number of men of war birds, tropic birds, and boobies. Among the trees there was plenty of red crabs, dragging after them a ſhell in form of a periwinkle, but larger, being in diameter about two or three inches. When they ran along the ground, they only put their claws out; but being touched, they withdrew themſelves wholly into their ſhell. Here they ſaw the ſubmarine grotto, deſcribed in Cook's Third Voyage. At one part of the reef which bounds the lakes within, almoſt even with the ſurface, there is a large bed of coral, which affords a moſt enchanting proſpect. Its baſe, which is fixed to the ſhore, extends ſo far that it cannot be ſeen, ſo that it appears to be ſuſpended in the water. The refulgence of the ſun, when the ſea is unruffled, expoſed to view the various ſorts of coral in the moſt beautiful order; ſome parts luxuriantly branching into the water, others appearing in a vaſt variety of figures, and the whole heightened by ſpangles of the richeſt colours, glowing from a number of large clams interſperſed in every part. This ſcene was much improved by the multitude of fiſhes that gently glided along, ſeemingly with the moſt perfect ſecurity: their colours were the moſt beautiful that can be imagined, blue, yellow, black, red, &c. far excelling any thing that can be produced by art. Our navigators obſerve, that no traces appear of this iſland's ever having been inhabited. S. lat. 18° 4′. W. long. 163° 10′.

PALMETTO, in *Botany*. See CHAMÆROPS.

PALMETTO-*Royal*, a name given by Ligon to a tree of the palm kind. Its trunk is very tall and ſtraight, and hollowed regularly in the centre; yet ſo tough, that it is never blown down, nor deſtroyed by ſtorms. It is recommended for making long teleſcopes for celeſtial obſervations.

PALMETTO, in *Geography*, a town of the iſland of St. Chriſtopher, ſituated on a bay to which it gives name; 3 miles W. of Baſſe-Terre.

PALMETTO *Point*, a cape on the north coaſt of Jamaica. N. lat. 18° 18′. W. long. 76° 20′.—Alſo, a cape on the ſouth coaſt of Jamaica. N. lat. 18° 7′. W. long. 77° 57′.

PALMIERI, MATTEO, in *Biography*, an Italian man of letters, born at Florence about 1405, was deſcended from an ancient and illuſtrious family, and educated in the ſciences and learned languages under the ableſt maſters. In 1437 he was preſent, in ſome public capacity, at the general council of Florence. He was ſeveral times entruſted by his fellow-citizens with offices of magiſtracy, and roſe to the ſupreme dignity of gonfalonier of juſtice. He was likewiſe appointed ſeveral times to important embaſſies to the popes, the emperor Frederic III., Alphonſo king of Naples, the republic of Sienna, and other ſtates. He died in 1475, at the age of 70. As a literary man, his moſt conſiderable work was a Chronicle from the creation down to his own times. He alſo wrote "The Life of Niccolo Acciajuoli," which has been publiſhed by Muratori; as likewiſe has his book, "De Captivitate Piſorum;" and a work in form of a dialogue, "Della Vita Civile," ſeveral times printed and tranſlated into French. The Chronicle, already mentioned, was continued to the year 1482, by a native of Piſa, very nearly his nameſake, *viz.* Mattea Palmieri, who was apoſtolic ſecretary, and died in 1483.

PALMINOPOS, in *Geography*, a town of Spain, in New Caſtile; 25 miles N.N.W. of Cuença.

PALMIPEDES, WEB-FOOTED, in *Ornithology*, the name of an order of birds living about waters, and furniſhed by nature with feet for ſwimming.

This order correſponds to the Anſeres of Linnæus, and comprehends two diviſions, *viz.* thoſe with long legs, and thoſe with ſhort legs. The characters of the former are, that the body is conical and ſomewhat flattened; the thighs are naked on their lower halves; the legs are very long; the feet are fitted for wading; and the toes are only connected together at their poſterior parts by a membrane, ſo that they are "ſemipalmati." Theſe birds moſtly pair in breeding time, and build their neſts on the ground. They feed in the water, on ſmall fiſhes and various inſects; and, eſpecially when young, are good food. The ſecond diviſion comprehends thoſe called "palmati," the characters of which are, that the bill is ſmooth, covered with a membranous ſkin, and increaſing in ſize towards the point. The feet are fitted for ſwimming, having ſhort legs, which are thin, or compreſſed laterally; and the toes are all connected, to their ends, by an interpoſed membrane. Theſe birds are moſtly polygamous, one male aſſociating with many females. They build their neſts chiefly on the ground, and the mother ſeldom takes any trouble in feeding the young, which are very ſoon able to provide for themſelves. They live very much in the water, feeding on aquatic plants, fiſhes, and other ſubſtances; and their fleſh has generally a rancid fiſhy flavour. To the former diviſion belong the avoſet, courier, and flamingo; and to the latter, the duck, merganſer duck, penguin, petrel, albatroſs, pelican, darter, tropicker, guillemot, diver, gull, tern, and ſkimmer.

PALMIPES, among the Romans, a long meaſure, containing a foot and a palm, or five palms; and was leſs than the cubit by one palm.

PALMIRAS, Point, in *Geography*, a cape of Hindooſtan, on the coaſt of Cattack, in the bay of Bengal, anciently called "Promontorium Calingon." N. lat. 20° 44′. E. long. 87° 5′.

PALMISTRY, a kind of divination, performed by inſpecting the lines and marks of the hands and fingers; called alſo *chiromancy;* which ſee.

PALMO, in *Commerce*, a long meaſure in Italy, Spain, and Portugal. At Genoa, the palmo correſponds to $109\frac{1}{2}$ French lines, or $9\frac{29}{40}$ Engliſh inches. The canna is of three ſorts; the canna piccola, uſed by tradeſmen and manufacturers, = 9 palmi, or $87\frac{1}{2}$ Engliſh inches; the canna groſſa, uſed by merchants, = 12 palmi, or $116\frac{1}{10}$ Engliſh inches; and the canna, uſed at the cuſtom-houſe, = 10 palmi, or $97\frac{1}{2}$ Engliſh inches.

In Portugal, the palmo is equal 8 pollegadas = 8.64 Engliſh inches; each pollegada or inch is divided into 12 linhas or lines, and each linha into 10 pontos or points. This is called the "palmo de cravd ra," or ſtandard ſpan, being the legal meaſure of the kingdom; and all other meaſures, derived from it, are likewiſe diſtinguiſhed by the ſame term. See VARA and PORTUGAL. For the palmo of Spain, ſee SPAIN. See alſo *Tables of* WEIGHTS and MEASURES.

PALMS, among *Botaniſts*, white buds ſhooting out of willows, or ſallows, before the leaf; of the expanſions of which the flowers of that tree are formed.

PALMS, *Iſle of*, in *Geography*, a narrow iſland on the coaſt of Africa, at the entrance of the river Senegal, about ſix miles in length.

PALM-SUNDAY, DOMINICA PALMARUM, the Sunday next before Eaſt Sunday; or the laſt Sunday in Lent.

It has been thus called from the primitive days, on account of a pious ceremony then in uſe, of bearing palms, in memory of the triumphant entry of Jeſus Chriſt into Jeruſalem, eight days before the feaſt of the paſſover, deſcribed by St. Matthew, chap. xxi. St. Mark, chap. xi. and St. Luke, chap. xix.

The ancients had other names for this day. For, 1. They called it *Dominica Competentium*, i. e. *Sunday of the Competentes;* becauſe, on that day, the catechumens came to aſk the biſhop leave to be admitted to baptiſm, which was conferred the Sunday following.

They had alſo then given them the ſymbol, or credo, to get off by heart, to be repeated to the biſhop in the ceremony of baptiſm.

2. They called it *Capitiluvium*, the Sunday of waſhing the head; becauſe thoſe who were to be baptized the following Sunday, were prepared by waſhing their heads on this day.

Some time afterwards they called it *Indulgence Sunday*, becauſe the emperors and patriarchs uſed to diſtribute gifts on that day.

PALMULARII, more properly called PARMULARII, in *Antiquity*, a ſort of gladiators, who fought armed with a ſort of little buckler, called *parma;* which ſee.

PALMYRA, RUINS OF, or *Palmyrene Ruins*, in *Ancient* and *Modern Geography*, are the ruins of a famous city of this name, ſituate in a deſert of Syria, in the pachalic of Damaſcus, about 48 leagues from Aleppo, and as far from Damaſcus, 85 miles weſt from the Euphrates, and about 117 miles from the Mediterranean, and in N. lat. 34° 29′. E. long. 38° 48′. This city appears to have been originally built by Solomon, and called Tadmor. (1 Kings, ix. 18. 2 Chron. viii. 4.) Joſephus aſſures us, that this was the ſame city which the Greeks and Romans afterwards called Palmyra; and it is ſtill called Tadmor by the Arabs of the country. But many circumſtances, beſides the ſtyle of the buildings, render it probable that the preſent ruins are not thoſe of the city built by Solomon, though neither hiſtory nor tradition mention the building of any other.

The ſcite of Palmyra is one of thoſe few cultivated ſpots, which riſe in the deſerts of Arabia and of Egypt, like iſlands out of the ſandy ocean. (See OASIS.) The name of Tadmor, or Palmyra, by its ſignification in the Syrian, as well as in the Latin language, denoted the multitude of palm-trees which afforded ſhade and verdure to that temperate region. It is needleſs, therefore, to recur to the etymologies, ſuggeſted by Heſychius and Dr. Halley (ubi infra). The air on this ſpot was pure, and the ſoil, watered by ſome invaluable ſprings, was capable of producing fruits, as well as corn. A place poſſeſſed of ſuch ſingular advantages, and ſituated at a convenient diſtance between the gulf of Perſia and the Mediterranean, was ſoon frequented by the caravans, which conveyed to the nations of Europe a conſiderable part of the rich commodities of India. Palmyra inſenſibly increaſed into an opulent and independent city, and, connecting the Roman and the Parthian monarchies by the mutual benefits of commerce, was ſuffered to obſerve an humble neutrality, till at length, after the victories of Trajan, the little republic ſunk into the boſom of Rome, and flouriſhed more than 150 years in the ſubordinate though honourable rank of a colony. It was during that peaceful period, if we may judge from a few remaining inſcriptions, that the wealthy Palmyrenians conſtructed thoſe temples, palaces, and porticoes of Grecian architecture, whoſe ruins, ſcattered over an extent of ſeveral miles, have attracted the curioſity of our travellers.

Hiſtory is ſilent as to the fate and circumſtances of this city during the great revolutions in the ſeveral empires of the Eaſt; but it may well be ſuppoſed, that ſo advanced a garriſon as this was, being above 300 miles from Jeruſalem, continued not long in the poſſeſſion of the Jews, who immediately after Solomon fell into civil diſſention, and divided their force; ſo that, without doubt, it ſubmitted to the Babylonian and Perſian monarchies, and afterwards to the Macedonians, under Alexander and the Seleucidæ. But when the Romans advanced to theſe parts, and the Parthians ſeemed to put a ſtop to their farther conqueſts in the Eaſt, then was this city of Palmyra, by reaſon of its ſituation, being a frontier, and in the midſt of a vaſt ſandy deſert, where armies could not well ſubſiſt to reduce it by force, courted and careſſed by the contending princes, and permitted to continue a free ſtate, a mart or ſtaple for trade, for the convenience of both empires, as we learn from the information both of Appian and Pliny. Palmyra is firſt mentioned by the Roman hiſtorians as a place which Mark Antony, after his victory at Philippi, about 40 years B. C. attempted to plunder, pretending that it had not obſerved a juſt neutrality between the Romans and Parthians. When the Romans, under Trajan, had made it appear by his victories, as we have already ſaid, that there was no compariſon between their power and that of the Parthians (Trajan having taken Babylon and Cteſiphon, the ſeat, at that time, of the Parthian empire), the Palmyrenes were induced to declare for the Romans; which they did, by ſubmitting themſelves to the emperor Adrian, about the year of Chriſt 130, when Adrian made his progreſs through Syria into Egypt. This magnificent emperor, being highly delighted with the ſituation and native ſtrength of the place, ſituated on an extenſive plain, and ſurrounded on three ſides by a long chain of mountains, determined to furniſh it with various ſplendid edifices and ornaments; and at this time he probably conferred upon it the privileges of a "Colony Juris Italici," which, as we learn from Ulpian, it actually enjoyed, and the inhabitants of the city were induced by gratitude to call themſelves "Hadrianopolitæ." Many of its marble pillars, particularly thoſe of the long porticos, were probably the gift of this emperor. In the time of Caracalla it was a Roman colony; and from Adrian to Aurelian, for about 140 years, it continued to flouriſh and increaſe in wealth and power to a very conſiderable degree; and the Palmyrenes, who aſſiſted Alexander Severus againſt the Parthians, were again conſpicuous in the reign of Gallienus, under Odenathus, who, when the emperor Valerian was taken priſoner by Sapor, king of Perſia, brought a powerful army into the field, recovered Meſopotamia from the Perſians, and penetrated as far as their capital city Cteſiphon, and who, for this ſervice to the Roman ſtate, was made the aſſociate of Gallienus in the empire. He was ſucceeded by Zenobia his queen, who broke the alliance with Gallienus, and made herſelf ſole miſtreſs of Syria and Meſopotamia. (See the biographical article ZENOBIA.) At length Aurelian, having taken Palmyra, A. D. 273, after a long ſiege, by means of his light horſe purſued Zenobia, who had mounted the fleeteſt of her dromedaries, and had reached the banks of the Euphrates, about ſixty miles from Palmyra, and having ſeized the princeſs, carried her to Rome, to grace his triumphs, and with her, her ſecretary Longinus, known for his admirable work on the Sublime, who was put to death. Her capital was treated with unexpected lenity. The arms, horſes, and camels, with an immenſe treaſure of gold, ſilver, ſilk, and precious ſtones, were all delivered to the conqueror. The city revolting in her abſence, Aurelian returned and deſtroyed it, putting to death moſt of the inhabitants, without regard either to age or ſex. Little is known concerning the ſtate of Palmyra ſince the time of Mahomet, except that it was conſidered as a place of ſtrength, and that in the 12th century there were two thouſand Jews in it. Aurelian himſelf had lamented the deſtruction to which he had devoted it: and he not only manifeſted a concern for the re-eſtabliſhment of the temple of the Sun, but he granted to the few Palmyrenians, who had ſurvived the ſlaughter which he had ordered, the permiſſion of rebuilding and inhabiting their city. But it is eaſier to deſtroy than to reſtore. The ſeat of commerce, of arts, and of Zenobia, gradually ſunk into an obſcure town, a trifling fortreſs, and at length a miſerable village. The preſent citizens of Palmyra, conſiſting of thirty or forty families, have erected their mud-cottages within the ſpacious court of a magnificent temple.

With reſpect to the ruins, they appear to be of two different and diſtinct periods; the oldeſt are ſo far decayed as not to admit of menſuration, and ſeem to have been reduced to that ſtate by the hand of time; the other appear to have been broken into fragments by violence. Of the inſcriptions, none are earlier than the birth of Chriſt, and none are later than the deſtruction of the city by Aurelian, except one, which mentions Diocleſian. It is ſcarcely leſs difficult to account for the ſituation of this city than for its magnificence; the moſt probable conjecture is, that as ſoon as the ſprings of Palmyra were diſcovered by thoſe who firſt traverſed the deſert in which it is ſituated, a ſettlement was made there for the purpoſe of carrying on the trade of India, and preſerving an intercourſe between the Mediterranean and Red ſea. This trade, which flouriſhed long before the Chriſtian era, accounts not only for its ſituation, but alſo for its wealth. As it lay between Egypt, Perſia, and Greece, it was natural to expect, that traces of the manners and ſciences of thoſe nations ſhould be diſcovered among the Palmyrenes; who accordingly appear to have imitated the Egyptians in their funeral rites, the Perſians in their luxury, and the Greeks in their buildings; and therefore the buildings, which now lie in ruins, were probably neither the works of Solomon, nor of the Seleucidæ, nor, few excepted, of the Roman emperors, but of the Palmyrenes themſelves.

Palmyra was formerly encompaſſed by palms and fig-trees, and covered an extent of ground, according to the Arabs, near ten miles in circumference; and might probably have been reduced to its preſent confined and ruined ſtate by quantities of ſand, driven over it by whirlwinds. The walls of the city are flanked ſquare towers; and it is probably by their general direction, that they included the great temple, and are three miles in circumference. But of all the monuments of art and magnificence in this city, the moſt conſiderable is the temple of the Sun. The whole ſpace containing its ruins, is a ſquare of two hundred and twenty yards, encompaſſed with a ſtately wall, and adorned with pilaſters within and without, to the number of ſixty-two on a ſide. Within the court are the remains of two rows of very noble marble pillars, thirty-ſeven feet high; the temple was encompaſſed with another row of pillars fifty feet high; but the temple itſelf was only thirty-three yards in length, and thirteen or fourteen in breadth. This is now converted into a moſque, and ornamented after the Turkiſh manner. North of this place is an obeliſk, conſiſting of ſeven large ſtones, beſides its capital, and the wreathed work about it, about fifty feet high, and juſt above the pedeſtal, twelve in circumference. Upon this there was probably a ſtatue which the Turks have deſtroyed. At a ſmall diſtance there are two others, and a fragment of a third, which gives reaſon for concluding that they were once a continued row. There is alſo a piazza forty feet broad, and more than half a mile in length, incloſed with two rows of marble pillars, twenty-ſix feet high, and eight or nine feet in compaſs; and the number of theſe, it is computed, could not have been leſs than five hundred and ſixty. Near this piazza appear the ruins of a ſtately building, ſuppoſed to have been a banqueting houſe, elegantly finiſhed with the beſt ſort of marble. In the weſt ſide of the piazza there are ſeveral apertures for gates into the court of the palace, each adorned with four porphyry pillars, thirty feet long, and nine in circumference. There are ſeveral other marble pillars differently arranged, on the pedeſtals of which there appear to have been inſcriptions, both in the Greek and Palmyrene languages, which are now altogether illegible. Among theſe ruins there are alſo many ſepulchres, which are ſquare towers, four or five ſtories high, and varying in ſize and ſplendour. We are indebted for an account of theſe very magnificent remains of antiquity, partly to ſome Engliſh merchants who viſited them in 1678 and 1691, (Phil. Tranſ. N° 217, 218, or Lowthorp's Abr. vol. iii.), but chiefly to M. Bouverie and Mr. Dawkins, accompanied by Mr. R. Wood, who travelled thither in 1751. The reſult of their obſervations was publiſhed in 1753, in the form of an Atlas, containing fifty-ſeven copper plates, admirably executed. Since this publication, it is univerſally acknowledged that antiquity has left nothing, either in Greece or Italy, to be compared with the magnificence of the ruins of Palmyra.

Palmyra, in *Geography*, a poſt-town of America, and the only port of entry and delivery in the ſtate of Tenneſſee; ſo conſtituted by a law of the United States in 1797; ſituated on the ſouth bank of Cumberland river.

PALNAUD, a country of Hindooſtan, which is a diſtrict belonging to the Carnatic, but ſituated towards the Kiſtnah river, on the W. of Guntoor. The principal place in it is Timerycotta.

PALO, a town on the E. coaſt of the iſland of Leyta. N. lat. 11° 15'. E. long. 124° 55'.—Alſo, a cape on the coaſt of Albania; 6 miles N.W. of Durazzo.—Alſo, a town of Naples, in the province of Bari; 3 miles W. of Bittetto.—Alſo, a town in Patrimonio, on the ſea-coaſt, defended by a ſtrong caſtle; 13 miles W.N.W. of Rome.

Palo, *Cape*, a cape on the coaſt of Albania, in the Adriatic. N. lat. 41° 44'. E. long. 19° 10'.

PALOCZA, a town of Hungary; 11 miles E. of Szeben.

PALOMAR, a town of Spain, in Aragon; 22 miles N. of Teruel.

PALOMBARA, a town of Naples, in Lavora; 5 miles N.E. of Capua.

PALOMERA, or Palumaria, a ſea-port town on the N.E. coaſt of the iſland of Majorca. The port is covered by a rocky iſland, called by the ancients "Columbria." Some coral has been found on this coaſt, and in the rocks.

PALOMINOS, ſmall iſlands on the coaſt of Peru, three miles W. of St. Lawrence iſland.

PALONGOLA, a town of Congo, on the Lelanda; 2 miles S. of St. Salvador.

PALONGONG, a town of Matamba; 70 miles S.E. of St. Maria de Matamba.

PALOS, a gulf in the ſtraits of Macaſſar, near the W. coaſt of Celebes. S. lat. 0° 24'. E. long. 119° 15'.—Alſo, a town on the W. coaſt of Celebes, in a bay to which it gives name. S. lat. 0° 56'. E. long. 119° 39'.—Alſo, a ſea-port town of Spain, in the province of Seville, at the mouth of the Tinto, in which is a tolerable harbour formed by the tide. In the year 1492 Columbus ſailed from this port, on his firſt voyage for the diſcovery of the new world; 2 miles S. of Moguer. N. lat. 37° 10'. W. long. 6° 58'.

Palos, *Cape*, a cape of Spain, on the coaſt of Murcia. N. lat. 37° 37'. W. long. 0° 48'.

PALOTTA, a town of Hungary, with a caſtle, and fortified with a high wall and a moat; 8 miles W.S.W. of Stuhl-Weiſenburg.

PALOTZA, a town of Hungary, on the river Poprat; 54 miles N. of Caſchau.

PALOU, a town of Aſiatic Turkey, in the government of Diarbekir; 60 miles N. of Diarbekir. N. lat. 38° 52'. E. long. 39° 40'.

PALOUE, and Palovea, in *Botany*. See Ginannia.

PALPABLE, ſomething that may be perceived by the ſenſes, eſpecially by the ſenſe of feeling. Hence impalpable powder.

PALPEBRÆ, in *Anatomy*, the eyelids. See Eye.

Palpebræ *Superioris Levator*, a muſcle belonging to the upper eyelid. See Eye.

PALPEBRALIS Conjunctiva, that portion of the membrane which lines the eyelids. See Eye.

PALPEBRARUM Orbicularis, a circular muſcle, ſurrounding the opening of the eyelids. See Eye.

PALPETER, in *Geography*, a town of Candahar, in the Cabuliſtan; 50 miles E. of Ghizni.

PALPITATION, in *Medicine*, a vehement and inordinate action of the heart. This affection is very various in reſpect to the degree of its violence, and of the diſtreſs which accompanies it, as well as in regard to the actual morbid changes of which it is ſymptomatic, and therefore to the degree of impunity or danger with which it may occur. For it appears under all the gradations of ſeverity, from the ſlight beating occaſioned by active exerciſe, or a ſudden emotion of the mind, to the moſt tremendous convulſions of the heart and arteries, which are not only perceptible to the touch of others, but are obvious to the ſight, and even ſometimes to the hearing of by-ſtanders. It is, indeed, only to the more ſevere inſtances of the diſeaſe to which the term is applied in a medical view, and ſuch only which it is the object of this article to deſcribe.

This morbid pulſation of the heart is ſeldom conſtant in its vehement degree, for that would be inconſiſtent with the continuance of the functions of life; it ſometimes continues in a minor degree, *i. e.* the ordinary action of the heart is carried on with more force than is natural, and with a conſtant ſenſe of oppreſſion about the region of the præcordia. But, in general, the palpitation occurs in paroxyſms, at uncertain intervals, and, after continuing with extreme violence for a ſhort ſpace of time, then ceaſes, the heart reſuming its ordinary moderate and meaſured action.

The *fit of palpitation* is extremely diſtreſſing. It is uſually ſudden in its attack, beginning inſtantaneouſly in all its violence, from the operation of very ſlight cauſes, or frequently without any obvious excitement. The ſlighteſt jar of the body occaſioned by a falſe ſtep, or ſlip of the foot, in walking,—any emotion of the mind,—certain impreſſions upon the ſtomach, ariſing from flatulence, acidity, or particular food or drink,—or even the mere diſtention of the ſtomach by a meal, will give riſe to the paroxyſm in thoſe who are ſubject to the diſeaſe. Sometimes it comes on in the night; and certain poſitions of the body, ſuch as lying on the left ſide, and compreſſing the heart, will occaſionally produce it; and, in other caſes, it recurs at regular periods, like the paroxyſm of an intermittent.

The diſtreſs which accompanies the paroxyſm, is not occaſioned by the mere violence of the contractions of the heart, and by its blows againſt the ribs; but ariſes alſo from the complicated ſenſations of oppreſſion and diſturbance, which are produced in the different organs of the body, eſpecially in the brain and lungs, by the torrents of blood, rapidly and vehemently injected into them from the labouring heart. The ſpaſmodic motions of this viſcus are commonly viſible at a conſiderable diſtance from the ſufferer, by the motion of his garments, by which his pulſe may be counted; and if he is ſtripped, the ſucceſſive projection and collapſe, not only of the ribs, but even of the pit of the ſtomach and abdomen, are very viſible. At the ſame time, the violent pulſations of the carotid arteries, and even of the jugular veins in the neck, which ſucceſſively elevate the coverings of that part, evince the impetus with which the blood is projected through them. The extreme ſufferings of the patient under theſe circumſtances are depicted in his countenance, which is at once expreſſive of anguiſh, oppreſſion, helpleſs imbecility, and terror. In the cheſt, the ſenſe of ſuffocation, of load, and anxiety, often with acute pain in the præcordia, increaſes the oppreſſion which the vehement pulſation occaſions: while in the head, the pain is commonly moſt ſevere, and every ſtroke of the arteries is felt, and even heard, like the blows of a hammer; and in a ſhort time, confuſion of the ſenſes, ringing of the ears, and giddineſs, enſue; while the whole frame ſuffers with this diſturbance of the ſenſorium, and tinglings, tremors, and ſpaſmodic twitches of the limbs, alarm the patient with the expectation of immediate paralyſis. At length, ſometimes gradually, but ſometimes inſtantaneouſly, and not unfrequently with one moſt violent ſtroke, the heart reſumes its calm and ordinary pulſations, and all theſe diſtreſſing ſenſations are immediately relieved. As in all caſes of violent excitement, however, the patient is left in a ſtate of conſiderable languor and laſſitude, which ſometimes goes to the extent of ſyncope, and the reſpiration is for a little while laborious, and accompanied with ſighing. If, indeed, there is conſiderable organic derangement, this oppreſſed ſtate of reſpiration continues more or leſs, together with anxiety in the præcordia.

During the continuance of the paroxyſm, the vehemence of the palpitation often varies, being at times diminiſhed, and again increaſing; the pulſe is very various in different inſtances, ſometimes being extremely full and ſtrong, according with the action of the heart, and ſometimes remarkably ſmall and feeble; ſometimes intermitting and unequal, ſometimes perfectly regular, and ſometimes not correſponding in its beats with the pulſation in the cheſt. Before the termination of the paroxyſm, the extremities often become cold, and the ſurface of the body, eſpecially of the face and extremities, becomes livid, from the imperfect tranſmiſſion of blood through the extreme veſſels; ſometimes there are alternate chills and heats.

The duration of the paroxyſm, as well as of the interval of remiſſion, is various and uncertain, even in the ſame individual. We have ſeen the paroxyſm continue, in different inſtances, from a few ſeconds to a quarter of an hour; and, as to the interval, which depends much upon the accidental abſence or occurrence of exciting cauſes, it may vary from a few minutes to many weeks or even months.

The occurrence of palpitation, whether it be conſtant or in paroxyſms, as above deſcribed, is always the conſequence of ſome morbid condition of the heart itſelf or its great veſſels, or of the neighbouring organs, or of the general habit; and as the degree of danger, as well as the proper methods of treatment, can only be determined from a clear view of the actual ſtate of diſeaſe, in each particular caſe, it is neceſſary to inquire into the nature of theſe morbid conditions, and into the ſymptoms by which they may be diſtinguiſhed from each other.

1. The moſt alarming and dangerous caſes of palpitation, are thoſe which are connected with organic derangement of the heart, or of the great veſſels ariſing from it. Theſe derangements occaſion palpitation in three ways; *viz.* by increaſing the irritability of the heart, by exciting irritation in that organ, or by obſtructing the exit of the blood from its ventricles.

The irritability of the heart is increaſed by *inflammation*, occurring in its ſubſtance, or in its inveſting membrane; the ſymptoms, indeed, which belong to inflammation of the heart or of the pericardium, are not eaſily diſtinguiſhed; but as we have already deſcribed them at length, we need not repeat them here. (See CARDITIS.) It will be ſufficient to obſerve, that the degree of fever which accompanies the palpitation, together with a fixed pain in the region of the heart, will afford the principal means of diagnoſis of this variety of the diſeaſe.

Suppoſing the irritability of the heart to remain unaltered, an inordinate irritation may be excited by whatever impels the blood into it with unuſual force; hence in ſome individuals palpitation has been produced by violent muſcular exertion. It ſeems to be merely by the irritation, which is excited during the alternate contraction and dilatation of the heart, that partial oſſifications in the membranes, or in the ſubſtance of the organ, ſometimes give riſe to palpitations; for ſuch oſſifications have been, in other caſes, found upon diſſection after death, when palpitation had not occurred.

But the moſt frequent inſtances of palpitation, ariſing from diſeaſe of the heart, are thoſe which originate from obſtruction to the free exit of the blood from the ventricles. The older writers have deſcribed the preſence of *polypi* in the heart, as a common obſtruction of this ſort; but the moderns at preſent are inclined to reject ſuch a notion altogether. It appears to be aſcertained, indeed, that theſe polypi (which are large maſſes of coagulable lymph, nearly filling up the cavities of the heart, and extending into the neighbouring large veſſels) have been invariably formed *after death*, by the ſlow coagulation of the blood. (See Baillie's Morbid Anat. chap. ii.) The valves of the heart are ſometimes thickened and opaque, or nearly cartilaginous in their texture, and ſometimes partially or entirely converted into bone; ſo that they are no longer adequate to act as valves, *i. e.* to cloſe the paſſages. The impediment to the circulation becomes, in ſuch a caſe, extremely great; for, after the ventricle of the heart has propelled the blood into the artery by its contraction, and again relaxes itſelf to receive the returning blood from the auricle, it is again partially filled by the reflux of the former, on the contraction of the great artery, through the aperture left by the uncloſing valves. Whence a great ſtruggle is occaſioned in the heart, to rid itſelf of the load of accumulating blood. The abſence of acute pain, and of fever, a ſenſe of oppreſſion about the heart, and a difficulty of breathing, from the accumulation of blood in the cheſt, will diſtinguiſh the palpitations, ariſing from diſeaſes of the valves, from thoſe which accompany carditis. The ſymptoms, however, are not always ſufficiently clear to be accurately diſtinguiſhed in practice.

Every cauſe of impediment to the complete contraction and evacuation of the heart, is liable to produce palpitation. Hence tumours, preſſing upon, and diminiſhing the calibre of the great arteries, diſeaſe in the coats of the arteries themſelves, adheſion of the pericardium round the heart, dropſy of the pericardium, aneuriſm of the heart itſelf (though this is a very rare diſeaſe), or a general enlargement of one or both ventricles. This enlargement of the ſubſtance of the heart, indeed, is one of the moſt common organic cauſes of palpitation. (See the diſeaſe diſcuſſed at length, under the article CARDIOGMUS.) The principal means of diagnoſis in regard to this variety of palpitation, are to be found in the broad and extended beat under the hand applied to the ſide of the cheſt, in the pulſation being felt lower, as between the ninth and tenth ribs, and in a ſort of jarring ſenſation given to the hand by each ſyſtole. See Ferriar's Med. Hiſt. and Reflect. vol. i. p. 148.

2. Palpitations of a ſevere nature are ſometimes occaſioned by the condition of organs in the vicinity of the heart, in

ſome caſes irritating it, in others obſtructing its action. When the circulation of the blood in the lungs is impeded, it neceſſarily follows, that the right ventricle of the heart will be oppreſſed and overcharged; whence palpitations ſometimes occur in aſthma, in peripneumony, in hydrothorax, and other obſtructions in the cheſt. Diſorder, or even mere diſtention of the ſtomach, will occaſionally give riſe to palpitations, eſpecially where there is much irritability of the heart, or any actual diſeaſe of that organ or its valves. Thus after a full meal, or from the diſtention of the ſtomach by flatulence, this viſcus preſſes the diaphragm upwards, diminiſhing the cavity of the cheſt, and therefore obſtructing the circulation, as well as compreſſing the heart; it likewiſe ſomewhat compreſſes the deſcending aorta in the abdomen, and thus alſo tends to impede the emptying of the left ventricle of the heart. Such an obſtruction, though unperceived in health, is ſufficient to produce palpitation, in thoſe in whom the heart is prediſpoſed to it, as above ſtated. Senac, who has collected ſeveral caſes illuſtrative of this fact, remarks alſo, that diſtention of the inteſtines by flatulence, or the accumulation of feces, enlargement of the liver, the preſence of worms, and ſome other abdominal irritations, occaſionally give riſe to palpitation in a ſimilar manner.

3. The moſt frequent ſource of palpitations, next to the actual organic diſeaſes of the heart, is that general condition of the conſtitution, which gives riſe to the various affections, that are called *nervous*. Whence women, who are ſubject to hyſteria, and men labouring under hypochondriaſis, are often diſtreſſed by moſt ſevere paroxyſms of palpitation of the heart, inſomuch that the utmoſt alarm is excited, leſt there ſhould be organic diſeaſe of that important organ. Indeed, under almoſt all circumſtances of general debility, palpitation is liable to occur, as well as other ſpaſmodic affections; as in the ſtate of chloroſis in young women, during the convaleſcence from acute diſeaſes, after great hemorrhages, or after long watching, ſevere ſtudy, long continued fatigue, and other cauſes of exhauſtion to the animal frame. It is one of the common torments of extremely ſedentary and ſtudious men, and eſpecially of ſtudents of medicine, who reduce themſelves to a hypochondriacal ſtate, and are then ready to find a whole ſyſtem of noſology in their own perſons.

It is often extremely difficult to pronounce with deciſion, that palpitations ariſe from organic diſeaſes of the heart and great veſſels, or that they are merely ſympathetic of ſome local irritation, or dependent on a general debilitated nervous condition. In order to form a ſatisfactory *diagnoſis*, it is neceſſary to examine carefully, not only the ſeat, nature, and violence of the palpitation, but alſo the various concomitant ſymptoms, and to inquire into the previous ſtate of health and diſeaſes of the patient, and to attend to the influence of medicine on the complaint.

In the inſtances of palpitation, originating from organic derangement, the paroxyſms are commonly more violent, and of longer duration,—they occur more frequently, and often without any obvious or adequate cauſe,—and they are often accompanied with acute pain acroſs the cheſt, from the ſternum to the ſpine. In the intervals, too, between the paroxyſms, the patient is not ſo entirely free from all beating in the breaſt, or from ſome other diſtreſsful ſenſations, ſuch as pain, a ſenſe of ſtuffing, weight, and oppreſſion, difficulty of breathing, &c. as in the mere ſympathetic caſes of palpitation. The labouring action of the heart, even in the intervals, is often perceptible to the hand applied over the ribs; and the apex of the organ, inſtead of being felt between the fifth and ſixth ribs, juſt under the mamma of the left ſide, is perceived conſiderably lower, as between the ninth and tenth ribs. The pertinacity and long duration of this ſtate of diſeaſe, with repeated paroxyſms, will often afford a ſtrong argument, in conjunction with the other circumſtances, for deeming the cauſe organic. And the previous occurrence of ſome ſevere acute diſeaſe, eſpecially the rheumatic fever, or acute rheumatiſm, which is known to leave a frequent diſpoſition to diſeaſe of the heart, particularly to enlargement of it, will alſo tend to modify the judgment in theſe caſes.

It is ſtill more difficult, of courſe, to diſtinguiſh by any ſymptoms the particular kinds of organic leſion of the heart, than to diſcriminate theſe from the other forms of palpitation; and, with a view to practical purpoſes, it is obviouſly of little importance; for one organic change is equally inacceſſible to the influence of medicine as another. Nevertheleſs this has been attempted; and an attention to the minute differences of the ſymptoms, will doubtleſs, in many caſes, enable the experienced practitioner to form ſhrewd approximations to the truth. For inſtance, the palpitation will probably be more palpable and obvious to the byſtander, when the ventricles, and eſpecially the left ventricle, are enlarged, than when the auricles are dilated or aneuryſmatic, in which caſe, the beating is more obſcure and diſtant under the hand preſſing the ribs; and the motions of the pulſe and of the heart will be more diſtinctly ſynchronous. When the valves are oſſified, a hiſſing or chirruping ſound is in ſome caſes diſtinctly heard, during the violent ſpaſmodic pulſations of the heart. When the heart is much enlarged, the pulſation is leſs circumſcribed and pointed under the hand, applied to the breaſt, than is natural: in fact, it is broad and diffuſed; and Dr. Ferriar has remarked, that a certain jarring ſenſation, which he conceives to be peculiar to this diſeaſe of the heart, is felt by the hand under theſe circumſtances. (See CARDIOGMUS.) If there is a conſiderable adheſion of the heart and pericardium with the contiguous parts, Senac is of opinion, that there is rather a tremor than an actual palpitation of the organ. It is not to be overlooked, however, that none of theſe ſymptoms are ſufficient to eſtabliſh a certain diagnoſis; for it is admitted by the ableſt practitioners, that palpitations of the moſt ſevere degree, and of different modifications, which had been pronounced the ſymptoms of organic diſeaſe, have, nevertheleſs, yielded to remedies. See Senac, Traité de la Structure du Cœur, liv. iv. chap. xi. § 11; and Ferriar, loc. cit. vol. ii.

Although, however, conſiderable caution is required in deciding that palpitation is the reſult of organic diſeaſe; yet, on the contrary, it may, with more confidence, be pronounced to be independent of ſuch diſeaſe, if the paroxyſms are ſlight, and ſpeedily terminate, while the intervals are more completely free from any affection of the cheſt, and of longer duration. And this concluſion will be farther confirmed, if at the ſame time other ſymptoms are preſent, which indicate a morbid irritability of the habit; ſuch as thoſe of chloroſis, hypochondriaſis, hyſteria, &c.; or if it be known that the patient has been recently expoſed to the operation of the debilitating cauſes above enumerated. See Headlam. Diſſ. Mang. de Palpitatione, Edin, 1800, p. 23.

According to the deciſion which is made, as to the ſource of the diſorder, the *prognoſis* will be favourable or otherwiſe. If it be pretty obvious that it is of the latter claſs, and unconnected with any organic leſion of the heart, it may be expected to be relieved or removed by medicine, according to the age, conſtitution, and manner of living of the patient, and to the mildneſs of the diſorder of which it is a ſymptom. But if it appear to be clearly the reſult of organic diſeaſe, a cure cannot be expected, and palliation muſt be the ſole object of the practitioner, and the ſole hope of the patient. In this caſe, the diſeaſe will continue, gradually augmenting, for an indefinite period; and as the obſtruction to the circulation is increaſed, other diſtreſſing ſymptoms are apt to ſupervene, ſuch as aſthma, ſpitting of blood, conſtant oppreſſion of the reſpiration, dropſy of the pericardium and of the thorax, and ultimately anaſarca; and during the occurrence of any of theſe affections, or ſometimes before any of them have ſupervened, the patient is not unfrequently cut off by a ſudden death, when it was not expected.

In conſidering the proper *methods of treating* palpitation, two indications are to be kept in view, the one regards the meaſures to be adopted during the paroxyſm; the other, thoſe which are to be purſued during the intervals of remiſſion.

1. *The paroxyſm* is to be viewed in the ſame light as other convulſive actions, from whatever ſource it may originate; and, like others, it may be relieved by *blood-letting*, and by what are called *antiſpaſmodics*, the choice of which is a matter of ſome importance. Whether the palpitation be connected with organic leſion or not, if the patient be robuſt or plethoric,—if he ſuffer ſevere pain and a great ſenſe of ſuffocation,—if the reſpiration be exceedingly laborious and difficult,—if the pulſe beat with a full and hard ſtroke,—and if there are no obvious marks of great debility or of a dropſical tendency,—a free blood-letting from the arm will be ſafe, and afford ſpeedy relief; nay, it may probably ward off an apoplectic attack, or prevent a rupture of the heart or ſome great veſſel, and thus preſerve life. If the palpitation be not of long ſtanding or habitual, and if it be accompanied with the ſymptoms that belong to carditis, or inflammation of the heart, then copious blood-letting is the principal remedy upon which any dependance can be placed; and it muſt be repeated, either in the paroxyſm, or during the intermiſſion, as thoſe ſymptoms may require. In the majority of caſes, however, the paroxyſm will not be of this kind, and the detraction of blood will not only be unneceſſary, becauſe uſeleſs during the paroxyſms, but it will be prejudicial to the ſubſequent ſtate of the patient.

For whether the diſeaſe be organic, and of conſiderable ſtanding, or ſympathetic of the hypochondriacal, hyſterical, or nervous temperament, conſiderable debility is uſually preſent, and the tendency of the diſorder is to increaſe that debility. Whenever, therefore, the patient is obviouſly not plethoric or robuſt,—when there is much diſpoſition to ſyncope, or fainting,—when the pulſe is ſmall and weak,—and when the palpitation appears to be the reſult of ſtrong mental emotions, or to have followed the debilitating circumſtances, before enumerated,—then it will be proper to reſort to antiſpaſmodics, for the purpoſe of alleviating and ſhortening the paroxyſm. Of theſe it will be neceſſary, in many caſes, to take any that may be at hand; as camphor, ammonia, aſa fœtida, opium, æther, valerian, caſtor, &c.; but where the choice can be made, a mixture of æther and the tincture of opium is preferable, as productive of the moſt ſpeedy and powerful ſedative effects.

The patient ſhould not be conſtrained to aſſume any particular poſture, but ſhould be retained as quietly as poſſible in that which he inſtinctively chooſes, and which experience ſatisfies him is the eaſieſt. This is commonly a ſitting poſture, in which he reclines a little forwards; and ſometimes gentle but ſteady preſſure on the ribs of the left ſide, affords conſiderable relief.

2. *The treatment* required *in the interval* will be different, in thoſe caſes in which the palpitation reſults from organic diſeaſe, and in thoſe in which it is merely a nervous ſymptom.

In the organic caſes, as we have before obſerved, palliation is all that medicine and regimen can accompliſh; and it is certain that much alleviation of the ſufferings of the patient, and probably that a conſiderable prolongation of life, is often thus effected. For this purpoſe two indications are to be kept in view: namely, the one, to avoid every thing that may hurry the circulation of the blood; and the other, to avoid every ſource of plethora, or turgeſcence of the veſſels.

Both the frequency of the returns of the paroxyſms, and the violence of them, may be materially diminiſhed by avoiding all hurry of the circulation. This is effected by a series of minute attentions, in reſpect to which, although the phyſician may point them out, the patient "muſt miniſter to himſelf." Conſtant quietneſs both of body and mind muſt be ſtudied; the patient ſhould move carefully and ſlowly, whenever motion is neceſſary, and eſpecially ſhould cautiouſly avoid falſe ſteps in walking on uneven ground. He ſhould aſcend declivities, as ſtairs, as little as poſſible, and therefore ſleep on the ground floor of his houſe. He ſhould ſhun heated rooms, the influence of ſtrong fires, and of cloſe unventilated apartments. He ſhould avoid entering into the diſcuſſion of ſubjects that are liable to excite any ſtrong emotion, or to ruffle his temper. The regulation of his diet becomes of extreme importance in this point of view; for nothing tends more directly to hurry the circulation, and to produce partial turgeſcences, than a heating and ſtimulant regimen. He ſhould, therefore, totally proſcribe all ſpirituous, vinous, and fermented liquors from his table, and ſhould uſe the lighteſt and moſt digeſtible food, and that in great moderation, avoiding condiments, and a variety of diſhes. This regulation of regimen affords, in fact, one of the moſt effectual means of fulfilling alſo the ſecond indication, that of avoiding a plethoric condition of the ſyſtem.

Medicine, however, though inadequate to accompliſh theſe purpoſes alone, may be made to contribute materially to the ſame ends, when united with a proper conduct of regimen. The conſtant and regular evacuation of the bowels, eſpecially by means of ſaline and other cooling laxatives, conduces both to moderate the activity of the circulation, and to prevent plethora, and cannot be neglected with impunity, where there is organic diſeaſe producing palpitation of the heart. If there is actual plethora to any extent, even actual depletion by the lancet may be neceſſary.

There is another claſs of medicines which appear to be indicated under theſe circumſtances; namely, ſuch as have the power of directly diminiſhing the action of the heart and arteries: of theſe the digitalis is the moſt effective. This medicine, when combined with the repeated uſe of ſaline laxatives, and with the cooling regimen, and ſyſtem of quietude, above recommended, has, in ſeveral caſes under the inſpection of the writer of this article, appeared to procure a very valuable degree of eaſe, and freedom from palpitation, when there were obvious ſigns of organic diſeaſe, and to retard the progreſs of that diſeaſe itſelf.

A very different practice is requiſite in the interval of remiſſion, in thoſe caſes of palpitation that are merely connected with a morbid irritability of the habit, or with ſome local irritation. If the palpitation is excited by over-diſtention of the ſtomach, the meals ſhould be moderate, and the cauſes of flatulence particularly avoided, while, at the ſame time, the proper remedies for indigeſtion ſhould be employed. If the irritation ariſe from the preſence of worms in the inteſtines, the remedy will be equally obvious. And the uſe of laxatives, which we have recommended above with another view, will alſo obviate one ſource of irritation, which not unfrequently accompanies both indigeſtion and the hyſterical and hypochondriacal habit, namely, an accumulation of feces in the bowels, or habitual conſtipation.

It is ſcarcely neceſſary to dwell upon the treatment required in the intermiſſions of palpitation, connected with chloroſis, hyſteria, hypochondriaſis, and other ſtates of debility and irritability of habit; ſince theſe diſeaſes have been amply diſcuſſed under their reſpective heads. The general indication is to employ medicines poſſeſſed of a tonic power, and to avoid every cauſe of debility, moral and phyſical. Preparations of cinchona, gentian, calumba, ſerpentaria, and other vegetable bitters, the mineral tonics, eſpecially the preparations of iron, the chalybeate waters, &c. and the uſe of the cold bath, are among the moſt efficacious means of removing that morbid irritability which gives riſe to the ſpaſmodic actions of the heart. Moderate exerciſe, in the open air, taken in ſuch a way as to avoid any extraordinary hurry of the circulation, which might bring on the paroxyſm of palpitation, will be adviſable. And every ſource of anxiety, or other ſevere emotion of mind, ſhould be avoided as much as poſſible; by fixing the attention upon intereſting and agreeable purſuits, or by travelling.

PALREDYGUR, in *Geography*, a town of Hindooſtan, in Palnaud; 16 miles W.S.W. of Timerycotta.

PALSCHAU, in *Biography*, born in Germany, who, before he was thirteen years old, travelled with his father to ſeveral parts of Europe, and aſtoniſhed every auditor by his performance of Sebaſtian Bach's moſt difficult harpſichord leſſons; and by running moſt rapid diviſions in thirds and ſixths, with both hands: eighths he could not reach; and indeed he aſtoniſhed ſpectators with his dextrous uſe of pedals, particularly in our country, where, though there have been pedals in our very large old organs, particularly at St. Paul's, Exeter, and St. Michael's, Cornhill; yet they ſeem never, or but rarely, to have been uſed by our organiſts after Handel's firſt arrival here, who, we are told, uſed to go with young Green, then an apprentice, to exerciſe himſelf on theſe *feet* keys in private; intending always, during the reign of his patron the elector (afterwards George I.), to return to Hanover; but young Palſchau muſt have been here very early in our muſical life, before we had ever ſeen or heard of pedals; as, when Mr. Boyce deſired us to officiate for him at St. Michael's, Cornhill, we knew not of their exiſtence. (See PEDALS.) But ſoon after we had heard the young German, and ſeen him uſe pedals, we heard Miſs Robinſon, the ſinger, daughter of Mr. Robinſon, the organiſt of Weſtminſter Abbey, perform wonders on a harpſichord with pedals; which inſtrument it is probable Palſchau's father borrowed of Robinſon: for wherever he ſtopped on the continent, he was ſure to find pedals. But after this period, we had been many years ſurpriſed at hearing nothing further concerning Palſchau; and ſuppoſed he was either dead, or that ſome accident had befallen him to ſtop the progreſs of his premature talent. And when we went to Germany, one of our firſt enquiries was after Palſchau, when we were told that he was at Riga; but was ſtill regarded as a great player of the Bach ſchool: yet finding on his return home, that his performance became leſs miraculous every day, as he grew up he acquired great reputation in inſtructing youths intended for the profeſſion of muſic, in which he had acquitted himſelf with an intelligence and integrity ſo ſuperior to common organiſts, and maſters who take apprentices, in thoroughly grounding his pupils in every branch of the art which they were purſuing, that he was invited to Riga, where he continued to qualify young organiſts, not only in that city, but from all parts of Germany. He had himſelf been inſtructed by Müthel, who was an èlève and imitator of C. P. Emanuel Bach. He compoſed but little, except two harpſichord concertos, and ſome ſongs. But we have heard ſince that his fame became ſo extenſive as to produce an invitation to Peterſburg, where his good taſte in playing, and manner of teaching, pleaſed ſo much, that he was appointed court-maſter by the empreſs Catharine, and his ſalary in that office, and the many ſcholars he had in great families, made him ſo eaſy in his circumſtances, that he would undertake no more boys on the chance of their becoming great muſicians, unleſs, on examining their hands, he found them well formed by nature; and that every finger on both hands were equally ſtrong. He likewiſe examined their heads, by putting queſtions to them, which, to anſwer, required intellect. He then aſſigned, for practice to them, as a firſt leſſon, one of the moſt complicated and difficult compoſitions for keyed inſtruments that he could find. We are to ſuppoſe, before theſe ſtudents applied to him, they were well acquainted with the firſt elements of muſic; as the gammut, time-table, clefs, flats, ſharps, and the uſual characters for graces, &c. He informed theſe young candidates for his inſtitutes, that he would ſet no limits to the time they ſhould take in accompliſhing this taſk: as, if they only learned a bar in a week, they muſt come to the end of their labour at laſt.

We were furniſhed with the character and ſingularities of this muſician, by the Rev. Mr. Smernove, of the Greek church (the chaplain of count Worantſow) and his brother, John Smernove, a fine performer on the violin, and private ſecretary to the count, when embaſſador from Ruſſia.

PALSCHOV, in *Geography*, a town of Pruſſia, in the province of Pomerelia; 11 miles N.W. of Marienburg.

PALSGRAVE, a term uſed among the Germans, of the ſame import with palatine.

It is compounded of the Latin *palatium*, and the Dutch *grave*, *governor*, *q. d.* governor, or ſuperintendant of a prince's palace.

PALSY, in *Medicine*, a corruption of *paralyſy*, from παραλυσις, *paralyſis*, *laxatio*, *reſolutio* or, as the Latins wrote, *nervorum reſolutio*, (relaxation of the muſcles,) ſignifies a loſs of the power of voluntary motion.

The appellation of *palſy* is, therefore, not applicable to thoſe caſes of impaired mobility of muſcular parts, which ariſe from mechanical ſtiffneſs, or from inflammation; but only to thoſe which are occaſioned by an inherent imbecility in the muſcles themſelves, or rather in the nerves with which they are furniſhed, and through the medium of which the moving power is communicated from the brain.

It will not be neceſſary, in this place, to enter into any detail reſpecting the nature and functions of the nervous ſyſtem in the animal body, as the ſtructure and properties of that ſyſtem have been amply delineated under its proper head. (See NERVOUS *Syſtem.*) It is ſufficient for our purpoſe to know, that a multitude of accidents and experiments have demonſtrated the dependence of *ſenſation* and voluntary *motion*, in every part of the body, upon the uninterrupted communication of nerves between that part and the brain reſpectively; and that the interruption of this communication, either by the diviſion of the trunks of the nerves, or of the great nervous maſs in the canal of the ſpine, (incorrectly called the ſpinal *marrow*,) or by preſſure on the ſame; or, laſtly, by preſſure or other mechanical injury to the brain itſelf,—is invariably followed by a loſs of one or both theſe faculties in the parts beyond ſuch injury.

Hence the term *paralyſis* comprehends a great variety of ſenſitive and muſcular incapacity, to which various appellations have been given, according to the general or partial loſs of power, or to the nature of the ſenſation ſo impaired. Where the whole power of motion and faculty of ſenſation are aboliſhed, the term *palſy* is, indeed, ſeldom employed, but the diſorder is called *apoplexy*. When one-half of the body, longitudinally, is paralyſed, *i. e.* when the leg, arm, &c. of one ſide only loſe their powers, while thoſe of the other remain unimpaired, (which is the moſt common form of palſy,) the diſeaſe is termed *hemiplegia*, or *hemiplexia:* and when one-half of the body is palſied *tranſverſely*, for example, when both the lower extremities are palſied, while the arms and upper parts retain their power, the malady is called *paraplegia*, or *paraplexia*. Some writers have appropriated the term *pareſis* to the palſy of individual parts or muſcles, as of the arms or legs, of the tongue, eye-lids, bladder, &c. Originally, however, theſe appellations appear to have been employed as general terms, without much diſcrimination. Again, a paralytic condition of the different organs of ſenſe has been deſignated by correſponding appellations. Thus the loſs of feeling, or of the ſenſe of touch, has been called *anæſtheſia*, that of viſion, *amauroſis*, that of ſmell, *anoſmia*, that of taſte, *agheuſtia*, that of hearing, *dyſecæa*, &c. Theſe affections will be found deſcribed under their proper heads; and, in this place, our attention will be directed to the more general forms of palſy, eſpecially to the *hemiplegia* and *paraplegia*, and to thoſe partial kinds, which are the reſult of particular agents, ſuch as of the poiſon of lead, mercury, &c.

I. *Of the Hemiplegia.*—The palſy, which is moſt frequently ſeen, and which conſiſts in the loſs or diminution of the power of motion of one ſide of the body, is ſometimes the conſequence of an attack of apoplexy, where that has not proved fatal; but it more commonly occurs inſtantaneouſly, and without any actual apoplectic attack. In the latter caſe, however, the diſeaſe differs from the former only in the degree of injury which has taken place in the brain, the preſſure upon that organ being more partial than in apoplexy.

The *ſymptoms of hemiplegia* are diſtinct and obvious, and ſcarcely liable to be confounded with thoſe of any other diſeaſe. The moſt manifeſt ſymptom is the want of command over the limbs of the ſide affected, which either remain totally immovable by the will of the patient, or are poſſeſſed of ſo little power, that the arm hangs dangling by the ſide, and the leg is dragged along the ground, rather than elevated in attempting to walk, and vibrates from want of firmneſs, whenever the foot is planted on the ground. At the ſame time, the limbs are perfectly flexible by any external impulſe, to which they offer no reſiſtance. As the muſcles of one ſide of the head are alſo paralyzed, the features, eſpecially the mouth, are commonly drawn away, giving a diſtorted appearance to the countenance; for, as the paralyzed muſcles offer no reſiſtance, ſo the conſtant tendency to contraction in the healthy muſcles of the oppoſite ſide neceſſarily operates in drawing the whole towards themſelves. The face is contracted, therefore, not on the palſied, but on the ſound ſide. The ſame palſied condition exiſts alſo in one-half of the tongue, which, if it be attempted to be protruded, is ſhewn in a curved ſtate, the point always turning towards the angle of the mouth on the paralytic ſide. This palſied ſtate of the tongue and lips, and other organs ſubſervient to the voice, is neceſſarily the cauſe of indiſtinct articulation; ſo that various degrees of defect of ſpeech accompany *hemiplegia*. From the morbid ſtate of the brain, which gives riſe to palſy, the functions of the mind are frequently more or leſs injured; the memory eſpecially is liable to be impaired, and, in many caſes, every faculty is ſo debilitated, that a conſiderable degree of fatuity or childiſh imbecility is the conſequence. Indeed, there are perhaps few inſtances, in which the intellectual functions eſcape entirely unimpaired from an attack of hemiplegia: ſo that, where the ſtroke of palſy has been ſevere, few perſons are left in a condition fitted for the active and important duties of life ſubſequently.

Some other phenomena accompany the paralytic ſtate, which vary in different caſes, and of which our knowledge of the nature of the nervous ſyſtem and its functions is inſufficient to afford an explanation. Although the nerves are unqueſtionably the medium, both of *motion* and *ſenſation;* yet theſe two faculties are ſeldom injured in the ſame proportion. In the majority of caſes of hemiplegia, the ſenſation of the palſied limbs is unimpaired; in a few inſtances, it is conſiderably diminiſhed, *i. e.* a degree of numbneſs and torpor exiſts throughout; whilſt in others, the ſenſation of the affected parts is entirely aboliſhed, *anæſtheſia* being combined with the *paralyſis*. But, on the other hand, many caſes of a total abolition of the power of ſenſation, in parts which retained the full power of motion, are recorded. Dr. Gregory uſed to mention an inſtance in his lectures at Edinburgh, in which there was a perfect *anæſtheſia* on one ſide of the body, and a *hemiplegia* on the other; *i. e.* the nerves, on one ſide, ceaſed to be the inſtruments of ſenſation, while, on the other, they ceaſed to be the inſtruments of motion. Afterwards the hemiplegia attacked the other ſide; ſo that there was palſy without feeling on one ſide, and palſy with the feeling perfect on the other: the patient recovered; and the ſide, in which both faculties were loſt, was the firſt to regain its powers.

In ſome caſes of palſy, too, the circulation is materially affected, and in others not. Thus, ſometimes the pulſe in the affected ſide is ſlower than in the other; ſometimes it is not to be felt, and the temperature of the limb is much diminiſhed. In ſome caſes the ſubſtance of the muſcles is partly abſorbed, and the palſied limbs waſte; and occaſionally anaſarcous effuſions take place in them; but in others no ſuch changes occur. Sometimes the ſenſations of the palſied parts are depraved, ſuch as feelings of prickling and tingling, or actual pain; and ſometimes there is numbneſs, with a ſenſe of weight and load, as if from an extraneous body. A patient under this ſtate of feeling exclaimed, "will nobody own that arm?" an exclamation ſufficiently characteriſtic of the helpleſs condition of the limb.

Although the attack of palſy is ſudden, yet, in the majority of caſes, various pre-monitory ſymptoms occur, ſometimes for a long period before the attack, which indicate the approaches of the diſeaſe. Theſe ſymptoms are the reſult of an increaſing determination of blood to the head, and conſiſt of head-ache, giddineſs, a ſenſe of weight, and diſtention in the head; dimneſs of ſight, or the appearance of motes floating before the eyes (called *muſcæ volitantes*); ſometimes a degree of ſquinting, and even of double viſion; noiſe in the ears; occaſional ſtammering in the ſpeech; tranſitory numbneſs or loſs of motion in the extremities; failure of the memory; drowſineſs, eſpecially after eating, but diſturbed ſleep; fluſhing of the face and neck; throbbing of the temporal arteries; and bleeding from the noſe. Some one or more of theſe ſigns frequently precede the actual change in the ſtate of the brain, which gives riſe to paralyſis, and an attention to them is therefore of great practical importance. They will, however, more certainly lead to an apprehenſion of an impending apoplexy or palſy, when they occur in perſons who are conſtitutionally prediſpoſed to theſe diſeaſes.

The *prediſpoſition* to paralytic affections is connected with a particular habit of body, which is frequently hereditary, and is characteriſed by a large head, and a ſhort neck, eſpecially in perſons with dark eyes and hair, and by a corpulent habit. The large head implies a conſiderable proportion of blood circulating in the brain, and the ſhort neck, that it is carried thither with greater impetus. The corpulent ſtate both gives and indicates the prediſpoſition; for an over-proportion of fat generally implies an over-proportion of blood, as both ariſe from the ſame cauſes. A great quantity of fat, too, preſſes upon the organs and veſſels of the body, and neceſſarily tends to produce an accumulation in the parts where no fat is ſecreted, as in the brain. A certain advanced age alſo contributes to the prediſpoſition to palſy, as a degree of venous plethora is then often produced; ſo that palſy ſeldom takes place before the age of forty. The ſame effect is produced by an indolent and ſedentary mode of life, by a full diet, and eſpecially by a habit of intoxication, which produces a great determination of blood to the head. But any habitual exceſs in the uſe of wine and malt liquors, although inconſiderable, and not occaſioning intoxication, will have a ſimilar effect. A plethora, and therefore a prediſpoſition to palſy, is alſo induced by the ſtoppage of cuſtomary diſcharges, ſuch as bleeding at the noſe, a copious hæmorrhoidal or catamenial flux, the drying of habitual ulcers, &c.

Where this prediſpoſition exiſts, various circumſtances may operate as the *exciting cauſes*, and bring on the paralytic ſeizure; and theſe cauſes produce that effect, either by determining an extraordinary quantity of blood into the brain, or by preventing a free return of it from thence; whence a *morbid* degree of *preſſure* is occaſioned in that important organ, either from ſimple congeſtion and over-diſtention of the veſſels, or from congeſtion, followed by an effuſion of ſerum, or by a rupture of veſſels and an extravaſation of blood. Now, an unuſual flow of blood to the head is occaſioned by every ſtimulus to the general circulation; whence *violent exerciſe*, by which the pulſations of the heart are quickened and increaſed in force; great external *heat*, which produces a ſimilar effect; paroxyſms of *anger*, *intoxication*, or even a more moderate excitement by ſtrong liquors, have, in different inſtances, produced the paralytic attack. On the other hand, the blood is impeded in its exit from the head in various ways: thus *ſtooping*, or any other ſituation in which the head is kept in a depending poſition, and in which therefore the gravity of the blood increaſes the afflux of it by the arteries, and oppoſes the return of it by the veins; *tight ligatures* round the neck, which compreſs the veins more ſtrongly than the arteries; *impeded reſpiration*, or a full and *long* continued *inſpiration*, as in violent ſtraining, or a *long expiration*, as in coughing, laughing, &c., which impede the circulation through the lungs for a time, and therefore interrupt the free return of the venous blood from the head; *over-diſtention of the ſtomach* by a full meal, which compreſſes the great deſcending artery, and alſo prevents the deſcent of the diaphragm, and therefore impedes the pulmonary circulation; all theſe circumſtances have occaſionally given riſe to apoplectic and paralytic ſeizures. Indeed the manifeſt redneſs and fluſhing of the face and eyes, and the general turgeſcence of the countenance, occaſioned by ſtooping, by tight neckcloths, by long fits of coughing and laughing, by intoxication, by violent muſcular exertions, and by a full hearty meal, ſufficiently demonſtrate the determination of blood to the head, which they excite. With reſpect to the influence of a full meal, the common reports of the newſpapers afford abundant evidence; ſince nothing is more frequent than the accounts of ſudden death, juſt after perſons had eaten a hearty dinner or ſupper, and enjoyed the company of their friends.

This view of the nature of the cauſes of palſy, is completely confirmed by the examination of the ſtate of the brain, by diſſection, where the diſeaſe has terminated fatally; appearances of congeſtion and accumulation of blood in the veſſels of the brain, or of effuſion of ſerum, or of actual rupture of the veſſels and extravaſation of blood, have always been obſerved, where the attack was ſudden; and in caſes of the gradual ſupervention of palſy, ſome morbid growth, producing a ſlowly increaſing preſſure, which gradually diſturbed the functions of the ſenſorium, has been commonly found. So that, in all theſe caſes, the obvious cauſe of the palſy has been the interrupted communication of the nervous influence, whatever that may be, from the brain to the parts which had become paralytic.

The palſy and the apoplexy, which are thus produced, in connection with an over-diſtended condition of the veſſels of the brain, and with a plethoric habit, a ſhort neck and large head, have had the epithet of *ſanguineous* given to them; becauſe it has occaſionally been obſerved, that the ſame diſeaſes have occurred in habits of a very different character. For example, perſons of tall and ſlender form, of ſpare habit, with ſmall heads and long necks, and pallid complexion, in whom no external marks of plethora, or of determination of blood to the head, were viſible, have nevertheleſs been now and then ſeized with palſy, or died from a ſudden apoplectic ſtroke. It has been ſuppoſed, that theſe diſeaſes in ſuch perſons, originated from preſſure produced in the brain by an effuſion of ſerum, which is occaſioned, not by an over-diſtention of the blood-veſſels, but by a ſtate of relaxation in the exhalant artery, the ſame as in other caſes of a *dropſical* diatheſis, or by an over-proportion of the watery part of the blood, which is therefore ready to run off by the exhalants. Whence, in contra-diſtinction from the ordinary forms of theſe diſeaſes, the epithet, *ſerous*, has been applied to this variety. (See Cullen, Firſt Lines, par. 1112.) Diſſection, however, does not ſeem to have confirmed this theoretical diviſion of the forms of the diſeaſe; for, in ſeveral caſes of fatal apoplexy, which occurred in thin and ſpare habits, the ſame congeſtions and ruptures have been found to have taken place, as in thoſe patients, whoſe large heads and plethoric condition implied a fullneſs of the blood-veſſels. In fact, medical obſervation teaches us, in numerous other inſtances, that local determinations and partial congeſtions of blood are liable to occur in perſons very far removed from a plethoric condition; and that a paucity of the circulating fluids is no infallible ſecurity againſt local fullneſs. In our practical conſiderations, therefore, the notion of *ſerous* apoplexy or palſy ſhould perhaps be altogether diſcarded.

It is a curious fact, which has been aſcertained by anatomical inveſtigation, that in moſt of the inſtances of hemiplegia, the cauſe of derangement in the brain is found on the ſide *oppoſite* to the paralytic affection. A few caſes have occurred, in which the morbid cauſe is ſaid to have been on the ſame ſide as the palſy; but this is certainly an exception to the general fact, and therefore the matter may ſtill be conſidered as liable to doubt. Nevertheleſs anatomy has not taught us a ſatisfactory explanation of the phenomenon, that the injury of the brain and the palſy of the body occur on oppoſite ſides. Anatomiſts have ſuppoſed a certain decuſſation or croſſing of fibres from one hemiſphere of the brain to the other; but there has been no very ſatisfactory demonſtration as to this point. M. M. Gall and Spurzheim, the moſt accurate inveſtigators of the ſtructure of the brain, maintain that there is no decuſſation, except for the ſpace of four or five lines at the lower extremity of the medulla oblongata, and they therefore deny that injury to one ſide of the brain (with exception of injury to the anterior *corpora pyramidalia*) ever affects the oppoſite ſide of the body. The facts, however, are perhaps too numerous to be ſet aſide by the mere hypotheſis, ſuggeſted by a difficult examination of a very obſcure ſtructure. See NERVOUS *Syſtem*.

Neither has any anatomical inveſtigation afforded the means of explaining the different phenomena above alluded to, reſpecting the various and diſproportionate affections of the *ſenſation* and power of *motion*, in parts ſupplied by the ſame nerves. For a clear and copious detail of the reſearches and opinions of anatomiſts and pathologiſts on theſe topics, we ſhall refer the reader to a paper of Dr. Yelloly's, in the Medico-Chirurg. Tranſactions, vol. i. p. 181.

Independently of mechanical preſſure produced in the manner above deſcribed, ſome other cauſes occaſionally injure the functions of the brain, and render it incapable of diffuſing the nervous power to the limbs, and thus produce a ſpecies of palſy. Certain poiſonous ſubſtances have that effect, ſuch as lead, and perhaps mercury, and ſome of the narcotic vegetables, ſuch as the belladonna. A ſevere and continued impreſſion of cold, long continued grief, great terror, and other depreſſing paſſions, occaſionally alſo give riſe to paralytic affections, by their direct influence upon the ſtate of the brain.

The *prognoſis* is generally unfavourable in *hemiplegia*, more eſpecially when the patient is in advanced life, or debilitated in conſtitution, or has been in habits of intemperance. For under ſuch circumſtances, the ſyſtem ſeldom recovers its powers, and the patient remains enervated both in mind and body, and generally incapable of the ordinary buſineſs of life. If, as the diſeaſe continues, the paralyſed limbs gradually loſe their ſenſe of feeling, or if they are affected with coldneſs, and the fleſh waſtes, the proſpect is moſt unfavourable. But, if there is a frequent prickling ſenſation, or even ſome degree of pain, in the parts; if they are occaſionally affected with fluſhings of heat, or with ſpaſmodic twitchings; or if rheumatic or inflammatory ſwelling take place in them, theſe appearances are to be deemed favourable, inaſmuch as they imply a leſs complete interruption of the nervous power, or its returning influence.

The treatment of hemiplegia will neceſſarily be ſomewhat different in different inſtances, according to the age and conſtitution of the patient, and to the obvious exciting cauſe of the diſeaſe. Before we ſtate the general indications of cure, however, and the methods of fulfilling them, it will be proper to obſerve that the *prophylactic* treatment is often the moſt eſſentially uſeful. It too often happens, that, when the attack has taken place, ſome irremediable injury has been inflicted on the delicate texture of the brain, which, had the warning ſymptoms, which we have enumerated above, been attended to and removed, might have been altogether averted.

As a plethora of the veſſels, either general or topical, is indicated by thoſe premonitory ſymptoms; ſo the means of obviating that plethora are equally obvious, and within our power. Whenever, therefore, we obſerve theſe ſymptoms in perſons, whoſe form and habit evince a prediſpoſition to the diſeaſe, and more eſpecially in thoſe who have ſuffered a previous attack, every means ſhould be reſorted to, which diet, regimen, and an evacuant plan of medicine, can afford, to reduce the plethoric condition. The diet ſhould now be low, conſiſting of whey, butter-milk, fruits, and farinaceous food, animal matters being diſcarded, or a little plain meat taken once every other day, and all fermented liquors totally abſtained from. Even filling and diſtending the ſtomach frequently with mere vegetable matters ought to be avoided, for the reaſons above explained. If the ſymptoms of oppreſſion about the head are very conſiderable and menacing, it may be adviſable to take ſome blood from the veſſels of the head or neck, either by the lancet, by leeches, or by cupping; and at the ſame time the bowels ſhould be well evacuated by cathartic medicines.

If, however, the previous ſymptoms have beeen neglected, and the attack of hemiplegia have actually come on, the *firſt* indication that preſents itſelf, will be to remove or diminiſh the cauſe of compreſſion, which may exiſt in the brain, whether it may be mere vaſcular turgeſcence, the extravaſation of blood, effuſion of ſerum, &c.; and the *ſecond* indication will be gradually to excite the torpid portion of the brain and nerves to a ſenſible and active ſtate. How very little power we poſſeſs, however, to accompliſh either of theſe purpoſes, except in the caſe of mere vaſcular congeſtion, medical experience too clearly demonſtrates.

Whatever may be the nature of the compreſſion in the brain, it cannot be doubted, that a diminution of the turgeſcence of the veſſels will tend to diminiſh it, by removing ſome portion of the bulk of the fluids in the general maſs of the viſcus. If the compreſſion ariſe from mere congeſtion, it may be entirely removed by ſuch a meaſure; and if it ariſe from actual rupture and extravaſation, or from a ſerous effuſion the reſult of plethora, the abſtraction of ſome portion of the circulating fluids will tend to arreſt the progreſs of the extravaſation or effuſion, and therefore at leaſt prevent an increaſe of the evil. Under all circumſtances, therefore, the local detraction of blood ſeems to be adviſable at the onſet of *hemiplegia*. The quantity of blood to be taken away, as well as the mode of taking it, will be determined by the ſeverity of the attack, and by the ſtrength and plethoric condition of the patient. If the patient be extremely full and florid, and has not paſſed the middle age, a free *bleeding* from the *temporal artery*, or the *jugular vein*, may be preferable: but, even in the pale and thin habit of body, *cupping* the neck or temples, or the application of *leeches* to thoſe parts, ſhould be reſorted to. In the full and florid habits, general blood-letting from the arm is often employed; but the ſame general depletion may be accompliſhed by the ſection of the temporal or jugular veſſels, while at the ſame time a more effectual depletion of the veſſels of the brain will be produced. And in order that the local effect may be ſtill more complete, it is deſirable to make the evacuation from the ſide of the head oppoſite to the hemiplegic affection.

At the ſame time, other means of diminiſhing the impetus of the circulation in the head muſt be reſorted to, as auxiliaries. The bowels ſhould be emptied by active *cathartics*, by which a conſiderable depletion of the veſſels, and a determination of the fluids downwards, are produced. Some practitioners alſo recommend emetics; but the objection of Dr. Cullen againſt theſe medicines, that the action of vomiting might impel the blood with too much violence into the veſſels of the head, ſeems to be well founded, and they are ſeldom now employed. *Bliſters* applied to the ſhaven ſcalp, or to the nape of the neck, by the counter-irritation which they occaſion externally, tend to diminiſh the internal action of the veſſels.

It is a practice, but too generally adopted by routine-practitioners, to begin immediately with the exhibition of ſtrong ſtimulants, upon the ſuperficial inference, it ſhould ſeem, of a torpor of the nervous power. But if they were to penetrate a little below the ſurface of things, it would be evident that this torpor of the nerves depends entirely upon an oppreſſed ſtate of their origin, the brain, in conſequence of an over-action and turgeſcence of its veſſels; and, therefore, that every meaſure, which tends to augment vaſcular action, muſt neceſſarily be a ſource of aggravation to the diſeaſe. Upon the plaineſt principles, the very oppoſite object is to be purſued; and until the ſymptoms of plethora, and the active ſtate of the diſeaſe be ſubdued, the meaſures, which we have recommended as proper with a preventive view, ſhould ſtill be adhered to.

The ſecond indication, therefore, which is "gradually to reſtore the torpid portion of the brain and nerves to a ſenſible and active ſtate," can only be followed, after the hemiplegia has ſubſiſted for ſome time, and when the ſymptoms, indicating a conſiderable compreſſion of the origin of the nerves, are removed. But even under theſe circumſtances, the uſe of ſtimulants would appear to be of very ambiguous advantage. For it may be doubted, whether any paralytic affection, originally produced by compreſſion of the brain, would continue after the compreſſion was removed, *i. e.* whether the very exiſtence of the hemiplegia does not imply the continuance of a compreſſing cauſe, or at leaſt of ſome organic injury, which it had inflicted and left behind. And at all events, the multitude of patients, who have in vain ſwallowed, for a long period of time, all manner of volatile, fetid, and ſpirituous ſtimulants, who have ſubmitted to electricity and friction, and ſtimulant liniments, and warm bathing, and who have neverthelеſs neither obtained a recovery of the power of their limbs, nor even prevented ſubſequent attacks, do not bear any very favourable teſtimony to the efficacy of theſe expedients; while, on the contrary, the ſmall proportion of perſons, who do recover the full uſe of their hemiplegic limbs, may juſtly aſcribe their recovery to the ſlightneſs of the original attack, to the abſence of effuſion, extravaſation, or any other organic miſchief, and to the ſelf-adjuſting powers of the conſtitution, as ſoon as the cauſe of diſeaſe is removed. In ſome caſes, indeed, it may be ſuppoſed that, even where actual effuſion or extravaſation had taken place, without materially injuring the texture of the brain, the fluids may be ultimately removed by abſorption, and the brain therefore be reſtored to health; but, even in ſuch caſes, the beneficial aid of ſtimulants is more than problematical. In a word, it appears, that ſtimulants are perhaps never adviſable in true hemiplegia; and that the benefit of theſe remedies is limited to thoſe ſpecies of general palſy which ariſe from the influence of cold or narcotic poiſons on the brain and nerves, or to thoſe *local* varieties of palſy which ſeem to depend upon diſeaſe affecting the branches and extremities of the nerves, while the brain remains uninjured; of which we ſhall have occaſion to ſpeak preſently.

For the purpoſes, therefore, of aiding recovery from an attack of hemiplegia, the principal indication will be, to avoid every ſpecies of intemperance; to reſtrict the diet to light and cooling articles, and to take theſe with great moderation; to employ regular but always gentle exerciſe, avoiding every extraordinary hurry of the circulation; to preſerve a regular, and rather free, ſtate of the bowels; and to manage the clothing, ſo as to preſerve a regular ſtate of the cutaneous exhalation, and to avoid the impreſſions of viciſſitudes of heat and cold. In a word, the object will be to free the conſtitution from all embarraſſment, in which condition it will be the beſt enabled to reſume its healthy actions. We may liberate and aſſiſt, but we cannot command the powers of the *vis medicatrix naturæ*.

It may be obſerved, however, that where the attack has been ſlight, and the tendency to recovery obvious, the return of power in the paralyſed muſcles ſeems to be conſiderably accelerated by a conſtant exertion of them, or at leaſt by conſtant attempts at exertion by directing the volition to them. The advantages of this voluntary exertion are commonly obvious in the more ſpeedy and complete recovery of the motion of the leg, when compared to that of the arm, in perſons who have ſuffered hemiplegia: a circumſtance to be aſcribed ſolely to the neceſſity of *uſing* the leg in moving from place to place, while the arm is too commonly hung in a ſling, and no attempt is made to employ it.

II. *Of the Paraplegia*, or *Palſy of the lower Extremities.*—Without referring to the original acceptation of the term *paraplegia*, reſpecting which there has been ſome difference of opinion, and no very determinate definition (ſee Van Swieten, Comment. Aph. 1018.); we take it in its modern ſenſe. A palſy of the lower extremities may perhaps ſometimes ariſe from injury or diſeaſe in ſome part of the brain itſelf; but of this the evidence appears to be imperfect; and at all events the occurrence is rare. The ordinary inſtances of this palſy obviouſly originate from preſſure on ſome part of the *vertebral nerve*, or ſpinal marrow, below which the palſy ſhews itſelf, while the parts ſupplied with nerves, that branch off above the ſeat of the preſſure, continue to poſſeſs their power of motion unimpaired.

The *paraplegia* may occur at all ages, and in either ſex, and is always productive of much diſtreſs: for if the patient is a child, it becomes an object of conſtant and unavailing anxiety to its parents; and if an adult, he is rendered perfectly helpleſs to himſelf, and uſeleſs to all others, which of all poſſible ſtates is ſurely the worſt.

When this palſy attacks an infant of only a year or two old, the true cauſe of it is ſeldom diſcovered, until ſome time after the effect has taken place, at leaſt by parents and nurſes, who know not where to look for it. The child is ſaid to be uncommonly backward in the uſe of his legs, or it is thought to have received ſome hurt in its birth. When it affects a child, who is old enough to have already walked, and who has been able to walk, the loſs of the uſe of the legs is gradual, though not very ſlow. He at firſt complains of being very ſoon tired, is languid, liſtleſs, and unwilling to move much: or at all briſkly: in a ſhort time after this he may be obſerved frequently to trip, and ſtumble, although there be no impediment in his way; and whenever he attempts to move briſkly, he finds that his legs involuntarily croſs each other, by which he is frequently thrown down, and that without ſtumbling; upon endeavouring to ſtand ſtill and erect, without ſupport, even for a few minutes, his knees give way and bend forward. When the diſtemper is a little farther advanced, it will be found that he cannot, without much difficulty and deliberation, direct either of his feet preciſely to any exact point; and very ſoon after this, both legs and thighs loſe a good deal of their natural ſenſibility, and become perfectly uſeleſs for all the purpoſes of locomotion.

When the diſeaſe occurs in an adult perſon, its progreſs is much the ſame but rather quicker. He complains alſo, in the early part of its courſe, of a ſenſe of numbneſs in the affected limbs, with tranſitory tremblings and twitchings, and ſometimes of rigors: and he finds, as the bladder and lower portion of the bowels are included in the diſeaſe, that the ſtools paſs off unconſciouſly, and the urine flows without his conſent, at the ſame time that he has a difficulty of emptying the bladder. Ultimately the legs become rigid, and the knees and ankles ſtiff, and the feet extended, ſo that they cannot be placed flat on the ground. This laſt circumſtance is likewiſe obſerved in children.

When the back is examined, ſome prominency or curvature of the ſpine is always found. This curvature varies in ſituation, extent, and degree, being in the neck or back, and ſometimes, though very rarely, in the upper part of the loins; ſometimes comprehending two vertebræ only, ſometimes three or more, by which the extent of the cure becomes neceſſarily more or leſs; but whatever may be the number of the vertebræ concerned, or whatever the degree or extent of the curvature, the lower limbs only feel the effect, the arms never being affected.

The effect is alſo different in different ſubjects: ſome are rendered totally and abſolutely incapable of walking in any manner, or with any help, and that very early in the courſe of the diſtemper; others can make a ſhift to move about with the help of crutches, or by graſping their own thighs with their hands; ſome can ſit in an erect poſture, in a chair, without much trouble or fatigue, which others are incapable of, at leaſt for any length of time: ſome have ſuch a degree of motion in their legs and thighs, as to enable them to turn and move for their own convenience in bed; others have not that benefit, and are obliged to lie till moved by another.

The general health of the patient does not ſeem at firſt to be materially, if at all, affected; but when the diſeaſe has continued ſome time, and the curvature is much increaſed, many incoveniences and complaints come on; ſuch as difficulty in breathing, indigeſtion, pain, and what they call a tightneſs at the ſtomach, obſtinate conſtipations, purgings, the involuntary flux of urine and feces before mentioned, together with what are called nervous complaints. Some of theſe are occaſioned by the alterations made in the cavity of the thorax, and others ſeem to ariſe from impreſſions on the abdominal viſcera, by the intruſions of the ribs, as the ſpine is diſtorted. The confinement and inability for taking exerciſe, will account for the other ſymptoms, that are not the direct reſult of the paralyſis.

The diſeaſe is commonly aſcribed to ſome injury, ſuch as a blow, fall, or violent ſtrain, which had affected the ſpine; and probably this is actually the origin of it in many inſtances. But there is no doubt, that the ſpine and its ligaments often become diſeaſed, ſo as to produce paraplegia, independently of ſuch violence. For it is not the mere diſtortion or curvature of the ſpine which gives riſe to the palſy; ſince the moſt extenſive crookedneſs often occurs where no paralyſis exiſts; but actual preſſure upon the vertebral nerve, by the concomitant diſeaſe of the ſpine.

This morbid change in the ſtructure of the ſpine has been deſcribed by Mr. Pott as follows. By many diſſections he aſcertained, that in infants, in young children, and in thoſe who had been afflicted with the diſorder but a ſhort ſpace of time, the ligaments connecting the vertebræ of the curved part were altered from their natural ſtate, being ſomewhat thickened and relaxed, and the bodies of theſe bones were palpably enlarged in their texture, juſt as in the joints of rickety children. In thoſe who had laboured for a long time under the malady, and in whom the ſymptoms were conſequently aggravated, whatever might be their age, the ligaments were ſtill more thickened, relaxed, and altered, the bodies of the bones more enlarged and ſpread, and more inclining to become carious, and the cartilages between the bodies of the vertebræ much compreſſed and leſſened in ſize: and in all thoſe who had ſo long laboured under the diſeaſe as to be deſtroyed by it, or by its conſequences, the corpora vertebrarum were completely carious, the intervening cartilages totally deſtroyed, and a quantity of ſanies lodged between the rotten bones and the membrane inveſting the ſpinal marrow.

The cure of paraplegia was ſeldom effected till the proper treatment was deviſed by Mr. Pott. While the curvature of the ſpine remained undiſcovered or unattended to, the diſeaſe was generally conſidered as *nervous*, and medicines ſo called were moſt frequently preſcribed, together with warm liniments, embrocations, and bliſters, to the parts affected; and when the true cauſe was known, recourſe was always had to ſteel ſtays, the ſwing, the ſcrew-chair, and other pieces of machinery, in order to reſtore the ſpine to its true and natural figure. But theſe expedients did not ſerve any real or permanent good purpoſe: the patients uſually became unhealthy, and, after languiſhing for ſome time under a variety of complaints, died in an exhauſted and emaciated ſtate; or, which was ſtill worſe, dragged on a miſerable exiſtence, confined to a great chair, or bed, totally deprived of the power of moving.

The ſagacious mind of that eminent ſurgeon, Mr. Pott, partly from a conſideration of the diſeaſed ſtate of the ligaments and bones, which precedes and occaſions the curvature, and partly on the ſuggeſtion of a learned phyſician, Dr. Cameron, of Worceſter, who, in conſequence of an obſervation of Hippocrates, that a paraplegia had been cured by an abſceſs in the back, had imitated that proceſs with advantage; deviſed the plan of inſtituting a free diſcharge, by means of a large iſſue, from both ſides of the ſpine. Experience confirmed the utility of this practice, and many examples of the complete reſtoration of ſtrength and motion, in theſe deplorable caſes, have been ſubſequently recorded. (See "Select Caſes of the Diſorder, commonly termed, the Paralyſis of the Lower Extremities," by John Jebb, M.D. &c. 1782.) Mr. Pott's method of practice is related, in his own tract on the ſubject, in theſe words.

"The remedy for this moſt dreadful diſeaſe, conſiſts merely in procuring a large diſcharge of matter, by ſuppuration, from underneath the membrana adipoſa on each ſide of the curvature, and in maintaining ſuch diſcharge, until the patient ſhall have perfectly recovered the uſe of his legs. To accompliſh this purpoſe, I have made uſe of different means, ſuch as ſetons, iſſues made by inciſion, and iſſues made by cauſtic; and although there be no very material difference, I do upon the whole prefer the laſt. A ſeton is a painful and a naſty thing; beſide which it frequently wears through the ſkin, before the end for which it was made can be accompliſhed. Iſſues made by inciſion, if they be large enough for the intended purpoſe, are apt to become inflamed, and to be very troubleſome before they come to ſuppuration. But openings made by cauſtic are not in general liable to any of theſe inconveniences, at leaſt not ſo frequently, nor in the ſame degree; they are neither ſo troubleſome to make nor to maintain. I make the eſchars about this ſize and ſhape," [here he inſerts an ellipſis, of an area equal to that of a ſhilling,] on each ſide the curve, taking care to leave a ſufficient portion of ſkin between them. In a few days, when the eſchar begins to looſen and ſeparate, I cut out all the middle, and put into each a large kidney-bean. When the bottoms of the ſores are become clean by ſuppuration, I ſprinkle, every third or fourth day, a ſmall quantity of finely powdered cantharides on them, by which the ſores are prevented from contracting, the diſcharge is increaſed, and poſſibly other benefit obtained. The iſſues I keep open till the cure is complete, that is, until the patient recovers perfectly the uſe of his legs, or even for ſome time longer; and I ſhould think that it would be more prudent to heal only one of them firſt, keeping the other open for ſome time, that is, not only until the patient can walk, but until he can walk firmly, briſkly, and without the aſſiſtance of a ſtick; until he can ſtand quite upright, and has recovered all the weight, which the habit, or rather the neceſſity of ſtooping, occaſioned by the diſtemper, had made him loſe."

Although this remedy is ſufficient for the cure of the diſeaſe, Mr. Pott admits, that there is no reaſon why every aſſiſtant means ſhould not be applied at the ſame time, in order to expedite it; ſuch as cinchona, cold bathing, frictions, &c. See "Remarks on that kind of Palſy of the Lower Limbs, which is frequently found to accompany a Curvature of the Spine, &c." By Percivall Pott, ſurgeon to St. Barthol. Hoſp. 1779.

III. *Of Pareſis, or local Palſy.*—Under this head we ſhall in-

include all the forms of paralyſis which are partial, and ſeem rather to depend upon a diſordered condition of the nervous cords, near their extremities, than upon any injury done to the common ſenſorium, or to the great trunk of the ſpinal nerve. The partial palſies of this kind are chiefly thoſe which are connected with long continued rheumatic inflammation, or with the long application of cold, or laſtly, with the operation of certain mineral poiſons, eſpecially lead and mercury.

After a limb has been for ſome time the ſeat of inveterate rheumatiſm, eſpecially in debilitated habits, it ſometimes becomes torpid, and benumbed as it were, loſing its power of motion, and commonly ſome degree of its ſenſibility. A ſimilar condition is more ſpeedily produced by the direct application of cold to the parts; as, for example, in the legs and feet of perſons who work with theſe parts in water. The extremities of the nerves appear to be no longer capable of receiving and conveying the nervous power from the brain, while the latter ſhews no ſymptom of any diſeaſe. The *poiſon of lead*, by whatever means it is introduced into the ſyſtem, produces a ſpecies of palſy peculiar to itſelf: its firſt effect is the production of a ſevere colic, which from its being moſt frequently ſeen in painters, has been called the *painter's colic;* and it has received alſo ſeveral other appellations, from certain diſtricts in which it has been prevalent, as the *Devonſhire colic, colic of Poictou*, &c (See Colica *Pictonum.*) After one or more attacks of this colic, the patient perceives that one of his hands grows weak, and at length he finds himſelf altogether unable to extend either the hand or the fingers, which hang down (nearly at a right angle to the arm, when it is held out horizontally,) torpid and moveleſs, except from external force. As this commonly ſucceeds the attacks of colic, it may be probably connected with irritation in the inteſtinal canal, which appears at times to produce other forms of partial palſy. The palſy from the influence of *mercury* is alſo of a peculiar nature; it ſeems indeed to be rather an extreme debility of the muſcles of the limbs, combined with tremors, than an abſolute paralyſis. See the accounts given of this diſeaſe by Ramazzini de Morbis Artificum; and by De Haen, in his Ratio Medend. See alſo ſome obſervations of Dr. Bateman, in the Edinburgh Med. and Surg. Journal for 1812.

It is to theſe varieties of palſy, in which there is no plethora, congeſtion, or preſſure upon the brain, that the employment of *ſtimulant* remedies alone is properly applicable, and that in fact any benefit is to be expected from them. For if a ſlight attack of hemiplegia is gradually removed during their exhibition, all that can be ſaid is, that the ſtimulants did not prevent recovery; for aſſuredly the recovery would take place, the preſſure of the brain having ceaſed to exiſt, if no ſtimulants were employed; and where, as happens in the majority of caſes, ſome preſſure ſtill remains, no benefit can poſſibly be derived from ſtimulants; but the riſk of injury is manifeſt. But in the local palſies juſt deſcribed, the local torpor of the nerves may be often effectually removed by the uſe of ſtimulant remedies.

In the palſy that is occaſioned by protracted rheumatiſm, or by cold, recovery has frequently followed a perſeverance in the uſe of the warm bath, of repeated and continued friction with the fleſh-bruſh, or with various ſtimulating oils and liniments, of which camphor, turpentine, and the acrid gums, together with alcohol, conſtitute the principal ingredients. Internally, alſo, ſtimulant medicines of a ſimilar nature have been at the ſame time adminiſtered, with a view to aid theſe effects; eſpecially the ammoniacal ſalts, or tinctures of the ſtimulant gums in alcohol, and medicines which have been ſuppoſed to poſſeſs peculiar powers of exciting the nervous ſyſtem, ſuch as the arnica, the rhus toxicodendron, &c. Electricity has alſo been extenſively applied to paralytic limbs under theſe circumſtances, and it is probable, both from its obvious influence in exciting ſpaſmodic twitches in the muſcles, and from the number of ſucceſsful inſtances of its application which have been recorded, that it has been of material benefit. There is, however, great room for ſelf-deception in theſe caſes, as we have ſhewn at length under the article Imagination, and the metallic tractors and animal magnetizers can adduce ample teſtimony of their powers in the ſame ſort of diſeaſe. For our own part, we have ſeen ſo little obvious advantage derived from electricity in *any diſeaſe*, as to have nearly relinquiſhed the employment of it; and the uſe of galvaniſm, for the ſame purpoſes, ſeems to be ſinking alſo into diſcredit.

We have mentioned, among other ſtimulants that are really ſucceſsful in the cure of theſe ſpecies of local palſy, the *warm-bath*, an expedient which is hazardous, in the early ſtages at leaſt, of *hemiplegia*. Hence the Bath waters, and more eſpecially the uſe of the *hot pump*, commonly ſucceed in removing the palſy from lead, as well as from cold and rheumatiſm, although dangerous in caſes of *hemiplegia*. There is, indeed, no remedy that appears to poſſeſs an equal efficacy: in the palſy from lead, after the diſeaſe has reſiſted all ordinary expedients, the hot-pumping ſeems to be almoſt a ſpecific. We have in vain tried the pouring of hot water upon the palſied hand, from the ſpout of a tea-kettle, held at ſome height, in thoſe patients, who have afterwards ſpeedily recovered under the pump at Bath. There appears no reaſon, however, to ſuppoſe that any water of the ſame temperature, poured upon the limb in the ſame quantity, and with the ſame impetus, could not equally affect the cure, as the water of Bath; ſince it is the *quantity* of the ſtimulation, and not any peculiar quality of the water, that produces that effect.

For the palſy, ariſing from the poiſon of lead, and affecting principally the extenſor muſcles of the hand and fingers, Dr. Pemberton recommended a ſimple contrivance, which appears to have contributed to accelerate the cure of this diſeaſe; namely, a ſort of battle-dore of wood, of the length of the fore-arm and hand, which is tied to the former, and ſupports the latter extended at length. Under this ſupport, he conceives the muſcles ſooner recover their tone, than when they are conſtantly ſtretched by the pendulous hand. See his Treatiſe on the Diſeaſes of the Abdom. Viſcera.

Under all the forms of palſy, a conſtant exerciſe of the palſied limb contributes materially to expedite its recovery. This principle is equally applicable to the hemiplegia, as to theſe partial forms of palſy. To the palſy, or tremors originating from the poiſon of mercury, neither this nor any of the preceding precepts very clearly apply. The brain, in this caſe, ſeems to be affected by the poiſon, and the whole ſyſtem ſuffers from its deleterious influence. Many remedies have been recommended, but eſpecially ſulphur, which was ſuggeſted perhaps upon chemical notions, rather than from a proper eſtimate of its operation upon the living body. On the whole, the diſeaſe is very unmanageable, and we know not how it is to be cured. The manufacturers, (among whom it almoſt excluſively occurs,) *viz.* watch and button-gilders, ſilverers of mirrors, &c. have contrived means of preventing the mercury, eſpecially when uſed in its moſt pernicious form, vapour, from entering into the body ſo fully as formerly; and, therefore, the diſeaſe is become leſs frequent. But even now, as we are informed, the perſons employed in what is called water-gilding, that is, in laying an amalgam of gold and mercury upon the articles to be gilded, and driving off the mercury by evaporation, are generally ſhort-lived from this cauſe.

Palsy, *Electuary for the*, is made of powdered muſtard-ſeed and conſerve of roſes, of each an ounce, with as much ſyrup of ginger as is ſufficient to make an electuary. A tea-ſpoonful of this may be taken three or four times a day.

Palsy, *Infuſion for the*. See Infusion.

Palsy *Drops*, in *Botany*. See Lavandula.

PALTE', in *Geography*. See Jamdro.

PALTERCAMP, a town of Weſtphalia, in the biſhopric of Oſnabruck; 14 miles S.S.E. of Oſnabruck.

PALTZ, New, a townſhip of America, on the weſt ſide of Hudſon's river, in Ulſter county, New York, about 20 miles N.W. of Newburgh; containing 3255 inhabitants, including 308 ſlaves.

PALVARYA, a town of Hindooſtan, in Oude; 32 miles E. of Kairabad.

PALUDAMENTUM, in *Antiquity*, a garment worn by the Romans in time of war; being the coat of arms of their principal men, eſpecially the generals; who, for that reaſon, were diſtinguiſhed by the appellation *paludati*.

The ſoldiers only having ſhort coats, were therefore named *ſagati*.

This garment was open on the ſides with ſhort ſleeves, by ſome reſembled to angels' wings; and came down no lower than the navel. It was either white or red. Valerius Maximus remarks, it was an ill omen to Craſſus, that they gave him a black paludamentum: "Pullum ei traditum eſt paludamentum, cum in prælium euntibus album, aut purpureum, dari ſoleret."

Cornutus ſays, the Romans wore the toga in peace, and the paludamentum in war. And hence the phraſe, "Togam paludamento mutavit." See Chlamys.

PALUDE, in *Geography*, a town of Turkiſh Armenia, in the government of Erzerum, the reſidence of a prince, partly independent of the grand ſignior. N. lat. 38 35'. E. long. 39° 14'.

PALVERETO, a town of Naples, in Calabria Citra; 10 miles E.N.E. of Coſanza.

PALUM Sanctum, in *Botany*, a name by which ſome authors have called a ſpecies of the guaiacum-tree, called the *lignum ſanctum*, or holy wood.

PALUMBARIUS Accipiter, in *Ornithology*. See Falco *Palumbarius*.

PALUMBUS, or Ring-Dove. See Columba.

PALUS, in *Antiquity*, a military exerciſe among the Romans, by which the young men prepared, and qualified themſelves for real combat. The palus was a pillar, about ſix feet high, faſtened into the ground: againſt this the ſoldiers made an attack, aſſaulting it in ſeveral different modes and attitudes; always taking care ſo to manage their weapons, that, ſuppoſing it was a real enemy, they might not expoſe any part of their body to be hurt, while they were ſtriking their adverſary. Inſtead of a ſword, they uſed a rod or ſtick. They likewiſe ran at the palus with lances, and threw javelins and darts at it, endeavouring to hit particular parts; and their ſucceſs was a proof of their dexterity. See Pale.

Palus *Mæotis*, in *Ancient Geography*. See *Sea of* Azof.

PALWAL, in *Geography*, a town of Hindooſtan; 35 miles S. of Delhi.

PALY, or Palé, in *Heraldry*. When an eſcutcheon is divided into ſix, eight, or ten diviſions, pale-wiſe, *i. e.* by perpendicular lines drawn from the top to the bottom, it is blazoned paly of ſix, eight, or ten, &c. pieces.

If the number be odd, then the field is firſt named, and the number of the pales ſpecified. See Pale.

The like is to be underſtood alſo of *barry* and *bendy*.

Paly-bendy is, when a coat is divided, both pale and bend-wiſe: in paly-bendy, the field is divided by perpendicular lines, which is called *paly*; and then, again, by diagonals croſſing the former, from the dexter ſide to the ſiniſter, which is the *bendy*. The field is paly-bendy, topaz and diamond.

PALYANGHA, in *Hindoo Mythology*, a name of the Hindoo goddeſs Bhavani, or Parvati, conſort of Siva.

PAMADA, in *Geography*, a town of Birmah, on the Ava; 24 miles N. of Prome.

PAMAKASSAN, a town on the north coaſt of the iſland of Madura.

PAMALANG, a town on the north coaſt of the iſland of Java. S. lat. 6° 45'. E. long. 109° 28'.

PAMANAKAN Point, a cape on the north coaſt of Java. S. lat. 6° 12'. E. long. 107° 54'.

PAMANDOOR, a town of Hindooſtan, on the coaſt of Tinevelly; 10 miles N. of Tutacorin.

PAMBAMACA, a lofty mountain in the province of Quito, being one of the peaks of the eaſtern Cordilleras.

PAMBŒOTIA, παμϐοιωτια, in *Antiquity*, a feſtival celebrated by all the Bœotians, who aſſembled near Coronea, at the temple of Minerva, ſurnamed Itonia.

PAMBU, in *Geography*, a town of Thibet; 20 miles E. of Tankia.

PAMEA, in *Botany*, a name which ſeems to have no meaning, Aubl. Guian. 946. t. 359. Juſſ. 76, is applied by the former author to a tree of Guiana, of which he knew nothing but the *calyx* and the *fruit*. From theſe however he rightly deduced its affinity to the Linnean *Terminalia*, of which it appears to be, as Juſſieu ſuſpects, undoubtedly a ſpecies. Its *trunk* is thirty feet high, and two or more in diameter; the *branches* widely ſpreading, knotty. *Leaves* oblong, entire, ſtalked, many together at each joint, in a ſpreading, whorl-like cluſter. *Fruit* racemoſe, each conſiſting of a triangular, oblong, brittle *drupa*, with an ovate-oblong, angular, furrowed *nut*, about an inch and a half long, whoſe kernel is very good eating; on which account the tree is cultivated in Guiana, and the iſle of Bourbon. See Terminalia.

PAMENE, in *Geography*, a town of the iſland of Ceylon, on the eaſt coaſt; 55 miles S. of Trincoli.

PAMER, a lake of Pruſſia; 12 miles W. of Lick.

PAMIERS, a town of France, in the department of the Arriege, and chief place of a canton, in the diſtrict of Mirepoix, near which is a medicinal ſpring; 12 miles W. of Mirepoix. The place contains 5300, and the canton 10,600 inhabitants, on a territory of 235 kiliometres, in 22 communes. N. lat. 43° 6'. E. long. 1° 42'.

PAMISUS, in *Ancient Geography*, a river of Meſſenia, which had its ſource in the mountains that lay towards the north between Meſſenia and Arcadia, ran north-eaſt, and diſcharged itſelf into the ſea, at the extremity of the Meſſenian gulf.—Alſo, a river of Greece, in Theſſaly.—Alſo, a river of Lower Mœſia, in the environs of Odeſſus, called by Ptolemy *Panyſus*, and placed between Odeſſus and Meſambria.

PAMLICO Sound, in *Geography*, a large bay on the eaſt coaſt of North Carolina, which is a kind of lake or inland ſea, from 10 to 20 miles broad, and nearly 100 miles in length. It is ſeparated from the Atlantic ocean, in its whole length, by a beach of coral hardly a mile wide, generally covered with ſmall trees or buſhes. Through it are ſeveral ſmall inlets, by which boats may paſs; but Ocrecock

cock inlet is the only one that can admit veſſels of burden into the diſtricts of Edenton and Newburn. Pamlico ſound communicates with Albemarle and Core ſounds; and it receives Pamlico or Tar river, the river Neus, and other ſmall ſtreams. The mouth of Pamlico river is in N. lat. 35° 25′. W. long. 76° 42′.

PAMMACHION, παμμαχιον, a name by which the exerciſe *pancratium* is ſometimes called, whence the combatants were likewiſe called *pammachi*, παμμαχοι.

PAMMELIA was a title given to the firſt collection of canons, rounds, and catches, that was printed in England. The full title of theſe ingenious and exhilarating effuſions for ſocial purpoſes is curious, and runs thus: "Pammelia (a word formed, perhaps, from παν and μελος) Muſick's Miſcellanie; or, mixed varietie of pleaſant Roundelays and delightful Catches of 3, 4, 5, 6, 7, 8, 9, 10 parts in one. None ſo ordinarie as muſical, none ſo muſical as not to all very pleaſing and acceptable. London, printed by William Barley, for R. B. and H. W., and are to be ſold at the Spread Eagle at the north doore of Paules," quarto, 1609. The names of none of the compoſers of theſe epigrammatic and *pointed* effuſions have been preſerved; but many of them ſeem of great antiquity, which is diſcoverable both by the words and ſtyle of compoſition. Great muſical ſcience is manifeſted in the canons, and the harmony and contrivance of the reſt are excellent. The words, indeed, except thoſe of the canons, which conſiſt of ſmall portions of the pſalms, and other parts of ſcripture, in Latin, (which ſeems to imply that they were ſet before the Reformation,) are, in general, devoid of wit, humour, poetry, and common ſenſe. Our lyric poetry, during the 16th and part of the 17th century, was in a barbarous ſtate, and far inferior to the muſic of the times. But the compoſers ſeemed ſo little ſolicitous about the words they had to ſet, as frequently to prefer the ſyllables of ſolmiſation *Ut re mi fa ſol la; Hey down down, derry down;* or merely *Fa la*, to ſongs of Spenſer and Shakſpeare. In the ſame year was publiſhed another collection, entitled "Deuteromelia, or the ſecond Part of Muſick's Melodie, or melodious Muſicke of pleaſant Roundelaies, &c. London, printed for Thomas Adams, dwelling in Paules Church-yard, at the ſign of the White Lyon, 1609." This publication is much inferior to the preceding, and chiefly conſiſts of ſongs for three voices, in which different ſtanzas are ſung to the ſame muſic, after the manner of what are now called *glees*.

PAMMENOCKE Point, in *Geography*, a cape on the north coaſt of New Guinea. S. lat. 0° 24′. E. long. 133° 21′.

PAMNAGUR, a town of Hindooſtan, in the circar of Kitchwara; 13 miles N.W. of Burdwar.

PAMOACAN, a town of Borneo, on the eaſt coaſt, near the ſouth part of the iſland; 150 miles N.E. of Banjer-Maſſing.

PAMODURIE, a town of Hindooſtan, in Myſore; 20 miles S. of Tademeri.

PAMPA-HERMOSA, a town of Peru, in the dioceſe of Truxillo, and province of Pataz, on the weſt bank of the Gualaga, inhabited by Indians.

PAMPANGAN, a town of the iſland of Luçon, capital of a province, which is both extenſive and populous. The inhabitants have, in general, adopted the religion and manners of the Spaniards. The town is ſituated on the eaſt coaſt. N. lat. 15° 5′.

PAMPARA, a town of Africa, in Bambarra; 156 miles W. of Sego.

PAMPAS, a province of South America, in the viceroyalty of Buenos-Ayres, conſiſts of vaſt plains, which extend from the ſea-coaſt on the eaſt to that great chain, which forms the beginning of the Cordilleras of Chili, about 140 leagues weſt from the city of Buenos-Ayres. Towards the ſouth, they ſtretch about 100 leagues to a chain proceeding W.N.W. from the Atlantic. The northern boundaries are not diſtinctly known, but the name of Pampas is chiefly applied to the territory on the ſouth of Buenos-Ayres, Cordova, and Mendoza. Theſe vaſt plains, like the Steppes of Ruſſia, having ſcarcely any elevations: the view, as at ſea, is terminated by the horizon. They are only diverſified with paths and ditches, which collect the rain-waters, and which commonly end in lakes, as there is no declivity; yet there are wide tracts in which no water is found, nor is that element pure; and trees are extremely rare, except a few ſhrubs round the lakes. Hence this region is only inhabited by a few wandering ſavages. The ſoil is generally a black earth, of little depth, and is followed by a kind of coarſe white chalk, ſo that it is difficult to form wells, as the water can ſcarcely paſs ſo tenacious a ſubſtance. The chief paſturage is clover, and, in the beſt parts, ſometimes ſo ſtrong as to reſiſt the ſtep of a horſe: it is much liked by the cattle, which, when there is water, multiply prodigiouſly in the Pampas. The ſavages who roam through theſe deſerts ſometimes ſurpriſe Spaniſh caravans, and ſmall ſettlements. Pinkerton.

Pampas *del Sacramento*, immenſe plains in Peru, lying between the Gualaga and the Maranon weſt and eaſt, bounded by the Tunguragua on the north. The names "Montana Real" and Pampas del Sacramento have been confounded; whereas the former, in its ſtrict original acceptation, implied a mountainous region of no great extent, to the eaſt of the provinces of Tarma and Guanuco; whilſt the latter has been carried to an immenſe extent, ſo as to include the vaſt territories on the north and ſouth of the Maranon, as far as the line of demarcation with the Portugueſe ſettlements. In this acceptation the medial length from the country of the Majos, S. lat. 15°, to the river Guaviari, N. lat. 3°, is 18°, or 1080 geographical miles. The breadth depends upon the Portugueſe frontier, but the medium may be 10°, or 600 geographical miles.

The name of Pampas del Sacramento, plains or ſteppes of the holy ſacrament, was impoſed by the pious fathers on an enormous territory, watered by the Ucayal or genuine Maranon, and which they fondly repreſent as being as large as Europe; but they deſerve greater credit when they inform us, that it is about 8000 leagues ſquare, and capable of maintaining five millions of inhabitants. The recent diſcovery of the Pampas is chiefly owing to father Girval, who has navigated about 400 leagues ſouth to north, and 70 weſt to eaſt, on the grand and genuine Maranon, and has inſpected and deſcribed the country with conſiderable care. He has diſcovered 25 nations, or rather tribes of Indians, of whom he pretends to have converted four, *viz.* the Panos, Cambos, Chipeos, and the Piros. The common deity of all the tribes he found to be the Moon; and they dread a demon, called the "Nugi," whom they regard as the author of all their calamities. In war, for the conduct of which they elect a chief of the greateſt courage and cunning; and in the proſecution of their conteſts, the men are ſlain, and women and children only become captives. Some tribes are more courteous and humane; while others, as the Caſivos and Carapachos, are anthropophagi. The Carapachos are about 8° S. lat., on the bank of the river Pachitea; and the Chipeos, at 7° 35′. Among all the nations on this part of the genuine Maranon, circumciſion is practiſed among the men, and exciſion among the women. The Capanaguas, a tribe on the river Mague, dreſs and eat their dead, and think this action meritorious; and yet they are one of the moſt humane tribes.

The Pampas del Sacramento are divided from the Sierra, or the hills of Peru, by a lofty chain, from which this vaſt country appears ſo level that it reſembles the ocean. The perpetual verdure of its fields forms a delicious perſpective; and for ſome hours in the day, there is ſo thick a fog on the tall trees, that the clouds ſeem to be under your feet. Rain and thunder are frequent. Inſects and reptiles are abundant. Many of the vegetable products are rare and ſingular. Balſams, oils, gums, reſins, incenſe, cinnamon, though inferior to that of Ceylon, cacao, caſcarilla, and an excellent ſpice, called the pucheri, are very plentiful. But the warmth and humidity render a country, equal in ſize to an Aſiatic empire, almoſt uninhabitable; and even the few traders on the banks of the rivers rarely ſee a man of the age of 50. Yet the miſſionaries have founded ſeveral villages. New entrances have been found to the Montana reale, Pampas, or rather great territory of Colonna, ſince the late miſſions were eſtabliſhed. For further particulars, we refer to Pinkerton's account of recent diſcoveries, 1790—1800, in the 3d volume of his Geography.

PAMPEL, a town of the duchy of Courland; 24 miles S. of Goldingen.

PAMPELONNE, a town of France, in the department of the Tarn, and chief place of a canton, in the diſtrict of Alby; 12 miles N. of Alby. The place contains 1839, and the canton 5896 inhabitants, on a territory of 105 kiliometres, in 10 communes.

PAMPHELIS, in *Ancient Geography*, a town of Aſia Minor, on the confines of Pamphylia, near a mountain called "Climon." Strabo ſays, that it was a conſiderable town, and that it had three ports and a lake.

PAMPHILUS, in *Biography*, a preſbyter of Cæſarea, in Paleſtine, is ſuppoſed to have been a native of Berytus in Phœnicia, and a deſcendant from a good family. Having received the rudiments of an excellent education at his native place, he went to Alexandria in Egypt, where he completed his ſtudies, and then ſettled at Cæſarea. Here he became intimately acquainted with Euſebius, who has given many teſtimonies of his ſincere reſpect for the memory of his friend, and added his name to his own. Pamphilus is ſuppoſed to have flouriſhed about the cloſe of the third century. He was poſſeſſed of ſuch zeal for the intereſts of religion and ſacred literature, that he founded, at a great expence, a library at Cæſarea, which contained all the moſt celebrated writers of the church, collected from all quarters. He was concerned with Euſebius in publiſhing a correct edition of the Greek verſion of the Seventy, from Origen's Hexapla. He was jointly concerned with Euſebius, in writing five books of "An Apology for Origen;" to which Euſebius added a ſixth. He is thought, by ſome learned men, not only to have founded a library, but alſo a ſchool or academy, at Cæſarea. Lardner, however, ſeems to doubt the fact; though he ſays, he is not prepared to conteſt it.

In the year 307, when the perſecution raged againſt the Chriſtians, Pamphilus was apprehended, and carried before Urbanus, the Roman preſident at Cæſarea, who, after trying his knowledge in various ways, required him to offer ſacrifice. Pamphilus ſteadily refuſed to obey him, deſpiſed his threatenings, and bid defiance to his malice. In the year 309, after he had endured, with the greateſt conſtancy, a variety of tortures inflicted upon him, he was put to death by the orders of Firmilianus, who had ſucceeded Urbanus in the preſidency of the city. Euſebius, in ſpeaking of Pamphilus, ſays, that "he was the great glory of the church of Cæſarea, and, on account of his eminent virtue, the moſt renowned martyr of the age: a man, who, throughout his whole life, excelled in every virtue; in contempt and renunciation of this world, in liberality to the indigent, in diſregard of all earthly honours and preferments, to which he might have aſpired, and in an abſtemious philoſophical courſe of life. But he was eſpecially eminent, and remarkable above all men of our time, for an unfeigned zeal for the holy ſcriptures, and for unwearied application in whatever he undertook, whether it were kind offices to his friends, or to others who ſought his aid." Dupin. Lardner. Gen. Biog.

PAMPHYLIA, in *Ancient Geography*, a conſiderable province of Aſia Minor, and which included Piſidia, that occupied the northern part. Pamphylia was bounded on the ſouth by the Mediterranean, and extended along the coaſt from mount Climax, which ſeparated it on the weſt from Caria, as far as the chain of mountains which ſeparated it on the eaſt from Cilicia; to the north it had Phrygia. The principal towns of Pamphylia, commencing weſtward, were Olbia, at the mouth of the Cataractes; Perga (Karahiſar) towards the eaſt, at a ſmall diſtance from thence, on the Ceſtrus; Aſpendus to the ſouth-eaſt, on the Eurymedon; Sede (Cordeloro) directly ſouth, on the ſea-coaſt; Cibyra (Ibuzar) ſituated to the north-eaſt; Lyrbe to the north-eaſt; and Corybraſſus on the Melas. Towards Phrygia were Tormeſſus (Eſtenaz), a principal town of the people called Solymi, and of the ſmall country called Cabalia; Cormoſa; Cremna (Kabriacz) to the north-eaſt; Sandalium, a fortreſs north-weſt of Cremna; Baris, ſouth-eaſt of Cremna, in which the Romans eſtabliſhed a colony; Lyſinoe (Ag-Jaſon), eaſt of Cormoſa; Trogitis (Egridi), ſouth of a lake, and ſouth-eaſt of Cremna; Oroanda (Haviran), north of the lake; Seleucia Ferrea (Euſhar), at ſome diſtance eaſt of the lake; and Petneliſſus, ſouth-eaſt of Selga and Catenna, upon the Eurymedon, towards the north-eaſt. Iſauria is found within the limits aſſigned by M. d'Anville to Pamphylia. See Isauria.

PAMPILHOSA, in *Geography*, a town of Portugal, in Eſtramadura; 34 miles N.N.E. of Thomar.

PAMPINIFORME Corpus, or *Plexus Pampiniformis*, in *Anatomy*, the veins of the teſtis, which communicate and divide very frequently. See Generation.

PAMPLIEGA, in *Geography*, a town of Spain, in Old Caſtile; 12 miles S.W. of Burgos.

PAMPLONA, or Pampeluna, a city of Spain, and capital of the province of Navarre, partly ſituated on a little eminence, and partly in a fertile plain, on the banks of the Arga, near the Pyrenées. It is ſurrounded on all ſides by lofty mountains, at the diſtance of two or three leagues. This city is ſaid to have been built by Pompey, after the defeat of Sertorius, whence it derived the name of Pompeiopolis. It is a fortified town, and defended by two caſtles, one in the town and the other contiguous, though without the walls. This laſt place, which is the citadel, was built by Philip II.; it is ſtrong from its ſituation on a rock; it has five baſtions covered with ſtone, and good foſſes; a deep marſh, of conſiderable extent, renders the approaches to it difficult towards the ſide on which it could be attacked. This citadel has a handſome tower, ſeveral magazines, a ſquare ornamented with trees, and an armory in the centre of the fortreſs; which is round, and opens by five grand and open ſtreets, which lead to the five baſtions. Here is a hand-mill of ingenious conſtruction, that would be uſeful in caſe of a ſiege; it is a large machine, compoſed of ſeveral wheels, which turn five grinding-ſtones, with as many hoppers; 120 loads, or 360 quintals of wheat, may be ground with it daily: it is turned with the hand, or may be worked by horſes. This town boaſts of having been the firſt in Spain which received the light of the goſpel; its biſhopric, one of the moſt ancient in Spain, was re-eſtabliſhed after the expulſion of the Moors; it is ſuffragan to Burgos. The chapter of the cathedral comprehends twelve dignitaries, as many canonries, and forty-four prebends and chaplaincies. There is another chapter in the ſame cathedral. This town is the reſidence of the viceroy of Navarre. Its population conſiſts of about 2800 families, compoſed of nearly 14,000 perſons, occupying 1632 houſes. In this capital of Navarre the ſtates held their ſitttings. The college for the inſtruction of youth is an univerſity, founded in 1608. Pampeluna contains a cathedral, three pariſhes, nine convents of monks, and two of nuns.

The city itſelf is confined and ill-built, but its ſtreets are kept remarkably clean. There are ſome ſquares, two of which have tolerably handſome houſes, particularly that which is appropriated to bull-fighting. The town is deſtitute of agreeable ſociety, which ſome have aſcribed to the ſeverity of the police. The commerce conſiſts merely of imports, and its manufactures are few and inconſiderable. Thoſe of parchment and of leather, and another of coarſe cloth, are of little importance; here alſo they make common earthenware, and blanch wax, which they import; 78 miles N.N.W. of Saragoſſa, and 172 N.N.E. of Madrid. N. lat. 42° 50′. W. long. 1° 46′.

PAMPLONA, or *Pampeluna*, a town of South America, in the new kingdom of Granada; having in its vicinity gold mines; 170 miles N.N.E. of Santa Fé de Bogota. S. lat. 6° 30′. W. long. 71° 36′.

PAMPUS, a channel between the Zuyder ſee and Amſterdam.

PAMPUS, in *Ichthyology*. See STROMATEUS *Paru*, and CHÆTODON *Glaucus*.

PAMUCHLEN, a name by which ſome call the ſpecies of cod-fiſh, commonly named by authors *aſellus ſtriatus*. See GADUS *Callarias*.

PAMUNKY, in *Geography*, the ancient name of York river, in Virginia; but now reſtricted to the ſouthern branch formed by the confluence of the N. and S. Anna. This and the northern branch, Mattapony, unite and form York river, juſt below the town of De la War.

PAN, in *Mythology*, the ſon of Mercury and Penelope, and the deity who preſided over huntſmen, ſhepherds, and thoſe whoſe occupations led them to frequent the fields. The fable ſays, that Mercury transformed himſelf into a he-goat to pleaſe Penelope; and to this circumſtance is attributed the origin of his horns and cloven feet, as well as the whole tribe of fauns and ſatyrs. He is called *Pan*, Παν, it is ſaid, becauſe Penelope, in the abſence of Ulyſſes, granted favours to all her lovers, and Pan himſelf was the fruit of this intercourſe. However, Epimenides ſays, that he was the ſon of Jupiter and Caliſta; others ſay, that he was the ſon of the Air and a Nereid, or of the Heaven and Earth. He is commonly repreſented with a ſhepherd's crook, and a kind of flute, with many pipes. He was particularly revered among the Arcadians, to whom he iſſued oracles, and who celebrated, in honour of him, the Lupercalia. Evander carried the worſhip and feaſts of Pan to Rome.

The Egyptians give a different account of this deity. According to them, he was one of the generals of Oſiris, who engaged with Typhon; and whoſe army being ſituated in a valley, all the avenues of which were guarded by the enemy, he ordered the ſoldiers in the night to march with loud exclamations, which being returned in echoes, terrified the enemy, and put them to flight; whence they ſay comes the expreſſion of *panic* terror. But Bochart pretends that there is no other reaſon for making Pan the author of thoſe terrors, except that the Hebrew word Pan or Phan, denotes a man under conſternation. Diodorus Siculus ſays, that Pan was ſo much honoured by the Egyptians, that his ſtatues were to be ſeen in all the temples, and that to his honour they had built in Thebais the city of Chemmis, that is, the city of Pan. This author, who takes no notice of Mendes in Lower Egypt, where that god was in high veneration, adds, that he had accompanied Oſiris in his expedition to the Indies, together with Anubis and Macedo. We do not learn from Herodotus why the Egyptians repreſented the god Pan under the figure of a goat; but ancient mythologiſts aſſure us, that they were induced to do this, becauſe Pan, having found the gods in Egypt, whither they had fled from the giants, adviſed them, as the means of preventing their diſcovery, to clothe themſelves with the figures of different animals; and as a pattern to them, he himſelf aſſumed that of a goat. Upon the whole, all the Greek fables relating to Pan are ſaid to amount to theſe particulars: that he was one of the greateſt gods of Egypt; that he was honoured eſpecially at Mendes; that his worſhip was brought into Greece by the Egyptian colonies; that he became more remarkably famous in Arcadia; that Evander made him known in Italy, where he came and ſettled with his colony ſome years before the Trojan war; and that at laſt the worſhip of this god was received at Rome with the feſtivals which were celebrated to his honour. Polyænus attributes to Pan the invention of the order of battle of the phalanx, and of the diſtribution of an army into the right and left wings, or horns, whence, it is ſaid, he derived his horns. The name Pan, which ſignifies *all*, has led ſome to make him the ſymbol of nature.

Diodorus makes Pan one of the attendants upon Oſiris in his Indian expedition. The ſame author, however, tells us, that he was the leader of a troop of fauns and ſatyrs, or wild and ruſtic men, much addicted to ſinging, dancing, and feats of activity, who were preſented to Oſiris in Ethiopia; and with whom that prince was ſo much pleaſed, that he retained them in his ſervice.

Pan was the inventor of the inſtrument called the ſyrinx, or fiſtula; which invention has given birth to a fable in Ovid's Metamorphoſes.

A nymph of late appear'd, as Dian chaſte,
Whoſe beauteous form all other nymphs ſurpaſs'd;
The pride and joy of fair Arcadia's plains,
Belov'd by deities, ador'd by ſwains,
Syrinx her name; by ſylvans oft purſu'd,
As oft would ſhe the wanton gods delude.

Deſcending from Lycæus, Pan admires
The matchleſs nymph, and burns with new deſires.
A crown of pine upon his head he wore,
And vainly ſtrove her pity to implore:
For ere he could begin, ſhe took her flight,
And, wing'd by fear, ſhe ſoon was out of ſight,
Nor ſtay'd to hear the courtſhip of the god,
But bent her courſe to Ladon's gentle flood;
There by the river ſtopt, and tir'd before,
Relief from water-nymphs her pray'rs implore.
Now while the am'rous god, with ſpeedy pace
Juſt thought to ſtrain her in a fond embrace,
He fills his arms with reeds, new riſing on the place.
And while he ſighs, his ill-ſucceſs to find,
The tender canes were ſhaken by the wind;
And breath'd a mournful air, unheard before,
Which greatly Pan ſurpris'd, yet pleaſed him more.

Admiring this new muſic, Thou, he ſaid,
Who can'ſt not be the partner of my bed,
At leaſt ſhalt be the conſort of my mind,
And often, often, to my lips be join'd!
The tuneful reeds he form'd, and wax'd with care,
Which ſtill retain the name of his ungrateful fair.
Dryden.

Pan was regarded by the Egyptians, after his apotheoſis, as the god who preſided over the whole univerſe, as Παν, *omne*, implies. He repreſented nature and feſtivity, and was god of the woods and fields, wholly taken up with the pleaſures of a country life; dancing conſtantly with the fauns and ſatyrs, and running after the nymphs, to whom he was ſuch a terror, that it is ſuppoſed by ſome the word *panic* is derived from *panici terrores*, with which thoſe who were ſaid to have ſeen him were ſeized. Apuleius, however, gives an agreeable deſcription of him. "By chance the god, Pan, happened to be ſeated on a little eminence near a river, and, always conſtant in his love to the nymph Syrinx, transformed into a reed, he taught her to produce all kinds of agreeable ſounds, while his goats were ſkipping round him, and feeding on the banks."

Lucian deſcribes him as the companion, miniſter, and counſellor of Bacchus, a ſervant of *all work:* having been occaſionally employed in the capacity of ſhepherd, muſician, dancer, huntſman, and ſoldier. In ſhort, he ſerved not only as maeſtro di cappella, to direct the Bacchanals, but was ſo expert in playing upon flutes, and was ſuch an excellent piper on the fiſtula, that Bacchus was never happy without him. We have the authority of the grave Virgil, and of the ſentimental and pious Plato, for his attributes. Pauſanias Corinth. cap. 22.

Pan, in *Agriculture*, a term applied to the bed or flooring upon which the cultivated ſoil lies or is placed. Mr. Marſhall, in ſpeaking of the Norfolk ſoils, remarks, that "immediately under the cultivated ſoil, a hard cruſt, provincially 'the *pan*,' occurs univerſally. And under this ſubſtratum of various qualities an unfathomable ocean of *ſand* may be conſidered as the prevailing ſubſtratum. In ſome places a hungry *gravel*, but more frequently an abſorbent *brick-earth* is the immediate ſubſoil."

And that "*marle* ſometimes riſes to near the ſurface, but ſeldom ſo high as the pan. This ſeems to be univerſally conſidered as a diſtinct ſomething, poiſonous in its nature, and partaking neither of the ſoil nor the ſubſoil. It is not his intention to ridicule this received opinion; it may be well founded; but to him the pan appears to be a production, not of nature, but of art, or, to ſpeak more accurately, a conſequence of the Norfolk culture carried on time immemorial with the Norfolk plough, whoſe broad flat ſhare, being held invariably in a horizontal poſition, and (unleſs in following) invariably at the ſame depth, the ſurface of the ſubſoil becomes formed by the action of the ſhare, the preſſure and ſliding of the heel of the plough, and the trampling of the horſe, into a firm even floor, upon which the ſoil is turned and returned in the ſame manner, it would be, if ſpread on a floor of ſtone, or other material. But, be this as it may, and whether the pan is a natural or a fictitious production; it is a fact well eſtabliſhed, that breaking it up for ploughing below the accuſtomed depth is very injurious to ſucceeding crops." And further, that "two reaſons may be offered in explanation of this effect; the pan, year after year, and perhaps century after century, has been a receptacle of the ſeeds of weeds, which, by being trodden, or otherwiſe preſſed into it, have remained there, locked up from the ſun and air, and thereby deprived of the power of vegetation. But no ſooner are theſe ſeeds releaſed from their confinement, by being brought to the ſurface with the plough, than they vegetate in myriads to the annoyance of the crop. The other reaſon is this,—the firm cloſe contexture of the pan renders it in a degree water-tight, it is at leaſt a check to the rain-water which ſinks through the ſoil, prolonging its ſtay in the ſphere of vegetation. But the pan being broken, the filter is no more: and the rain, which is not immediately retained by the ſoil, eſcapes irretrievably into an inſatiable bed of ſand, or ſome other abſorbent ſubſoil."

It muſt, therefore, in many caſes of tillage, be highly injurious to break or deſtroy this cruſty layer, which preſerves the manures, and contributes much to the production of good crops of different kinds.

PANA, in *Geography*. See Puna.

PANACA, a burning mountain on the W. coaſt of New Mexico.

PANACEA, in *Medicine*, from παν, *all*, and ακεομαι, *I cure*, ſignifies an univerſal remedy, or one that is capable of curing all diſeaſes.

Among the old practitioners, with whom the diſcovery of new drugs was often a purſuit of greater intereſt, than the inveſtigation of pathology, ſeveral medicines were eſteemed worthy of this appellation. But it is ſufficient to take a very ſuperficial view of the various organs ſubject to diſeaſe, of the various kinds of diſeaſe that affect the ſame organ, and of the various ages and conſtitutions of different individuals, as well as of the different agency of the cauſes of diſeaſe, *e. g.* high living and ſtarvation, ſloth and hard labour, cold and heat, the various ſpecies of contagion, marſh effluvia, and other morbid exhalations, and the various poiſons, animal, vegetable, and mineral, which are deleterious to the animal frame,—it is ſufficient to glance at theſe ever-varying circumſtances which neceſſarily modify the nature of diſeaſes, in order to be ſatisfied of the abſurdity of the attempt to cure them all by one remedy. The pretenders to *panaceas* are, therefore, only found at preſent among empirical impoſtors.

Panacea, *Panaces*, or *Panax*, *all-heal*, is alſo applied to ſeveral plants, by reaſon of the extraordinary virtues aſcribed to them.

There are three of the panaceas peculiarly famed among the ancients: the *Heraclean*, *Aſclepian*, and *Chironian:* theſe were ſo called from their inventors Hercules, Aſclepias, and Chiron.

The firſt is the *panax Heraclea vera ficulnea folio*, in Engliſh, *true all-heal of Hercules*. From the root and ſtem of this is drawn, by inciſion, the gum opopanax.

The *Aſclepian*, according to ſome botaniſts, is a kind of ferula, which Caſ. Bauhins call *Libanotis ferrulæ folio & ſemine*.

The *Chironian*, according to ſome, is a kind of helianthemum: according to Bradley, it is Doria's woundwort.

Panacea, in *Mythology*, one of the divinities of medicine, the pretended daughter of Æſculapius, to whom were rendered divine honour, as well as to his other children, Hygeia, Theleſphorus, and Jaſo.

PANACMUS, in *Biography*, a muſician, quoted by Ariſtides Quintilianus, whoſe definition of muſic agrees entirely with that of the Chineſe. "Muſic (he ſaid) was not only the order and arrangement of ſounds proper to regulate the voice, but was likewiſe the regulator of all the harmony of nature." See Chineſe *Muſic*.

PANADA, Panata, or *Panatella*, a diet conſiſting of bread boiled in water to the conſiſtence of a pulp; given to ſick perſons whoſe digeſtion is weak, or to whom ſtronger food would be improper.

The word is formed from the name of the principal ingredient *panis, bread.*

It is ſometimes made thin, to ſerve as drink; and ſometimes, likewiſe, is ſweetened, &c. to render it more palatable.

PANADOU, or MANADOU, in *Geography*, a bay on the coaſt of cape Breton iſland, near the S. part of the gulf of St. Laurence.

PANÆI, in *Ancient Geography*, a people of Thrace, in the environs of Amphipolis. They formed a part of the Hedoni, according to Steph. Byz. and Thucydides.

PANÆTIUS, in *Biography*, a celebrated phlioſopher among the Stoics, who flouriſhed in the ſecond century before Chriſt, was a native of Rhodes, and deſcended from anceſtors who had diſtinguiſhed themſelves in the military tranſactions of the republic. His inclination leading him to the ſtudy of philoſophy, he became a diſciple of Antipater of Tarſus, but did not at this time approve the doctrines of the Stoics. He was a great admirer of Plato, whom he called divine, moſt wiſe, and moſt holy, and he freely borrowed opinions and ſentiments from philoſophers of every ſect. From Rhodes he went to Athens, where he maintained the reputation of the ſchool of Zeno, and had many diſciples. His fame having reached Rome, he went thither; his lectures were crowded by the young nobility; and he enjoyed an intimate acquaintance with ſeveral eminent Romans, particularly Scipio and Lælius. According to ſome writers he accompanied Scipio in ſome of his expeditions, and is ſaid to have rendered him eſſential ſervices; he at the ſame time employed his intereſt with this great man in conferring various benefits on his fellow citizens at Rhodes. Panætius appears to have ſpent the latter part of his life partly at Athens, and he died at the laſt-named city, but it is not at all certain in what year. None of his works have come down to us. but his moral doctrines were, doubtleſs, very excellent, ſince they are greatly extolled by Cicero, in his treatiſe "De Officiis." Cicero. Enfield's Hiſt. Phil.

PANAGE, or PANNAGE, in our *Ancient Cuſtoms*. See PANNAGE.

PANAGIA, in *Geography*, a ſmall iſland in the Grecian Archipelago, ſcarcely a league in circumference; 16 miles N.W. of Santorin. N. lat. 36° 39′. E. long. 25° 5′.—Alſo, a town of European Turkey, in Romania; 14 miles N. of Gallipoli.

PANAGRA, in *Ancient Geography*, a town of Africa, in Libya Interior, upon the northern bank of the Niger. Ptolemy.

PANAGUR, in *Geography*, a town of Hindooſtan, in Gurry Mundella; 10 miles N. of Gurrah.

PANAIA, a town of Naples, in Calabria Ultra; 4 miles N. of Nicotera.

PANAMA, or *Tierra Firmé Proper*, a province of South America, in the viceroyalty of New Granada, bounded on the N. by the Spaniſh main, on the E. by the province of Darien, on the S. by the Pacific ocean, and on the W. by Veragua. The towns and villages of this province are moſtly ſituated in ſmall plains along the ſhore, the other parts of the country being covered with enormous and craggy mountains, which are ſterile, and of courſe uninhabited. In this province are three cities, twelve villages, and a great number of rancheiras or aſſemblages of Indian huts. Its gold mines are neglected by the Spaniards, who derive greater profit from the pearl fiſhery, which has engroſſed their attention, though this ſpecies of traffic is almoſt abandoned.

PANAMA, the capital of the fore-mentioned province, is a city and ſea-port, built on the iſthmus of Darien, at the bottom of a large bay of the Pacific ocean. The firſt diſcovery of Panama is aſcribed to Tello de Guzman, who landed here in the year 1515, when he found only fiſhermen's huts, and from its peculiar appropriation to this buſineſs, it was called "Panama," denoting a place abounding with fiſh. In 1518, a colony was eſtabliſhed here under Pedrarias Davila, governor of Terra Firma, and in 1521 this place was conſtituted a city. In 1670 it was taken and burned by the Engliſh adventurer, John Morgan; and afterwards rebuilt in its preſent ſituation, which is much more convenient, about 1½ league from the former. Being at firſt generally conſtructed of wood, it was almoſt wholly deſtroyed by fire in 1737, and again rebuilt chiefly of ſtone. Panama was the ſeat of a royal audience, abandoned in 1752; and by the fire in 1756, and a decline of commerce, it was reduced to a miſerable ſituation. Nevertheleſs it is ſtill a ſtrong city, the ſee of a biſhop, and contains ſeveral churches and convents. The harbour of Panama is formed in its road under the ſhelter of ſeveral iſlands, where ſhips lie ſafe, at the diſtance of about 2½ or 3 leagues from the city. After its fall by the loſs of the galeons, it was almoſt completely ruined by a dreadful conflagration in 1784. Its only remaining trade is with the villages in its juriſdiction, and with the province of Veragua, the goods being received by Portobello, moſtly from Carthagena: the veſſels from Peru commonly return empty. The neighbouring mountains produce excellent wood, eſpecially the moſt eſteemed mahogany (caoba), and cedar, with many precious balſams. The ſpirit of trade ridiculouſly maintains itſelf, as the chief inhabitants of both ſexes ſell baubles and trifles by means of their ſlaves. The royal cheſt is ſo poor, that it cannot even pay the garriſon, which is now defrayed from Carthagena. The trade with Guayaquil is maintained by an eaſy and ſhort voyage; the paſſage of the line being rather accompanied with calms, while in the Atlantic it is eſteemed dangerous. This circumſtance, as Pinkerton ſuggeſts, may have led to the name of the Pacific ocean, given by the Spaniſh conquerors of Mexico and Peru, before Magalhaens had felt its tempeſts. N. lat. 8° 58′ 12″. W. long. 80° 15′ 15″.

PANAMA *Shell*, in *Ichthyology*, a ſpecies of dolium.

PANAMAO, in *Geography*, one of the Philippine iſlands, about 15 miles in circumference, of a triangular form. N. lat. 11° 27′. E. long. 124° 15′.

PANAMARIBA, a river of Guiana, which runs into the Atlantic, N. lat. 6°.

PANAMGOODY, a town of Hindooſtan; 25 miles S. of Tinevelly.

PANAMOS, a mountain of Peru, in the dioceſe of Truxillo; being part of the Andes.

PANANGOODY, a town of Hindooſtan; 18 miles S.E. of Madura.

PANAON, one of the Philippine iſlands, about 45 miles in circumference, mountainous, but watered with many ſtreams; thinly inhabited. N. lat. 10° 7′. E. long. 125° 12′.

PANAOUCTICK, a river of Canada, which runs into the Saguenay, N. lat. 48° 24′. W. long. 70° 55′.

PANARA, in *Ancient Geography*, a town of Arabia Felix, in the iſle of Panchæa. Diod. Sic.

PANARAGA, in *Geography*, a town of the iſland of Java, and capital of a kingdom, ſituated on the ſouthern ſide of the iſland; 60 miles E. of Mataran.

PANARCOUCHI, a town of Hindooſtan, in the Carnatic; 16 miles from Cuddalore.

PANARD, CHARLES FRANÇOIS, in *Biography*, an ingenious French poet, was born about the year 1690, at Courville, near Chartres. He became diſtinguiſhed as a writer for the ſtage, and produced a number of dramatic pieces of the light and humorous kind, which were in general well received, and ſome of them are ſtill repreſented in the French theatre. His ſatire was never perſonal, but was directed againſt vice and folly in general, without making the application to individuals. His works are ſtamped with facility, nature, ſentiment, wit, and good ſenſe; but they are often negligent, prolix, and incorrect. He was uneducated, and drew all from his own ſources. He died at an advanced age, in 1765. His works were printed at Paris, in 4 vols. 12mo. in 1763, under the title of "Theatre et Œuvres diverſes de M. Panard."

PANARIA, in *Geography*, a town of Pruſſia, in Oberland; 5 miles S. of Libſtat.—Alſo, one of the Lipari iſlands, between Lipari and Stromboli. N. lat. 38° 40′. E. long. 15° 21′.

PANARIS, or PANARITIUM, formed probably of παρονυχια, *q. d.* an abſceſs at the root of the nails, derived from παρα, *juxta*, and ονυξ, *unguis*, a word uſed by ſome authors to expreſs a whitlow, or *paronychia*.

PANARO, in *Geography*, a river of Italy, which riſes in the S. part of the duchy of Modena, and runs into the Po near Bondeno, in the Ferrareſe. It gives name to a department of Italy, compoſed of the duchy of Modena, with Mirandola, containing about 211,448 inhabitants, who elect 15 deputies. Its capital is Modena.

PANARUCAN, or PANAROCAN, a town of the iſland of Java, on the N. coaſt, and capital of a kingdom of the ſame name, near the eaſtern part of the iſland. The principal commerce conſiſts of ſlaves and long pepper. Many of its inhabitants are Portugueſe. S. lat. 7° 30′.

PANASA, or PANASSA, in *Ancient Geography*, a town of India, on this ſide of the Ganges, and on its bank. This is the *Pannah*, or *Parna*, which ſee. Ptolemy.

PANASNESTI, in *Geography*, a town of Turkiſh Armenia; 28 miles N.W. of Cars.

PANAT, a town of France, in the department of Aveiron; 17 miles S. of Rhodez.

PANATELLAH, a town of Hindooſtan, in the circar of Ruttunpour; 40 miles N.W. of Ruttunpour.

PANATHENÆA, παναθηναια, in *Antiquity*, a feaſt celebrated at Athens in honour of Minerva, whom the Greeks called *Athena*.

Harpocration and Suidas refer its inſtitution to Erichthonius IV. king of Athens, who lived before Theſeus. Theodoret, alone, ſays the feaſt was eſtabliſhed by Orpheus.

Be this as it will, till Theſeus, this was a particular feaſt of the city of Athens, and was called ſimply *Athenæa*: but that prince uniting all the people of Attica into one republic, they afterwards all aſſiſted at the feaſt; whence the name panathenæa, *i. e.* the feaſt of all Attica.

In effect all Attica was preſent; and each people ſent a bullock for the ſacrifices, and for the entertainment of the vaſt multitude of people aſſembled. At firſt it laſted only one day, but to add to its ſolemnity, it was continued afterwards for ſeveral days.

There were two kinds of Panathenæa; the *great*, celebrated every five years; and the *little*, every year, or every three years; if we may credit the author of the argument of Demoſthenes's oration againſt Midias.

The ceremonies were the ſame in the great and the little Panathenæa; excepting for a *peplus* or banner, on which the actions of the goddeſs were repreſented in embroidery performed by maids, with the names of thoſe who had diſtinguiſhed themſelves in the ſervice of the republic; which was only borne at the greater. See PEPLUS.

PANATHENÆAN GAMES. See GAMES.

PANAUR, or PONEAUR, in *Geography*, a river of Hindooſtan, which riſes near Ouſcotta, in Myſore, and runs into the bay of Bengal, near Cuddalore.

PANAX, in *Botany*, a name borrowed from the old Greek botaniſts, whoſe παναξ, or πανακης, was ſo denominated from παν, *all*, and ακος, *a medicine*, becauſe of its abundant virtues, and appears by the account in Dioſcorides, to have been a broad-leaved umbelliferous plant, though modern writers are not agreed reſpecting the ſpecies. The name therefore being unoccupied, Linnæus very happily adopted it for the Chineſe Ginſeng, that famous reſtorative and panacea, whoſe reputed virtues certainly yield in no reſpect to the ancient παναξ, and which is moreover of the umbelliferous order. Linn. Gen. 554. Schreb. 740. Mart. Mill. Dict. v. 3. Ait. Hort. Kew. ed. 1. v. 3. 448. Juſſ. 218. Lamarck Dict. v. 2. 713. Illuſtr. t. 860. Michaux Boreal. Amer. v. 2. 256. Claſs and order, *Polygamia Dioecia*, or rather perhaps *Pentandria Digynia*. Nat. Ord. *Umbellatæ*, Linn. *Umbelliferæ*, Juſſ.

Gen. Ch. *Cal.* Umbel equal, cloſe. Involucrum of ſeveral, ſmall, awl-ſhaped, permanent leaves. Perianth very ſmall, ſuperior, five-toothed, permanent. *Cor.* univerſal, uniform; proper of five oblong, equal, recurved petals. *Stam.* Filaments five, very ſhort, deciduous; anthers ſimple. *Piſt.* Germen roundiſh, compreſſed, inferior; ſtyles two, erect, ſmall; ſtigmas ſimple. *Peric.* Berry heart-ſhaped, umbilicated, of two cells. *Seeds* ſolitary, heart-ſhaped, acute, ſlightly convex.

Male flowers only are found on a ſeparate plant, in more globoſe umbels, with larger leaves to the involucrum, a turbinate, coloured, entire perianth to each flower, and longer filaments, which, as well as the petals, are inſerted into the perianth.

Eſſ. Ch. Umbel of many rays. Berry compreſſed, with two ſeeds. Petals five, equal, recurved. Calyx five-toothed. Male flowers on a ſeparate plant; their calyx entire.

Obſ. This is the only known genus of the true digynous umbelliferous tribe, whoſe fruit is pulpy. That very natural order is ſo liable to occaſional variations in the organs of impregnation, or, in other words, ſo many of its genera or ſpecies are, more or leſs conſtantly, polygamous, that it is deſirable they ſhould all be kept together in the *Pentandria Digynia*, to which they properly belong, notwithſtanding that difference of ſtructure, which is ſaid to exiſt between the calyx of the male and that of the perfect flowers. Bernard de Juſſieu remarked that there are ſometimes three ſtyles and three ſeeds; and his nephew refers *Panax* to his order of *Araliæ*, as does Linnæus to his own, nearly equivalent, order of *Hederaceæ*. A. de Juſſieu moreover ſuſpected that *Cuſſonia*, of which he knew nothing but from deſcription, was not generically diſtinct from *Panax*, but we find no authority for believing the fruit of the former to be pulpy, though deſcribed in Linnæan language as *dicoccous*, or two-lobed. The ſmooth, very juicy, and uſually beautifully coloured berries of *Panax*, are peculiar and characteriſtic.

1. P. *quinquefolium*. Gin-ſeng. Linn. Sp. Pl. 512. Woodv. Med. Bot. t. 99. (Araliaſtrum foliis ternis quinquepartitis; Trew. Ehret. t. 6. f. 1. Aureliana canadenſis; Lafitau Ginſeng, t. 1.)—Leaves three together, quinate; leaflets ſtalked. Stem herbaceous.—Native of Chineſe Tartary, and of various parts of North America, in mountainous woods. The celebrated Peter Collinſon procured it alive from the laſt mentioned country, in 1740. The plant is perennial, flowering with us in June, but not readily increaſed, nor preſerved without care, in our gardens. The *root* is ſpindle-ſhaped, but moſtly divided or branched, pale and yellowiſh,

of a mucilaginous, ſweetiſh, ſlightly aromatic, and rather bitteriſh, flavour. *Stem* herbaceous, erect, round, ſimple. *Leaves* terminal, three together, on longiſh ſtalks; each of five, ſtalked, very unequal, obovate, pointed, ſerrated, ſmooth, veiny leaflets. *Flower-ſtalk* terminal, between the leaves, ſolitary, erect, ſimple, ſhorter than the footſtalks, bearing a ſimple umbel of ſeveral ſmall white *flowers*, each flower ſucceeded by a kidney-ſhaped, or heart-ſhaped, ſcarlet *berry*. For the medical hiſtory of this celebrated root, and the mode of procuring it, ſee GINSENG; where for *Pinax* read *Panax*. See alſo NINSI and SIUM.

2. P. *trifolium*. Leſſer American Gin-ſeng. Linn. Sp. Pl. 512. (Araliaſtrum foliis ternis tripartitis et quadripartitis; Trew Ehret. t. 6. f. 2. Naſturtium marianum, anemones ſylvaticæ foliis enneaphyllon, floribus exiguis; Pluk. Mant. 135. t. 435. f. 6.)—Leaves three together, ternate or quinate; leaflets nearly ſeſſile. Stem herbaceous.—Native of North America. Michaux found it at New York, and in Pennſylvania. Miller is ſaid to have had it alive, but never ſaw the flowers. We received a living ſpecimen from the curious garden of J. Vere, eſq. Knightſbridge, in May 1811. This plant differs from the former chiefly in being much ſmaller, the *leaflets* nearly ſeſſile, and uſually only three to each leaf; but the laſt character is variable, there being very often two ſmall lobes, occaſionally becoming diſtinct leaflets, at the baſe of the others. Linnæus ſuſpected this to be a variety, or perhaps a male plant, of the true Ginſeng, nor is it improbable that weak plants of that ſpecies, perhaps the firſt ſeaſon of their flowering, may produce male bloſſoms only, not having ſtrength to perfect both organs of fructification. There is reaſon to think the American Ginſeng, when in its full vigour, is of an inferior quality to the Chineſe, if indeed it be the ſame plant, which the obſervations of father Loureiro, *Cochinch.* 656, render doubtful. He had received the ſeeds from Tartary, but they did not vegetate. He deſcribes the "fruit as containing ſeven or eight roundiſh, umbilicated ſeeds, rather larger than a pepper-corn, brown and of a horny ſubſtance." This is totally foreign to the characters of our *Panax*.

3. P. *ſpinoſum*. Spinous Tree Gin-ſeng. Linn. Suppl. 441. (Aralia pentaphylla; Thunb. Japon. 128. Kióh, vulgo Dara; Kæmpf. Amoen. 895?)—Leaves cluſtered, quinate, crenate. Stem arboreous, with ſolitary ſpines. Umbels lateral, ſimple. Gathered by Thunberg between Miaco and Quana, and near Jedo, in Japan. A ſpecimen given by him to the younger Linnæus is what the latter deſcribed as *P. ſpinoſa*, though Thunberg, who deſcribes neither the *piſtils* nor the *fruit*, refers the plant to *Aralia*, perhaps on the authority of Kæmpfer, who ſpeaks of the ſeed-veſſel as the ſize of Coriander, with five cells, each of which contains one ſeed, not unlike that of Flax. We preſume this author's ſynonym is miſapplied, for it muſt belong to a real *Aralia*. Our ſpecimen has every where but two *ſtyles*, ſo that, though the fruit is in no ſtate of forwardneſs, we muſt conclude it to have but two *ſeeds*. The *ſtem* is ſaid by Thunberg to be arboreous and prickly. The *branches* are round, leafy, with a ſmooth greyiſh bark, and furniſhed with ſcattered, ſharp, horizontal *prickles*, or rather as they appear to us *ſpines* proceeding from the wood, half an inch long. *Leaves* three, four, or more, from each bud, on ſmooth footſtalks, from two to five inches long, each compoſed of five ſlightly ſtalked, obovate, acute, ſmooth leaflets, from one to nearly two inches long; unequally crenate upwards; tapering much, and entire, at their baſe. *Umbels* ſolitary, ſtalked, ſimple, from the ſame bud with the leaves, much ſhorter than their footſtalks, each of numerous *flowers*, on ſlender partial ſtalks, with but ſmall traces of an *involucrum*. *Calyx* with five reflexed teeth. *Petals* ovate, reflexed. *Stamens* longer than the petals. *Germen* ovate-oblong. *Styles* two; in ſome flowers but half the length of the petals, firſt ſlightly divaricated, then incurved, with capitate *ſtigmas*; in others longer than the petals, erect, parallel, ſtraight, with acute, ſlightly ſpreading *ſtigmas*. One flower in our ſpecimen has a ſtyle of each deſcription. The former are probably abortive, as far as we can judge from other umbelliferous plants. Thunberg ſays this ſpecies flowers in May and June. The *corolla* appears to be white. Nothing could have determined this plant to be that of Linnæus, except the authority of an original ſpecimen; for the difference between theſe writers, as to the genus and order, implies that they had counted the ſtyles.

4. P. *arboreum*. Serrated Tree Gin-ſeng. Forſt. Prodr. 75. Linn. Suppl. 441.—Leaves fingered; leaflets ſtalked, ſtrongly ſerrated. Stem arboreous. Umbels compound.—Gathered by Forſter in New Zealand. The *ſtem* is arboreous. *Leaves* alternate? on ſtout *footſtalks* four inches or more in length, compoſed of five, ſix, or ſeven, ſpreading, unequal, elliptical or obovate, acute, ſmooth, coriaceous *leaflets*, each from two to four inches long, and ſupported by a partial ſtalk an inch in length. *Umbels* large, compound and proliferous, of numerous, ſpreading, ſmooth rays. *Calyx* wavy, very ſlightly toothed. We find ſcarcely any traces of general or partial *involucrum*, nor have we ſeen the *fruit*.

5. P. *undulatum*. Wavy Tree Gin-ſeng. Aubl. Guian. 949. t. 360.—Leaves fingered; leaflets ſtalked, undulated; downy and ruſty beneath. Stem arboreous. Umbels panicled.—Gathered by Aublet in Cayenne, Hiſpaniola, and the ſpacious foreſts of Guiana, bearing half-ripe fruit in the month of May. The French call it *Arbre de Mai*, or *de St. Jean*; the Indians *Morototoni*, which laſt word is retained as the ſpecific name in Aublet's letter-preſs, though not in his plate. The *trunk* riſes to the height of 100 feet, though only two feet thick, with a whitiſh back, and a white light ſpongy wood. The *branches* are all at the ſummit, ſpreading in a round head, leafy at their extremities. *Leaves* alternate, ſtalked, of about eight ſtalked *leaflets*, much reſembling the laſt, except that they are ſtrongly undulated, not ſerrated, and their under ſide is clothed with ſoft denſe tawny down. The largeſt are eight inches long. *Umbels* alternate, collected into large panicles about the ends of the branches, with an ovate rigid *bractea* at the baſe of each partial ſtalk. *Styles* two. *Fruit* ſometimes of three lobes. Aublet ſaw it but half ripe. Every part of the plant is aromatic.

6. P. *attenuatum*. Taper-pointed Tree Ging-ſeng. Swartz Ind. Occ. 562.—Leaves fringed; leaflets ſtalked, ovate, crenate, with taper points. Stem arboreous. Umbels panicled.—Native of mountainous woods in the iſlands of Guadeloupe and St. Chriſtopher. A *tree* 40 feet high, with round, ſmooth, unarmed branches. *Leaves* alternate, on ſtalks a foot long, whoſe baſe is dilated into an ovate, pointed, ſheathing intrafoliaceous *ſtipula*, ſuch as may be obſerved in other arboreſcent ſpecies of this genus, as well as of *Aralia*; the *leaflets* are five, rarely only three, on partial ſtalks from one to two inches long, broad-ovate, ſmooth, wavy and crenate, about three inches long, with a taper point more than half that length; their under ſide pale, with one central rib, and numerous ſtraight tranſverſe ones, connected by reticulated veins. *Umbels* very numerous, on long, racemoſe, imperfectly whorled ſtalks, which ſtalks are themſelves collected, about five together, into one large but

imperfect umbel, at the top of each branch. Partial *involucrum* of ſeveral minute, awl-ſhaped, deciduous leaves, like the *bracteas*. *Calyx* with five ſmall teeth. *Petals* ovate, acute. *Stamens* five. *Styles* two, rarely three, combined. *Stigmas* ſpreading, obtuſe. We have not ſeen the ripe *fruit*. Swartz thought it a *berry;* but we rather ſuſpect that he, like ourſelves, had only ſeen dried ſpecimens, and that it is by miſtake he terms this plant a ſhrub.

7. P. *fruticoſum*. Shrubby Compound-leaved Gin-ſeng. Linn. Sp. Pl. 1513. (Scutellaria tertia; Rumph. Amboin. v. 4. 78. t. 33.)—Leaves triply pinnate; leaflets ſtalked, lanceolate, fringed with ſlender teeth. Stem ſhrubby. Umbels panicled.—Native of the iſland of Ternate, from whence, according to Rumphius, it was brought to Amboyna. This is a *ſhrub*, about ſix feet high, uſed in its native climate for hedges. The *leaves* ſomewhat reſemble parſley, whence the Dutch call it Tree Parſley. They are repeatedly compound, their *leaflets* lanceolate, acute, fringed with ſlender, almoſt ſpinous, teeth. *Umbels* irregularly collected into panicles. *Styles* two, rather ſpreading. *Berries* purple, reſembling thoſe of Juniper. The whole plant has a ſtrong aromatic parſley-like flavour.

8. P. *aculeatum*. Prickly Shrubby Gin-ſeng. Ait. Hort. Kew. ed. 1. v. 3. 448. L'Herit. Stirp. Nov. v. 2. t. 99, unpubliſhed. (Zanthoxylum trifoliatum; Linn. Sp. Pl. 1455.)—Leaves ternate; leaflets ſtalked, crenate. Footſtalks and branches prickly. Stem ſhrubby.—Native of China. Dr. Fothergill is ſaid to have cultivated this ſhrub in 1773, and it exiſted in the Engliſh or French ſtoves about 1788, when L'Heritier had a figure taken; but we have never met with a living ſpecimen. The *ſtem* is ſhrubby. *Branches* round, ſmooth, with a ſolitary hooked prickle under the inſertion of each footſtalk. *Leaves* alternate, their common ſtalks an inch and half long, with a ſmall recurved prickle at the top; *leaflets* three, broadly obovate or elliptical, an inch long, on ſhort partial ſtalks, ſmooth, crenate or ſomewhat ſerrated. *Umbels* on ſimple ſtalks, longer than the footſtalks, uſually ſeveral together at the extremity of each branch, ſimple, of numerous rays. *Involucrum* of many minute downy leaves. *Calyx* with five ſhort broad teeth. *Stamens* twice the length of the petals, with large white anthers. *Styles* two, ſhort, at length recurved, with downy ſtigmas.

9. P. *ſimplex*. Simple Lanceolate-leaved Gin-ſeng. Forſt. Prodr. 75. Mart. Mill. Dict. n. 9.—Leaves ſimple, alternate, lanceolate, ſerrated. Umbels compound.—Gathered by Forſter in New Zealand. We know nothing of this ſpecies but what is given in his *Prodromus*.

10. P. *horridum*. Palmate Prickly-leaved Gin-ſeng.—Leaves ſimple, alternate, palmate, ſerrated, with prickly ribs. Stem ſhrubby, very prickly.—Gathered by Mr. Archibald Menzies, at Nootka Sound, on the weſt coaſt of North America. The *branches* are round, leafy, hiſpid, beſet with innumerable yellow prickles, moſt crowded about the inſertion of each leaf. *Leaves* on long, furrowed, prickly, ſomewhat downy footſtalks, heart-ſhaped, a ſpan wide, deeply lobed, ſharply cut and ſerrated, of a fine green; ſmooth and veiny above; paler beneath, their veins hairy and beſet with numerous, yellow, prominent prickles. *Flowers* numerous, in a terminal hiſpid *cluſter* or *ſpike*, ſhorter than the *leaves*, whoſe lower branches are much elongated, imperfectly umbellate, bearing many crowded yellowiſh *flowers*, chiefly male, their *ſtamens* being large and conſpicuous, their *ſtyles* ſmall or deficient. The upper part of the *cluſter* conſiſts of crowded, imperfectly umbellate, female *flowers*, each with two rather ſpreading *ſtyles*, and blunt ſimple *ſtigmas*, but few or no *ſtamens*, unleſs the latter have fallen off early, which ſeems to have been the caſe with the *petals*. *Fruit* nearly orbicular, pulpy, crowned with the permanent ſtyles. *Seeds* angular.

We have ſeen ſketches from New South Wales of what appears to be another ſpecies of *Panax*, different from all the foregoing, with compound, elder-like *leaves*, and beautiful blueiſh berries, of which no doubt we may expect an account in the ſequel of Mr. Brown's *Prodromus*.

Panax, in *Gardening*, contains plants of the herbaceous and ſhrubby perennial kinds, of which the ſpecies cultivated are; the gin-ſeng (P. quinquefolia); the three-leaved panax (P. trifolia); and the prickly panax (P. aculeata).

Method of Culture.—The firſt and ſecond ſorts are increaſed by ſowing the ſeeds procured from abroad upon a moderate hot-bed, or in pots plunged into it, in the early ſpring ſeaſon; and when the plants have acquired a few inches in growth, removing them into beds or borders where the mould is good, and the ſituations ſheltered.

The third ſort is increaſed by layers or cuttings, laid down or planted out in the ſummer months in pots, and plunged into the bark bed of the ſtove. When they have ſtricken root, they may be removed into ſeparate pots, and be conſtantly kept in the ſtove.

The two firſt ſorts afford variety in the borders, and the laſt among ſtove collections.

PANAY, in *Geography*, one of the Philippine iſlands, of a triangular form, about 180 miles in circumference, populous and fertile, and abounding in rivers. The chief article of exportation is rice. The Indians tributary to the Spaniards amount to about 17,000. N. lat. 11° 15'. E. long. 122° 33'.

PANAYAS, a town of Portugal, in Alentejo; ſix miles N.W. of Ourique.

PANCALA Aurea, a name of a famous antidote compoſed of many ingredients, deſcribed by Myrepſus.

PANCALE, or Pancalier, in *Geography*, a town of France, in the department of the Po, on the Po; 12 miles S. of Turin.

PANCARPIA, the name of a ſort of cake much uſed at Alexandria, and uſually covered with paper for the ſake of its keeping the longer.

PANCARPUS, in *Antiquity*, a ſort of ſpectacle or ſhow, which the Roman emperors frequently exhibited to the people.

The word is formed from the Greek παν, *all*, and καρπος, *fruit*. Whence the name was alſo given by the Athenians to a ſacrifice, in which all kinds of fruits were offered.

The pancarpus of the Romans was a kind of chace, or hunt: for the performance hereof, a number of beaſts, as hares, deer, bullocks, &c. were ſhut up in the circus, or amphitheatre; into which trees were frequently tranſplanted, ſo as to form a kind of foreſt, wherein the beaſts were let looſe; whence the pancarpus was alſo called *ſylva*.

The beaſts were thus abandoned to the people, *i. e.* to all who were diſpoſed to ſhare in the pleaſure of the chace, who purſued, ſhot, killed, and cut in pieces, all they could lay hold of. Heliogabalus, the Gordians, and Probus, gave this diverſion very frequently, and it continued till the time of the emperor Juſtinian, in the ſixth century.

Caſaubon, Cujas, Pithou, &c. make the pancarpus and ſylva the ſame thing; Salmaſius will have them different. The ſylva, according to him, was ſuch a diverſion as that above deſcribed: but the pancarpus a combat, wherein robuſt people, hired for that purpoſe, fought with wild beaſts; which opinion he confirms from Caſſian, Juſtinian, Claudian, Firmicus, Manilius, and Caſſiodorus.

PANCAWIR, in *Geography*, a town of Hindooſtan, in the country of Malwa; 60 miles N. of Ougein. N. lat. 24° 14′. E. long. 76° 6′.

PANCH, in *Maſt-making*, a plank of oak upwards, and fir below, about eleven inches wide, fayed over the hoops to the convexity of the maſt on the foreſide, to make a fair ſurface for the yard to ſlide up or down, and prevent its chafing or rubbing againſt the hoops: hence often called rubbing-panch.

PANCH, a thick texture made of plaited rope-yarn, wove very cloſe. It is faſtened round the yards or rigging, to prevent their ſurfaces being rubbed by the friction of ſome other contiguous object.

PANCHÆA, in *Ancient Geography*, an iſland of the ocean, upon the coaſt of Arabia. According to Diodorus Siculus, it was inhabited by natives of the country, Indians, Cretans, and Scythians. In this iſland was a town called "Panara," whoſe inhabitants, according to Diodorus, were ſingularly happy. They had a temple of Jupiter Triphylian, of which this author details all ſorts of marvellous circumſtances. The other three towns were Hiracia, Dabi, and Oceanis. But the exiſtence of ſuch an iſland is doubtful.

PANCHAGNI, an expiatory ſelf-inflicted penance reſorted to by Hindoo aſcetics. The word means five fires; and the mode of the penance is for the devotee to look conſtantly on the ſun, with four other fires cloſe to him. Such devotees are called Tapaſwi, and are deſcribed in Hindoo books very circumſtantially, but not, we may conclude, very faithfully, as "ſtanding, with uplifted arm, without aid or ſupport, day and night, feeding on air, immoveable, on the right toe, on the afflicted earth," &c. &c. See TAPAS.

PANCHA-MUKI, a name of the Hindoo deity Siva, meaning five-faced, he being ſo repreſented and deſcribed in pictures and books. When five-headed he has uſually ten hands.

PANCHAW, in *Geography*, a town of Bengal; 43 miles N.E of Doeſa. N. lat. 23° 30′. E. long. 85° 38′.

PANCHBEYA, a town of Bengal; 27 miles E.S.E. of Purneah.

PANCHCOWRYE, a town of Hindooſtan, in Oude; 20 miles S.S.E. of Bahraitch.

PANCHDOWNA, a town of Bengal; 20 miles N.E. of Dacca.

PANCHGURRY, a town of Bengal; 15 miles N.N.E. of Calcutta.

PANCHGUTCHY, a town of Bengal; ten miles S. of Oliapour.

PANCHMOOL, a town of Bengal; 10 miles E. of Rogonatpour.

PANCHPARA, a town of Bengal; 15 miles N.N.E. of Baſſinpour.

PANCHPEER, a town of Bengal; eight miles S. of Oliapour.

PANCHREST, PANCHRESTOS, ϖαγχρηστος, formed of ϖαν, *all*, and χρηστος, *uſeful*, in *Medicine*, a panacea, or remedy for all diſtempers. See PANACEA.

PANCHRESTARII, among the Romans, are thoſe who prepared the *panchreſt*, or *univerſal remedy*.

PANCHRUS, the name given by ſome of the ancient writers on natural hiſtory to a gem which they ſay has all colours: probably the opal.

PANCHYMAGOGUE, PANCHYMAGOGUM, formed from ϖαν, *all*, χυμος, *juice*, and αγειν, *to draw off*, in *Pharmacy*, a purging extract made from aloes, rhubarb, ſena, ſcammony, jalap, agaric, coloquintida, and black hellebore. Its name ariſes hence, that, being a compoſition of all the kinds of purgatives, it was ſuppoſed to have the virtue of purging all the ſorts of humours from the body at once.

PANCIATICA, in *Botany*, ſo named by Picciuoli, author of the *Hortus Panciaticus*, publiſhed at Florence in 1783, in compliment to his patron the marquis Niccolò Panchiatichi, preſident of the Academy of the *Georgofili*, and owner of the garden. See CADIA.

PANCIROLI, GUIDO, in *Biography*, an eminent juriſt and antiquarian, ſon of Alberto Panciroli, who was alſo a perſon learned in the law, was born at Reggio in 1523. After he had made a proficiency in claſſical literature in his native place, he went to Ferrara to ſtudy juriſprudence. He purſued the ſame ſtudy ſucceſsfully at Pavia, Bologna, and at Padua. In the latter univerſity his reputation ſtood ſo high, that in 1547, while only a ſcholar, he was choſen to an extraordinary profeſſorſhip of the Inſtitutes. When he had taken his degrees, he was, in 1554, promoted to the principal chair, and in two years afterwards he was appointed to the ſecond profeſſorſhip, in ordinary, of civil law. This honourable ſituation he held till 1570, when he accepted an invitation from Emanuel Philibert, duke of Savoy, to occupy the law profeſſorſhip at Turin, with a handſome ſalary. He continued in that univerſity till he found the ſituation unfavourable to his health. He found ſome difficulty in obtaining his diſmiſſion, but at length returned to Padua in 1582. He was now promoted to the firſt chair of civil law, with a large ſalary; and notwithſtanding the wiſhes of the popes Gregory XIV. and Clement VII. to obtain his ſervices at Rome, he preferred the tranquillity of his ſituation at Padua, where he died in 1599. He was author of a number of learned works, of which the principal are as follow: "Commentarii in Notitiam utriuſque Imperii et de Magiſtratibus;" this was not only printed ſeparately, but alſo in the Roman Antiquities of Grævius: "De Numiſmatibus antiquis:" "De quatuordecim Regionibus Urbis Romæ:" "Rerum Memorabilium jam olim deperditarum, et contra recens atque ingenioſe inventarum, lib. ii.:" alſo of a valuable treatiſe which was not publiſhed till the year 1637, entitled "De Claris Legum Interpretibus."

PANCIROLLUS, a writer on muſic, among other arts; but as he belongs as much to all the other arts as to muſic, we ſhall leave him to general literature.

PANCLA, in *Geography*, a mountain of Thibet. N. lat. 29° 22′. E. long. 87° 14′.

PANCLADIA, Παγκλαδια, in *Antiquity*, a feſtival celebrated by the Rhodians when they pruned their vines.

PANCO POINT, in *Geography*, a cape on the N. coaſt of Java. S. lat. 6° 48′. E. long. 112° 44′.

PANCOCA, a town of Peru, in the dioceſe of La Plata; 30 miles S. of Potoſi.

PANCORVO, a town of Spain, in Old Caſtile, near mountains called "Pennas de Pancorvo;" near midway between Burgos and Vittoria, and four miles W. of Mirando de Ebro: overhung by an ancient caſtle.

PANCOVIA, in *Botany*, ſo named by Willdenow, in memory of Thomas Pancovius, a Berlin botaniſt, who died in 1665 at the age of 43, having publiſhed, in 1654, a quarto volume entitled *Herbarium portatile*, with 1363 wooden cuts, which has ſince been republiſhed. Willd. Sp. Pl. v. 2. 285. Claſs and order. *Heptandria Monogynia*. Nat. Ord. *Lomentaceæ*, Linn. *Leguminoſæ*, Juſſ.

Gen. Ch. *Cal.* Perianth of one leaf, bell-ſhaped, inferior, in four deep, ovate, rather unequal ſegments. *Cor.* Petals four,

four, rather ſmaller than the calyx, hooded, toothed, plaited and criſped, their claws inſerted into the receptacle, at the baſe of each ſegment of the calyx. *Stam.* Filaments ſeven, awl-ſhaped, aſcending, hairy half way up, inſerted into the receptacle between the two longer ſegments of the calyx, and twice their length; anthers oblong, incumbent. *Piſt.* not obſerved by Willdenow, who found in place of it a glandular depreſſed body. Iſert, who diſcovered the plant, noted a ſolitary piſtil. *Peric.* and *ſeeds* unknown.

Eſſ. Ch. Calyx bell-ſhaped, in four deep ſegments. Petals four, hooded, plaited, criſped and toothed; with claws. Stamens aſcending, longer than the calyx.

1. P. *bijuga.* Native of Guinea. A *tree*, with round branches; the young ones clothed with ruſty down. *Leaves* alternate, abruptly pinnate, of two pair of ſtalked, coriaceous, elliptical, entire, ſmooth, veiny *leaflets*, each terminating in an elongated blunt point. *Footſtalks* of the younger ones downy, of the full-grown ones tranſverſely wrinkled. *Cluſters* intrafoliaceous, ſhort, ſimple, many-flowered, on the laſt year's branches. *Flowers* downy, on downy ſtalks. *Bracteas* ovate, obtuſe, denſely downy, ſhorter than the flower-ſtalks.—We have ſome ſuſpicion that this may poſſibly be the ſame genus with *Afzelia*, whoſe characters are given in Tr. of the Linn. Soc. v. 4. 221, to which the name of *Pancovia* muſt, in that caſe, give place, as being of a later date, and by no means preferable in any reſpect. See AFZELIA.

PANCRAS, in *Geography*, a large pariſh in the Holborn diviſion of the hundred of Oſſulſton and county of Middleſex, England, is ſituated on the north ſide of London, and compriſes about 2700 acres of land, including the ſcite of buildings. It is bounded by the pariſhes of Iſlington, Hornſey, and Finchley on the north; by Hampſtead and Mary-le-Bone on the weſt; by St. Giles in the Fields, St. George the Martyr, St. George-Bloomſbury, and St. Andrew's, Holborn, on the ſouth; and St. James, Clerkenwell, on the eaſt. The increaſe of houſes in this pariſh within the laſt forty years has excited the aſtoniſhment of all perſons, who can recollect its condition previous to that period. The proportion is calculated as upwards of twenty to one. The firſt augmentation of much conſequence happened in the neighbourhood of Tottenham-court-road, about the year 1765, when all the ſtreets near Percy chapel were built. Somers-town was begun in 1786, Camden-town in 1791, Fitzroy-ſquare in 1793, Brunſwick-ſquare in 1797, and Taviſtock-ſquare about 1800. Kentiſh-town has been enlarged more than two-thirds within theſe twenty-five years, and a conſiderable number of ſtreets have been built between Brunſwick and Ruſſel-ſquares, and the New Road. Many houſes have likewiſe been added at Battle-bridge, and hence this pariſh is now by far the moſt populous of any in the vicinity of London. According to the late parliamentary returns (1811), it contains 6743 houſes, and 46,333 inhabitants.

Pancras is ſaid to have been a pariſh before the Conqueſt; and is mentioned in Domeſday book. It derived its name from the ſaint to whom the church is dedicated. That edifice is of ancient date, and is certainly the ſmalleſt parochial church in London, or its vicinity. It conſiſts only of a nave and chancel. In this church and in the ſurrounding cemetery, are buried moſt of the Roman Catholics who die in the metropolis, among whom are ſeveral eminent French refugees. Here alſo reſt the aſhes of the illuſtrious Paoli, of Mary Wollſtoncroft Godwin, of the chevalier d'Eon, and many other perſons diſtinguiſhed in their career of life by their actions or their writings. Beſides the pariſh-church there are, as may be ſuppoſed, ſeveral chapels appropriated to public worſhip within this pariſh. Of theſe the principal are, Kentiſh-town chapel; Percy chapel, near Tottenham-court-road; Fitzroy chapel; Woburn chapel; Bethel chapel, at Somers-town; St. James's chapel; Whitfield's chapel, belonging to the Methodiſts of Mr. Whitfield's perſuaſion; and St. Giles's chapel, attached to the pariſh of St. Giles's in the Fields. Several burying grounds annexed to other pariſhes are likewiſe locally ſituated in Pancras, as the cemeteries of St. Andrew, Holborn, St. George the Martyr, and St. George-Bloomſbury.

Many public inſtitutions for charitable and other purpoſes are placed within this pariſh. At the head of Lamb's Conduit ſtreet ſtands the Foundling hoſpital, which was firſt eſtabliſhed in 1739, for the maintenance and education of foundlings, and of other poor children who are admitted in their infancy. The hoſpital for inoculation, and the natural ſmall-pox hoſpital, are ſituated in a field cloſe to Battle-bridge turnpike. Both theſe excellent charities were founded in 1746, but the preſent buildings were only erected, the former in 1765, and the latter in 1793. In Gray's-Inn-lane is the Welſh charity ſchool, built in 1771; and at Camden-town is the Veterinary college, eſtabliſhed in 1791. (See VETERINARY.) In this college is a theatre for lectures and for diſſections, and a room for a muſeum. The preſent profeſſor is Mr. Colman, who reads lectures on the anatomy, phyſiology, and pathology of the horſe, from November till June. The pupils pay twenty guineas on admiſſion, which includes every expence, and they have beſides the great privilege of attending the principal anatomical lectures in the metropolis. Near the college has lately been erected a large workhouſe; and in different parts of the pariſh are ſeveral alms-houſes and charity ſchools, which our limits preclude us from enumerating.

At a place called the Brill, on which part of Somers-town is built, was an entrenchment, ſuppoſed by Dr. Stukeley to have been the camp of Cæſar. Caen-wood, or Kenwood, at the northern extremity of the pariſh, is noted for having been the country ſeat of the celebrated earl of Mansfield, who purchaſed it in 1755 from the earl of Bute. The pleaſure grounds, including the wood, whence the manſion derive its name, comprehend about forty acres, and diſplay, both in their natural and artificial features, much beauty and pictureſque effect. Adjoining are the reſervoirs belonging to the Hampſtead water-works.

A noted place of public entertainment, called Bagnigge-wells, is ſituated in this pariſh, in the valley between Pentonville and the Foundling hoſpital. It was firſt opened in 1767 as a tea-garden, ſoon after the diſcovery of the two mineral ſprings here, one of which is chalybeate and the other cathartic. Another mineral ſpring near the church was formerly in great repute, but is now abandoned. The water of this ſpring was ſimilar in its properties and effects to that of St. Chad's-well near Battle-bridge, which is ſtill held in conſiderable eſtimation for its diuretic and aperient qualities. Lyſons's Environs of London, vol. iii. edit. 1795. Supplement by the ſame author, edit. 1811.

PANCRASIUM, in the *Materia Medica*, a name uſed by ſome authors for the ſquill, of the root of which the oxymel of ſquills is made.

PANCRATIAN VERSE, the name of a ſort of Greek verſe, conſiſting of two trochees and a ſupernumerary ſyllable: Φευγε λοιδορων.

It is ſo called from its ſuppoſed inventor Pancrates, who is ſaid to have lived before the time of Meleager, another poet who flouriſhed under the firſt ſucceſſors of Alexander.

PANCRATIASTES, in *Antiquity*, a combatant in the exerciſe called pancratium.

PANCRATIASTES was alſo applied to one, who had gained the victory in all the kinds of exerciſe uſed in the pancratium.

PANCRATIUM, Παγκρατιον, compounded of ϖαν, *all*, and κρατεω, *I overcome*, among the *Ancients*, a kind of intermixed exerciſe, conſiſting of the lucta, (*palé*,) or wreſtling, and the boxing, pugilate, or *cæſtus*.

The pancratium was the third gymnaſtic exerciſe, and was not introduced till long after the others.

The people, who were engaged in theſe exerciſes, were called Pancratiaſtæ; which name was alſo given to ſuch as did not confine themſelves to one exerciſe, but ſucceeded in ſeveral different ones.

As this exerciſe partook both of the cæſtus and the palé, as we learn from both Ariſtotle and Quinctilian, the athleta borrowed many things from each of theſe ſciences to render himſelf eminent in the pancratium. It was neceſſary for him to learn how to trip, and ſtrike, and box, and grapple with his antagoniſt; to ſtand with firmneſs, fall with advantage, and riſe with vigour and celerity, or maintain the combat upon the ground; to attack and to defend, to annoy and reſiſt his enemy in every attitude; and to employ in one or other of thoſe purpoſes every limb, and nerve, and ſinew, all the faculties and all the ſtrength of his whole body, which is implied in the word pancratium; and this term gives the beſt account of an exerciſe, in which the combatants were allowed (under certain reſtrictions) to make what uſe they thought proper of all the arms which nature had given them, both offenſive and defenſive, and of only thoſe: for neither (as in the cæſtus) were their hands and fingers bound up or armed, nor their legs and feet prohibited from joining in the battle, nor were they conſtrained from ſtriking, as in the palé. With no further arms than thoſe, however, they were able ſo to mangle and injure one another, that it was thought proper to ſubject them to ſome reſtraints; leſt a conteſt, in which they engaged for victory and honour, ſhould be diſgraced by murder or malice, and the combatants be provoked to encounter one another in a manner more becoming beaſts than men. An athleta was therefore forbidden to kill his adverſary deſignedly, to dig or pluck out his eyes, to tear him with his teeth, or ſtrike him under the ribs with the ends of his fingers; but notwithſtanding theſe reſtrictions, ſcope enough was left for the combatants to exerciſe their ſkill and ſtrength, their courage and reſolution; becauſe it was a common practice for a pancratiaſt to choke the ſtrength and ſkill of his antagoniſt by twiſting and entangling himſelf about his legs and arms; and to endeavour by fatigue, and pain, and ſuffocation, to worry him into a ſurrender of the victory. The pancratium was forbidden by the Spartan legiſlator, whilſt he allowed and encouraged many conteſts no leſs rude and bloody; for the law of theſe two exerciſes requiring that one of the two combatants ſhould yield either in words, or by ſtretching out his hand or finger, or by giving ſome other teſtimony of his ſo doing, Lycurgus forbade his Spartans to engage in either of them, becauſe, as he ſaid, he would not have them accuſtom themſelves to yield the victory not even in ſport. The combatants in theſe exerciſes were naked; and as it was neceſſary to pair them, this, we may ſuppoſe, was done by lot. Pauſanias ſpeaks of a pancratiaſt named Soſtratus, who had an eaſy method of obtaining the victory in theſe conteſts: his cuſtom was to ſeize faſt hold of his adverſary's fingers, which he broke, and never quitted his hold, till they renounced the conteſt. This method gained him twelve Iſthmian and Nemean, two Pythian, and three Olympic crowns, together with a ſtatue at Olympia, and the ſurname of Acro-Cherſites. Weſt's Pindar, vol. iii.

PANCRATIUM, in *Botany*, probably Πανκρατιον of Dioſcorides, as Dr. Sibthorp found it called ἀγρια σκίλλα, or Wild Squill, by the modern Greeks; and that old writer ſpeaks of it immediately after the true Squill, as a root of ſimilar virtues, denominated by ſome the Little Squill. Πανκρατιον has been ſometimes applied as a name to the *Moly*, and in that caſe is ſuppoſed to be derived from πας, *all*, and κρατυς, *power*; an etymology which the reputed virtues of that herb might juſtify, more than the qualities of the preſent. Theſe Dioſcorides mentions, as like thoſe of the Squill, but milder. Linn. Gen. 161. Schreb. 216. Willd. Sp. Pl. v. 2. 41. Mart. Mill. Dict. v. 3. Ait. Hort. Kew. ed. 2. v. 2. 218. Sm. Prodr. Fl. Græc. Sibth. v. 1. 220. Juſſ. 55. Lamarck Illuſtr. t. 228. Claſs and order, *Hexandria Monogynia*. Nat. Ord. *Spathaceæ*, Linn. *Narciſſi*, Juſſ.

Gen. Ch. *Cal.* an oblong, obtuſe, compreſſed, membranous ſheath, ſplitting along its flat ſide, containing one or many flowers, permanent. *Cor.* Petals ſix, lanceolate, flat, inſerted into the tube of the nectary externally, at ſome diſtance above its baſe. Nectary of one leaf, funnel-ſhaped, regular, cylindrical below, coloured above, having a ſpreading border with twelve variouſly ſhaped ſegments. *Stam.* Filaments ſix, awl-ſhaped, inſerted into the rim of the nectary, and uſually exceeding its ſegments in length; anthers oblong, incumbent. *Piſt.* Germen inferior, with three obtuſe angles; ſtyle thread-ſhaped, longer than the ſtamens; ſtigma obtuſe. *Peric.* Capſule roundiſh, with three blunt angles, membranous, of three cells and three valves. *Seeds* ſeveral, globoſe.

Eſſ. Ch. Petals ſix. Nectary with twelve ſegments, bearing the ſtamens.

Obſ. The ſtructure of the nectary, and the inſertion of the ſtamens, afford an excellent inſtance of an eſſential generic character, with which no other can be confounded.

1. P. *zeylanicum*. One-flowered Pancratium. Linn. Sp. Pl. 417. Willd. n. 1. Ait. n. 1. Saliſ. Parad. t. 86. (Narciſſus zeylanicus, flore albo hexagono odorato; Herm. Lugdbat. 691. t. 693. Commel. Hort. v. 1. 75. t. 38. Lilionarciſſus zeilanicus, flore albo hexagono odorato; Rudb. Elyſ. v. 2. 179. f. 7. Lilium indicum; Rumph. Amboin. v. 6. 161. t. 70. f. 2.)—Sheath ſingle-flowered. Petals recurved. Stamens incurved.—Native of Ceylon, Java, and other parts of the Eaſt Indies. It was cultivated by Miller, but is now very rare in the Engliſh collections, flowering in the ſtove about July. The *bulb* is ovate, as big as a hen's egg. *Leaves* ſeveral, radical, ſpreading, linear, three-ribbed, an inch wide, bright green, ſlightly keeled. *Flower-ſtalks* one or more, about a foot high, erect, ſimple, bearing one large white fragrant *flower*, with yellow *anthers*, and a cloven greeniſh *ſheath*. The *nectary* expands nearly an inch and a half, with twelve equal, acute, triangular, marginal ſegments between every pair of which, and oppoſite to each *petal*, the *ſtamens* are inſerted. Their ſtrong inflection is noted by Rumphius. The *petals* ſpread horizontally about four inches, and are linear, recurved at the points.

2. P. *mexicanum*. Mexican Pancratium. Linn. Sp. Pl. 418 Willd. n. 2. Ait. n. 2. (P. mexicanum, flore gemello candido; Dill. Elth. 299. t. 222.)—Sheath two-flowered. Leaves lanceolate. Six of the ſegments of the nectary bearing the ſtamens; the intermediate ones ſimple.—Native of Mexico. Sherard had it in his garden at Eltham, and Dillenius ſays the bulbs brought from Mexico flowered in May.—The *leaves* are broader and more lanceolate than in the former. *Stalk* hardly a foot high, ſhorter than the leaves, bearing, from one divided *ſheath*, two white

ſcentleſs *flowers*, with linear narrow *petals*, about two inches long, and a much ſmaller *nectary* than the foregoing, ſix of whoſe ſegments bear the ſlender ſpreading *ſtamens* from their points, with ſaffron-coloured *anthers*.

3. P. *rotatum*. Large-crowned Pancratium. Ker in Curt. Mag. t. 827. Ait. n. 3. (P. diſciforme; Redout. Liliac. t. 155.)—Sheath with few flowers. Leaves linear. Stamens between the jagged ſegments of the horizontal nectary. Native of Carolina, in ground that is occaſionally overflowed, from whence it was brought by the younger Michaux to Paris, and ſent to Mr. Loddige before the year 1803. It flowers in the ſtove, during moſt part of the ſummer, and increaſes greatly by offſets from the root. *Leaves* many-ribbed, linear, from half an inch to an inch wide. *Flowers* two, three, or more, with a ſegment of the ſheath under each, white, nearly a ſpan in diameter, from the great length of the linear channelled *petals*. The great flatneſs, and wide expanſion, of the cup of the *nectary*, with its variouſly-jagged ſegments, between which the wide-ſpreading *ſtamens*, about twice its length, are attached, form the ſtriking character of the preſent ſpecies, which Michaux in his Flora miſtook for the *mexicanum*.

4. P. *calathinum*. White Braſilian Pancratium. Ker in Curt. Mag. t. 1561. (P. calathiforme; Redout. Liliac. t. 353.)—Sheath with few flowers. Leaves linear. Stamens between the jagged ſegments of the cup-ſhaped nectary, and ſcarcely exceeding them in length. Tube nearly cylindrical.—Native of the Brazils, from whence it was received by the late lady Amelia Hume, who favoured us with a ſpecimen in May 1794. The *leaves* are linear, obtuſe, an inch wide and two feet long. *Flowers* two or three from a ſheath of as many or more diviſions, white, very fragrant, ſomewhat drooping. *Nectary* large and cup-ſhaped, its ſegments nearly upright, variouſly and ſharply jagged and toothed. *Stamens* about the length of the ſegments, and inſerted between them, bent inwards, each bearing a yellow *anther* longer than itſelf. Redoutè's figure repreſents the *nectary* as large as a flower of the common White Lily, with longer and leſs jagged ſegments than are exhibited in the Bot. Magazine; but Mr. Ker conſiders it as merely taken from a ſtronger plant.

5. P. *Amancaes*. Golden Pancratium. Curt. Mag. t. 1224. Ait. n. 4. (Narciſſus Amancaes; Ruiz and Pavon. Peruv. v. 3. 53. t. 283. f. *a*.)—Sheath with few flowers. Leaves lanceolate. Stamens between the abrupt toothed ſegments of the cup-ſhaped nectary, and about the ſame length. Tube with ſix furrows.—Native of Lima and Peru. Imported from the Brazils, in 1808, by Meſſrs. Middlemiſt and Wood at Shepherd's buſh, in whoſe ſtove it flowered in July 1809. This ſpecies is diſtinguiſhed from all the preceding, by the golden yellow of its *flowers*, which are deſcribed as exceedingly fragrant, and uſed by the Peruvian women to ornament their hair. The ſhape and ſize of the *flowers* moſt agree with the laſt-deſcribed, particularly the inflexed poſture of the very ſhort *ſtamens*; but the ſegments of the *nectary* ſeem more abrupt, and more regularly toothed. The *tube* of the *flower* moreover has ſix ſtrong furrows, and as many rounded angles. The *leaves* are more lanceolate, and broader, tapering to a point.

6. P. *humile*. Small Pancratium. Cavan. Ic. v. 3. 4. t. 207. f. 2. Willd. n. 3.—Sheath two flowered. Leaves thread-ſhaped. Nectary cup-ſhaped, very ſhort, in ſix obtuſe cloven ſegments. Stamens ſpreading, as long as the petals.—Gathered by Cavanilles in Andaluſia, flowering in October, before the *leaves* come out. Theſe are two only, ſcarcely ſix inches long, very ſlender. *Stalk* not quite ſo tall, ſlender, thread-ſhaped, bearing two yellow *flowers* from one *ſheath*, on unequal capillary ſtalks. *Petals* elliptic-oblong, obtuſe, each rather above half an inch in length. *Nectary* ſhort, and rather fleſhy, cup-ſhaped, in ſix cloven ſegments, more reſembling that of a *Narciſſus*, but Cavanilles expreſsly ſays it bears the *ſtamens*. The tube is ſhort *Stamens* capillary, almoſt equal to the petals. This appears to us a very doubtful *Pancratium*, and if the lobes themſelves of the *nectary* do not bear the *ſtamens*, it ought to be removed to NARCISSUS; ſee that article.

7. P. *caribæum*. Caribæan Pancratium. Linn. Sp. Pl. ed. 1. 291. ed. 2. 418. Willd. n. 4. (P. n. 1; Brown. Jam. 194. Narciſſus totus albus latifolius polyanthos major odoratus, ſtaminibus ſex e tubi ampli margine exſtantibus; Sloane Jam. v. 1. 244. Mart. Cent. t. 27.)—"Sheath many-flowered. Leaves lanceolate."—Native of Jamaica, in lowland woods, very common, as well as in other ſugar iſlands, according to Sloane and Browne. The *bulb* is ſaid to be as large as a man's fiſt. *Leaves* two feet long, and about three inches broad, channelled or concave. *Flower-ſtalk* flat, two-edged, four feet high, ſolid. *Flowers* ſix, ſeven, or more, large, white, fragrant; their tube, miſtaken by Sloane for a partial footſtalk, ſix inches long; petals five inches long; nectary with ſix ribs, bearing the very long *ſtamens*. This is all we can gather from Sloane. Browne ſays "the root is pretty acrid, and has been ſometimes uſed in poultices by antiquated and pale-faced ladies, to raiſe a forced bloom in their fading cheeks."—*P. caribæum* is a much-diſputed ſpecies. Linnæus adopted it from the above authors, adding a reference to Commelin, which certainly belongs to what is now called *amoenum*, ſee n. 12. He had however an original ſpecimen in his herbarium, ſent by Gronovius, with the ſynonym of Sloane and Martyn; but this ſpecimen conſiſts merely of a few ſeparate flowers, which appear to belong to *amoenum*, but can ſcarcely be aſcertained. In this difficulty we leave the preſent ſpecies as we find it, the above ſynonyms of Sloane and Martyn not being with certainty referrible to any of the following, whatever may become of the ſpecimen, which neither accords with them, nor could poſſibly have ſuggeſted the ſpecific definition.

8. P. *maritimum*. Sea Pancratium. Linn. Sp. Pl. 418. Willd. n. 5. Ait. n. 5. Cavan. Ic. v. 1. 41. t. 56. Redout. Liliac. t. 8. Saliſ. Tr. of Linn. Soc. v. 2. 70. t. 9. (P. carolinianum; Linn. Sp. Pl. 418. P. marinum, et floribus rubris; Ger. em. 172, 173. f. 3, 4.)—Sheath many-flowered. Leaves linear, obtuſe, glaucous. Stamens between the twelve entire equal ſegments of the large cup-ſhaped nectary, and about the ſame length, incurved.—Native of the ſandy ſea-coaſts of the ſouth of Europe, frequent in Greece and the neighbouring iſlands. Gerarde cultivated it in his garden, and it is ſtill occaſionally to be ſeen in collections, flowering in May and June, in the open ground, though much leſs frequent than the *illyricum*, which Miller miſtook for this. Our *maritimum* is, if any of the genus, the true ϖανκράτιον of Dioſcorides It is known by its narrow glaucous *leaves*, and the large bell-ſhaped *nectary*, with twelve ſhort, equal, entire ſegments, between every two pair of which ſtands an incurved *ſtamen*, not exceeding them in length. Redoute's plate is excellent. The *flowers* are fragrant, uſually white, but occaſionally tinged with a faint red, whence the ſpecies was termed *verecundum* in Ait. Hort. Kew. ed. 1, where it occurs twice.

9. P. *littorale*. Tall Pancratium. Jacq. Amer. 99. t. 179. f. 94. Hort. Vind. v. 3. 41. t. 75. Saliſ: Tr. of Linn. Soc. v. 2. 74. t. 13. Willd. n 7. Ait. n. 6. Redout. Liliac. t. 154. Curt. Mag. t. 825. (P. foliis enſiformibus, ſpatha multiflora, floribus magnis candidis fragrantibus; Trew Ehret. 6. t. 27.)—Sheath many-flowered. Leaves linear-lanceolate.

Nectary with ſix teeth bearing the ſtamens; the intermediate ſpace wavy, obſcurely toothed.—Native of the Weſt Indies, ſaid to have been cultivated by Miller in 1758. It flowers in the ſtove throughout the ſummer. Linnæus having miſquoted the ſynonym of Trew's Ehret under his *illyricum*, has, as Mr. Saliſbury remarks, cauſed the preſent ſpecies to be ſometimes called by that name, though the two are as unlike as poſſible. The preſent bears a great number of powerfully-ſcented, large, white *flowers*, whoſe tubes are ſeven inches long, and their common ſtalk three or four feet high. *Petals* long, narrow, recurved and pendulous. Cup of the *nectary* wide and ſhallow, its ſix principal teeth bearing the very long *ſtamens*, while the intermediate ſpace is merely wavy, with ſcarcely the appearance of teeth.

10. P. *fragrans*. Fragrant Pancratium. Saliſ. Tr. of Linn. Soc. v. 2. 72. t. 11. Willd. n. 6. Ait. n. 7. (P. foliis amplis ovatis acutis petiolatis, ſpatha multiflora, floribus minoribus candidis fragrantibus; Trew Ehret. 6. t. 28.)—Sheath many-flowered. Leaves elliptical. Nectary with ſix teeth bearing the ſtamens; the intermediate ſpace wavy and cloven.—Native of Barbadoes, flowering in our ſtoves in the ſummer Mr. Saliſbury firſt well diſtinguiſhed this ſpecies, and ſuſpected that the ſynonyms above quoted under *P. caribæum* might belong to it, which we can ſcarcely believe. Willdenow ſeems to have rightly referred to Trew's Ehret. The ſcent of the *flowers* is very ſweet. The want of intermediate teeth to the *nectary*, in the place of which there is a notch, and the broad elliptical *foliage*, well mark this *Pancratium*. The tube of the *flower* is not half the length of the laſt.

11. P. *ſpecioſum*. Great Weſt Indian Pancratium. Saliſ. Tr. of Linn. Soc. v 2. 73. t. 12. Willd n. 8. Ait. n. 8. Redout. Liliac. t. 156. (P. caribæum; Curt. Mag. t. 826.)—Sheath many-flowered. Leaves elliptical. Nectary with ſix teeth bearing the ſtamens; the intermediate ones ſimple, acute.—Native of the Weſt Indies, flowering in a ſtove moſt part of the ſummer. The *leaves* are numerous and broad, with contracted ſtalks. *Flowers* numerous, large, white, very fragrant, diſtinguiſhed by the intermediate teeth of their *nectary* from the laſt. Martyn's t. 27, on which the Linnæan *caribæum* is ſuppoſed to depend, is noted in *Hort. Kew.* as belonging to this ſpecies, which may be the caſe, though the *nectary* is there incorrectly drawn. The preſent is the fineſt of the whole genus, and moſt generally cultivated, by thoſe who have the means to make it bloom in perfection, which ſometimes takes place twice in one ſummer.

12. P. *amœnum*. Broad-leaved Cayenne Pancratium. Saliſ. Tr. of Linn. Soc. v. 2. 71. t. 10. Willd. n. 9. Ait. n. 9. Andr. Repoſ. t. 556. (P. declinatum; Jacq. Hort. Vind. v. 3. 10. t. 11. Narciſſus americanus, flore multiplici albo hexagono odorato; Commel. Hort. v. 2. 173. t. 87.)—Sheath many-flowered. Leaves elliptic-lanceolate. Nectary with ſix teeth bearing the ſtamens; the intermediate ones acute, deeply cloven.—Native of Guiana. Mr. Saliſbury cultivated it before 1790, and Jacquin long before that period. This has narrower *leaves*, and much ſmaller *flowers*, than the *ſpecioſum*, with ſmall cloven intermediate teeth to the *nectary*, which part ſeems to us well choſen by Mr. Saliſbury for the ſpecific differences, notwithſtanding the doubts of other authors. The lying down of the *ſtalk*, when the ſeed-veſſels are forming, is, as he remarks, by no means peculiar to this kind of *Pancratium*, and therefore he could not retain Jacquin's ſpecific name. Yet it may be doubted whether what he has adopted be equally diſcriminative.

13. P. *illyricum*. Starry Pancratium. Linn. Sp. Pl. 418. Willd. n. 10. Ait. n. 10. Curt. Mag. t. 718. Redout. Liliac. t. 153. (P. ſtellare; Saliſ. Tr. of Linn. Soc. v. 2. 74. t. 14. P. ſpatha multiflora, petalis planis, foliis lingulatis; Mill. Ic. t. 197. Narciſſus tertius Matthioli; Ger. em. 173. N. conſtantino-politanus; Matth. Valgr. v. 2. 580, excellent.)—Sheath many-flowered. Leaves lanceolate, obtuſe, glaucous. Stamens between the deep, acute, cloven, widely-ſpreading ſegments of the nectary, and twice their length.—Native of the ſouth of Europe. Lord Zouch is recorded as having cultivated this ſpecies in 1605. It is now not uncommon in our open borders, requiring no particular care, and flowering in May or June. Miller and others have miſtaken this for the Linnæan *maritimum*, from which it is totally different. The *leaves* ſpread in two ranks, and are very glaucous, rigid, a foot long, concave, one inch and a half wide. *Flower-ſtalk* a little inclining, not ſo long as the leaves, bearing numerous white *flowers*, of an agreeable ſcent, and well characteriſed by their ſtarry appearance, cauſed by their widely-ſpreading *petals* and *nectary*, whoſe ſegments are cloven half way down, and much more deeply ſeparated from each other, with the *ſtamens* between them.

14. P. *amboinenſe*. Amboina Pancratium. Linn. Sp. Pl. 419. Willd. n. 11. Ait. n. 11. (P. nervifolium; Saliſ. Parad. t. 84. Narciſſus amboinenſis, folio latiſſimo rotundo, floribus niveis inodoris; Commel. Hort. v. 1. 77. t. 39. Rudb. Elyſ. v. 2. 238. f. 17. Cepa ſylveſtris; Rumph. Amboin. v. 6. 160. t. 70. f. 1.)—Sheath many-flowered. Leaves elliptic-heart-ſhaped, many-ribbed. Nectary in ſix deep ſegments, with two diſtant teeth, bearing the ſtamens between their teeth.—Native of Amboyna and Java. We received it from the late Mr. Chriſtopher Smith. Miller cultivated this ſpecies in 1759, but it has been loſt till within a few years. It flowers in the ſtove early in ſpring. The remarkably broad heart-ſhaped *leaves*, of a pale green, with many ſtrong ribs, abundantly diſtinguiſh this *Pancratium* from all the reſt. The *flowers* are extremely numerous, white, without ſmell, their ſhape and proportion moſt like *illyricum*, the *petals* being about the length of the tube, but the *nectary* is eſſentially different, being divided above half way down into ſix broad wedge-ſhaped ſegments, each having two divaricated teeth, and between theſe teeth the *ſtamens* are inſerted, extending far beyond them, and about half the length of the *petals*.

PANCRATIUM, in *Gardening*, contains plants of the bulbous-rooted, flowery, perennial kind, of which the ſpecies cultivated are; the ſea pancratium (P. maritimum); the Illyrian pancratium (P. illyricum); the Ceyloneſe pancratium (P. zeylanicum); the Mexican pancratium (P. mexicanum); the Caribean pancratium (P. caribæum); the Carolina pancratium (P. carolinianum); the broad-leaved pancratium (P. amboinenſe); the narciſſus-leaved pancratium, and the P. ſpecioſum.

Of the ſeventh ſort there are ſeveral varieties; as the *American*, which grows naturally in the iſlands of the Weſt Indies, where it is called *white lily*; and the *latifolium* and *ovatum* alſo grow naturally in the ſame place.

Method of Culture.—All theſe plants are capable of being increaſed by planting off-ſets from the roots in the latter end of ſummer, when their ſtems and leaves decay. The roots may be divided every ſecond or third year.

In the two firſt ſorts, the off-ſets may be planted out in nurſery-beds for a year or two, to become ſufficiently ſtrong, when they may be removed into warm ſheltered dry borders; the firſt being ſheltered from froſt in ſevere winters, and the latter in very ſevere weather, by being covered with tanners' bark, ſtraw, or peas-haulm. The ſecond ſort may alſo be increaſed by ſeeds ſown in pots, and plunged in a hot-bed.

The other ſorts muſt be planted out in ſmall pots filled with light earth, ſeparately plunging them in the bark-bed of the ſtove. They ſhould be kept conſtantly in the tan-bed, and have the management of other tender bulbs. In this way they generally ſucceed well.

The two firſt ſorts afford variety in the dry warm borders of the pleaſure-ground, and the other kinds produce variety as well as fragrance in the ſtove collections.

PANCREAS, in *Anatomy*, a glandular body, ſituated in the abdomen, and connected to the beginning of the ſmall inteſtine, in the cavity of which its excretory duct terminates. The ſtructure of this gland ſo nearly reſembles that of the ſalivary glands, that we refer on this part of the ſubject to our account of them in the article DEGLUTITION, and to the general remarks in the article GLAND.

The ſhape of the pancreas is elongated: the right extremity, which is the largeſt part, is ſometimes called the head of the pancreas (caput pancreatis): the left, which is ſmaller, its tail (cauda). The length is from eight to ten inches, and correſponds nearly to that of the ſtomach: the breadth about two inches, and the thickneſs about one inch. It is much the largeſt gland in the body of this particular kind of ſtructure. It is ſaid to weigh from two to ſix ounces; the ſpecific gravity to that of water as 2029 to 1000.

This gland is deeply hidden in the upper and back part of the abdominal cavity—in the epigaſtric region, where it lies nearly tranſverſely. The right or larger end lies in the concavity of the ſecond curvature of the duodenum, and adheres cloſely to this inteſtine for a conſiderable breadth by a ſhort and denſe cellular tiſſue. The ſubſtance of the organ, advancing over the anterior and poſterior ſurfaces of the gut, ſeems to incloſe it. The portion, which lies along the inteſtine, is much broader than the reſt of the gland, and was called by Winſlow the pancreas minus, although it is not diſtinct from the reſt. From the duodenum the pancreas ſtretches acroſs the vertebral column into the left hypochondrium, directed a little upwards as well as to the right. Its left end, which is the ſmalleſt part, touches the interior end of the ſpleen, or is connected to it by the intervention of a portion of peritoneum.

The anterior and poſterior ſurface of the pancreas are nearly flat: but the whole is rather curved in accommodation to the projection of the vertebral column. The anterior ſurface, inclined forwards and ſlightly convex, is covered by the upper layer of the tranſverſe meſocolon, through which it can be eaſily diſcerned behind the ſtomach and little omentum. The latter parts lie in front of it, and are in contact with the gland, when the ſtomach is empty: but when that bag is filled, it riſes from the gland, which is then behind its leſſer arch. The poſterior ſurface correſponds to the tranſverſe part of the duodenum, from which the ſuperior meſenteric veſſels and nerves ſeparate it. The ſuperior edge, thicker than the inferior, and inclined backwards, is connected by copious cellular ſubſtance to the aorta and vena cava, the ſuperior meſenteric veſſels, and the left kidney and renal capſule. It poſſeſſes a groove, in which the ſplenic artery is lodged. The inferior edge is thin and inclined forwards, and placed between the upper layer of the tranſverſe meſocolon and the duodenum.

The external ſurface is granulated, and the conſiſtence of the organ, in its recent ſtate, very firm. It becomes ſofter ſoon after death, and is very much ſoftened, when putrefaction commences. The colour is a greyiſh-white, inclining to red.

The excretory duct (ſometimes called ductus Wirſungi, from Wirſung, who diſcovered it in 1642) runs from one end of the gland to the other, nearly in its centre. It is remarkable for its whiteneſs, and is leſs denſe and thick than thoſe of the ſalivary glands. Very fine tubes ariſe from the glandular acini, and unite together like veins: they end in a ſingle tube, which gradually increaſes in ſize, as it proceeds from the left to the right end of the gland, does not follow quite a ſtraight courſe, and is rather nearer to the anterior than to the poſterior ſurface of the organ. When it arrives near the duodenum it has attained the ſize of a ſmall writing quill, and it receives a branch rather larger than the others from the part called pancreas minus. It turns a little downwards to join the ductus communis choledochus at an acute angle, and the common tube immediately penetrates the coats of the duodenum, at the lower and poſterior part of the ſecond curvature of the inteſtine. (See LIVER.) The opening is ſmaller than the diameter of the duct before its end: and Soemmerring ſtates that the entrance of the bile into it is prevented by a valve, "valvula fimbriata et valde ſubtilis." Sometimes a ſmall canal opens ſeparately at a ſhort diſtance from the common duct; or the great duct itſelf may terminate ſeparately from the ductus communis choledochus; or there may be three pancreatic ducts opening into the duodenum.

The texture of the duct is tolerably firm: its internal ſurface is perfectly ſmooth.

It has no proper external covering: one ſurface has the anterior layer of the meſocolon lying on it pretty cloſely: but the reſt of the gland is connected by a looſe cellular tiſſue to the ſurrounding parts.

The arteries of the pancreas are numerous and ſmall, and produced from the gaſtro-duodenalis, the ſplenic and the ſuperior meſenteric: the veins join the ſuperior meſenteric, the ſplenic and the gaſtro-duodenal, all of which end in the vena portarum. It has abſorbents, in which nothing peculiar has been obſerved. The nerves, which are very ſmall, and diſtributed on the arteries only, come from the cæliac ganglia.

The points in which this and the ſalivary gland agree are; 1, the organiſation, including the excretory ducts; 2, the poſſeſſing numerous ſmall blood-veſſels; 3, the being placed in a ſituation where they are ſubject to motion from the ſurrounding organs. Theſe, in the pancreas, are the trunks of the aorta, ſuperior meſenteric and ſplenic arteries, the ſtomach, and duodenum.

In the mammalia and birds, the pancreatic and biliary ducts are ſometimes united, ſometimes ſeparate: and ſometimes there are two pancreatic ducts, one opening into the ductus choledochus, and the other ſeparately.

The pancreas ſecretes a fluid, called the pancreatic juice or liquor, which is poured by its excretory duct into the duodenum. The difficulty of procuring this in a pure ſtate has prevented any very accurate inveſtigation of its chemical properties: but it appears, from whatever inquiries have been made, very cloſely to reſemble the ſaliva. (See DEGLUTITION.) The duct is always found empty after death.

In the controverſies about the nature of the pancreatic fluid in the ſeventeenth century, numerous dogs were ſlaughtered without any very intereſting reſults being obtained. De Graaf placed tubes in the pancreatic ducts of living dogs: phials were connected to the oppoſite end of them. In this way he collected two drachms, half an ounce, and even an ounce, in eight hours. Schuyl procured two and three drachms in two hours. (See De Graaf de ſucci pancreatici natura et uſu; and Schuyl de veteri medicina.) Brunner attempted to cut out the gland, or to tye the duct in dogs. (Experimenta nova circa pancreas.) Theſe tortures were inflicted in the attack and defence of a doctrine promulgated by Sylvius de le Boe, and very generally adopted, that the pancreatic liquor was acid, and the bile alkaline, and that their mixture occaſioned a fermentation in the ſtomach, by which chylification was effected! Theſe notions were employed in explaining diſeaſe: the cold ſtage of fever was aſcribed to the acid pancreatic juice, and alkaline remedies were ordered to correct it.

We know that the ſalivary glands ſecrete their fluid very largely during maſtication (ſee Deglutition): this analogy leads us to infer that the pancreas muſt furniſh a large quantity of fluid, which is mixed with the chyme from the ſtomach. As we are ignorant of the quantity and exact nature of this ſecretion, we cannot be expected to explain what ſhare it has in the changes which our food undergoes in the alimentary canal. Haller's Elementa Phyſiologiæ, lib. 22. Siebold, Hiſtoria Syſtematis Salivalis, 4to. Jenæ 1797.

Pancreas *Aſellii*, in *Comparative Anatomy*, the large ſingle meſenteric gland of ſome animals, which holds the place of the numerous ſmaller ones. See Mammalia.

It has its name from the author who firſt took notice of it, Aſellius. M. Perrault obſerves, that the fiſh called plaiſe, has four hundred and forty pancreaſes; though it has but five ducts opening into the inteſtine, three of which correſpond to eighty pancreaſes, and two of them to one hundred a piece. See Fish.

PANCREATIC, in *Anatomy*, an epithet given to various parts ſituated about the pancreas; as the duct of the gland, its arteries, veins and nerves. See Pancreas.

Pancreatic *Juice*, an inſipid, limpid juice or humour ſeparated from the blood, and prepared in the pancreas.

This juice is not acid as moſt authors have ſuppoſed; nor alkaline, as ſome authors have thought; but a little ſaline, and much reſembling the ſaliva in its origin, veſſels, and properties.

It is carried by the pancreatic duct into the duodenum, where it ſerves to dilute the chyle, to render it more fluid, and fit to enter the mouths of the lacteals: and perhaps to temper and dilute the bile, to change its viſcidity, bitterneſs, colour, &c. and make it mix with the chyle, in order to reduce the ſeveral taſtes, odours, and properties of the ſeveral foods into one homogeneous one.

Janſſon ab Almeloveen will have the pancreatic juice to have been known to Hippocrates and Galen. De Graaf, a Dutch phyſician, has found means of collecting a quantity of it for experiments; and has publiſhed a treatiſe expreſs, "De Succo Pancreatico."

Brunner relates, that the pancreatic duct, in ſeveral dogs, having been tied and cut, they ſtill continued to eat and drink, and perform all the other functions of life as uſual. One of them ſeemed only to have the better ſtomach for it.

PANCSOVA, in *Geography*, a town and fortreſs of Hungary, on the N. ſide of the Danube, in the bannat of Temeſvar; 8 miles N. of Belgrade. N. lat. 45° 15′. E. long. 12° 16′.

PANCTOU, a town of Thibet; 70 miles N.N.E. of Laſſa.

PANDA, a town on the N. coaſt of the iſland of Cumbava. S. lat 8° 27′. E. long 118° 48′.

Panda, in *Mythology*, a goddeſs who was invoked and honoured as the protectreſs of travellers and navigators. The goddeſs of peace was alſo called Panda, becauſe ſhe opened the gates of cities which were ſhut in time of war. According to Varro, Panda is a ſurname of Ceres, derived *à pane dando*, becauſe ſhe gave bread to mankind. According to Arnobius, this goddeſs was ſo called becauſe ſhe opened the way to the capitol to T. Tatius.

PANDAIA, or Pantaia, in *Geography*, a town on the N. coaſt of the iſland of Cyprus, in a bay to which it gives name; 28 miles W. of Nicoſia.

PANDALEON, in *Medicine*, a remedy appropriated to diſorders of the breaſt and lungs, invented by the Arabians and later phyſicians; conſiſting of grateful ingredients anſwering the ſame end with the linctus, but different from it in form, in which it agrees with troches: it differs however in this, that troches are made in a certain figure, whereas the pandaleon, after the ſugar is duly boiled, and the ingredients ſufficiently mixed, is poured into a box, and becomes indurated, and a ſufficient quantity is to be taken out either in a ſpoon, or on the point of a knife.

The pandaleon, therefore, is a ſolid medicine like a cake, receiving its form from the box into which it is poured: and it conſiſts of powders, pectoral conſerves, and lozenges of ſugar.

PANDANEÆ, in *Botany*, a natural order of plants, recently eſtabliſhed by Mr. R. Brown, Prodr. Nov. Holl. v. 1. 340, and ſo denominated from *Pandanus;* which ſee. The characters are thus given.

Flowers either diœcious or polygamous; deſtitute of a perianth.

Male, *Spadix* entirely covered with *filaments*, each bearing a ſingle *anther* of two cells.

Female, *Spadix* entirely covered with *germens* moſtly combined in parcels, each germen of one cell, with a ſeſſile cloſely attached *ſtigma*. *Drupas* fibrous, moſtly combined in parcels, each drupa with one *ſeed;* or elſe *berries* of ſeveral cells, with many *ſeeds* in each cell.

Albumen fleſhy. *Embryo* central, erect. *Plumula* inconſpicuous.

Trunk arboreous, but often ſending down ſhoots to take root, and ſometimes weak and decumbent. *Leaves* imbricated in three ranks, elongated, linear-lanceolate; claſping the ſtem, their edges moſt frequently ſpinous. *Floral leaves* ſmaller, often coloured.

This is a tropical family of plants, placed by its author near the *Aroideæ*, chiefly on account of the ſimilarity of their infloreſcence, the want of a perianth, the texture of the albumen, and the ſituation of the embryo; in all which characters it differs widely from the Palmæ, ſee that article, reſembling the latter only in having an arboreſcent trunk.

A ſecond genus, firſt obſerved by ſir Joſeph Banks, and lately moſt beautifully delineated by Mr. Ferdinand Bauer, during his ſtay at Norfolk iſland, differs from *Pandanus* in having a ſoft pulpy fruit, with ſeveral minute ſtriated ſeeds in each cell, furniſhed at one ſide with a longitudinal appendage.

PANDANG, in *Geography*, a town on the W. coaſt of the iſland of Celebes. S. lat. 3° 33′. E. long. 120°.

Pandang *Cochin*, a town on the W. coaſt of the iſland of Sumatra. S. lat. 4° 36′. E. long. 102° 57′.

PANDANUS, in *Botany*, a name adopted by Linnæus from Rumphius, who fabricated it from the Malay *Pandang*, which ſignifies *to behold*, and which is ſuppoſed to allude either to the beauty of the tree in queſtion, or to its conſpicuous appearance at a diſtance. Whatever the meaning may be, the ſtructure of the word is uncouth, and we cannot but regret that Forſter's *Athrodactylis* was not retained; or if the genus muſt have a barbarous appellation, ſanctioned by antiquity. *Kaida* of Rheede would ſurely have been preferable to the above. By the manuſcript of the *Supplementum Plantarum*, it appears that the younger Linnæus, and not his father, is reſponſible for the name we preſume to diſapprove. Linn. Suppl. 64. Schreb. 670. Mart. Mill. Dict. v. 3. Ait. Hort. Kew. ed. 1. v. 3. 387. Brown Prodr.

Nov. Holl. v. 1. 341. Juſſ. 444. Lamarck Illuſtr. t. 798. (Athrodactylis; Forſt. Gen. t. 75.)—Claſs and order, *Dioecia Monandria.* Nat. Ord. uncertain, Juſſ. *Pandaneæ*, Brown.

Gen. Ch. Male, *Cal.* Spadix compound, naked. Perianth none. *Cor.* none. *Stam.* Filaments ſcattered over the whole ſpadix, cylindrical; anther vertical, linear, acute, cloven at the baſe, of two cells, burſting longitudinally at one ſide.

Female, on a ſeparate plant, *Cal.* none. *Cor.* none. *Piſt.* Germens numerous, aggregate, ſeſſile, tapering inwards, with five angles, convex at the ſummit, ſmooth; Style none; ſtigma two-lobed, bordered. *Peric.* Drupas aggregate, angular, fibrous, farinaceous. *Seed.* Nut bony, oval, ſmooth, its kernel inſerted by the baſe into the centre of a *receptacle*, attached to the inner ſide of the ſhell.

Eſſ. Ch. Male, Calyx none. Corolla none. Spadix compound.

Female, Calyx none. Corolla none. Drupas aggregate.

1. P. *odoratiſſimus.* Linn. Suppl. 424. (Male, P. verus; Rumph. Amboin. v. 4. 139. t. 74; female, P. ſpurius; ibid. 142. t. 75. Kaida; Rheed. Hort. Malab. v. 2. 1. t. 1—6?)—Trunk throwing out runners. Drupas obovate at the ſummit—Native of the Eaſt Indies; cultivated there, as well as in many of the South Sea iſlands, and, according to Forſkall, in Arabia, for the ſake of its male flowers only, whoſe fragrance is ſaid to be very delightful, and powerfully diffuſive. The young plant is without any *ſtem*, and its long narrow pointed *leaves*, whoſe margins are ſerrated with ſpines, and whoſe under ſide is whitiſh and mealy, much reſemble a *Bromelia*, to which genus Linnæus, in his Fl. Zeylanica, referred it. The *floral-leaves* are white, as well as the male *flowers*, which latter compoſe long, branched, denſe *ſpikes*, in which nothing is diſcernible but innumerable *filaments* and *anthers*. The *fruit*, on a ſeparate tree, reſembles a Pine-apple, but is hard, dry, not eatable, nor of any uſe whatever. The cultivation of the female plant therefore is neglected. In an adult ſtate the *trunk* is eight or nine feet high, much branched, ſending down numerous long ſhoots from its lower part, which take root in the earth.

We are by no means competent to unravel all the varieties, or rather ſpecies, of this plant, deſcribed by Rumphius and Rheede, but which ſucceeding botanical travellers have left unexplained. Mr. R. Brown only has given definitions of the following two ſpecies, without any ſynonyms, and therefore we preſume they are not ſuppoſed to be included among the above.

2. P. *pedunculatus.* Br. n. 1.—Trunk throwing out runners. Drupas conical and lobed at the ſummit; ſomewhat contracted at the baſe. Native of the tropical part of New Holland.

3. P. *ſpiralis.* Br. n. 2.—Trunk without runners. Drupas depreſſed and teſſellated at the ſummit; very obtuſe at the baſe.—Gathered likewiſe by Mr. Brown, in the ſame part of the world.

We have a ſpecimen of a ſmall, apparently diſtinct, ſpecies, gathered by Commerſon in the iſle of Bourbon, and which he ſays grows alſo in Madagaſcar, and on the coaſt of Coromandel. In this the ſummit of each *drupa* is conical and acute, but we cannot judge how far the fruit is advanced towards maturity. The whole compound female *ſpike* is ſcarcely more than two inches long.

PANDANUS, in *Gardening*, contains a plant of the herbaceous, perennial, exotic kind for the ſtove, of which, the ſpecies is ſweet-ſcented pandanus, or ſcrew pine (P. odoratiſſimus).

Method of Culture.—This plant may be increaſed by ſowing the ſeeds, brought from the places where it grows naturally, in pots of light earth, and plunging them in the bark-bed of the ſtove, where they muſt be conſtantly retained, having the management uſually practiſed for other tender exotic plants.

They have a fine ornamental effect among other ſtove plants, in their large ſpreading foliage.

PANDECTS, PANDECTÆ, in *Juriſprudence*, the Digeſt, or collection made by Juſtinian's order, of five hundred and thirty-four deciſions, or judgments of the ancient lawyers, on ſo many queſtions occurring in the civil law; to which that emperor gave the force and authority of law by an epiſtle prefixed to them. The juriſprudence of the Pandects is circumſcribed within a period of one hundred years, from the perpetual edict to the death of Severus Alexander.

The word is Greek, Πανδεκται, compounded of παν, *all*, and δεχομαι, *capio*, *I take*; *q. d.* a compilation, or a book containing all things. Though others, as Bartoli, will have it formed from ϖαν, and δεχομαι; as if theſe books contained the whole doctrine of the law.

The Pandects conſiſt of fifty books, and make the firſt part of the body of the CIVIL *law*; which ſee.

They were originally denoted by two π π; but the copyiſts taking thoſe π π for *ſſ*, the cuſtom aroſe of quoting them by *ſſ*. When the monuments of ancient Rome were neglected or deſtroyed by the envy or ignorance of the Greeks, the Pandects themſelves eſcaped with difficulty and danger from the common ſhipwreck, and criticiſm has pronounced that all the editions and manuſcripts of the weſt are derived from *one* original. It was tranſcribed at Conſtantinople in the beginning of the ſeventh century, and was ſucceſſively tranſported by the accidents of war and commerce, to Amalphi, Piſa, and Florence, and is now depoſited as a ſacred relic in the ancient palace of the republic. The original at Conſtantinople was revered by Politian as the authentic ſtandard of Juſtinian himſelf; but this paradox is refuted by the abbreviations of the Florentine MS. It is compoſed of two quarto volumes, with large margins, on a thin parchment, and the Latin characters betray the hand of a Greek ſcribe. The diſcovery of the Pandects at Amalphi (A.D. 1137) is firſt noticed (in 1501) by Ludovicus Bologninus, on the faith of a Piſan chronicle, without a name or a date. The whole ſtory, though unknown to the 12th century, embelliſhed by ignorant ages, and ſuſpected by rigid criticiſm, is not, however, deſtitute of much internal probability. The Liber Pandectarum of Piſa, was undoubtedly conſulted in the 14th century by the great Bartolus. Piſa was taken by the Florentines in the year 1406; and in 1411 the Pandects were tranſported to the capital. Gibbon's Hiſt. vol. viii. p. 44. 8vo.

Papias extends the denomination of Pandects to the Old and New Teſtament.

There are alſo *pandecta medecinæ*, *pandects of medicine*: theſe are a kind of dictionary of things relating to medicine, compiled by Mat. Sylvaticus, of Mantua, who lived about the year 1297. Leunclavius has publiſhed pandects of Turkey; and biſhop Beveridge pandects of the canons, "Pandecta Canonum."

PANDEMON, Πανδημον, in *Antiquity*, the ſame with the feſtival Chalceia and Athenæa.

It was ſo called from the great concourſe of people that uſed to meet at this ſolemnity.

PANDEMOS, in *Mythology*, a name given to *Venus*; which ſee.

PANDERLA, in *Geography*, a town of Hindooſtan, in Madura; 30 miles N.N.E. of Coilpetta.

PANDIA, Πανδια, in *Antiquity*, an Athenian feſtival in honour of Jupiter. For the origin of this ſolemnity, ſee Potter, Archæol. Græc. lib. ii cap. 20. tom. i. p. 422.

PANDICULATION, Pandiculatio, in a general ſenſe, is a violent and tenſive motion of the ſolids, which uſually accompanies the act of yawning; and is otherwiſe called *ſtretching*.

PANDIPOUR, in *Geography*, a town of Hindooſtan, in Oude; 22 miles S. of Fyzabad.

PANDOLY, a town of Hindooſtan, in Baglana; 25 miles N.W of Junare.

PANDONSER, a town of Hindooſtan, in Dowlatabad; 20 miles E. of Poorundar.

PANDOO, a town of Hindooſtan, in Viſiapour; 20 miles N. of Sattarah.

PANDOOKAN, a ſmall iſland in the Sooloo Archipelago. N. lat. 6° 15′. E. long. 120° 34′.

PANDORA, in *Mythology*, the name of the firſt woman, according to Heſiod; ſo called from παν, *all*, and δωρον, *gift*: becauſe the gods united to confer upon her every quality and endowment that could conduce, as the fable ſays, to the miſery of mankind. Pandora, it is farther ſaid, kept theſe gifts in a veſſel, the cover of which ſhe opened, and they were diſperſed over the face of the earth.

According to the fable, Jupiter, incenſed at the conduct of Prometheus (ſee his article), ordered Vulcan to form a woman endued with all perfections, whence her name of Pandora originated. The gods loaded her with preſents, and ſent her to Prometheus with a box full of all kinds of miſery. This prince, ſuſpecting the trick, would have nothing to do with her; but Epimetheus, to whom ſhe offered herſelf, was ſo captivated with her charms, that he took her to wife, and had by her Pyrrha, the wife of Deucalion. His curioſity, too, led him to look into the fatal box, which he no ſooner had opened, than there iſſued out of it that deluge of miſeries which have ſince overrun this earth. He ſhut it up again in haſte, but all was gone but hope, which had not time to eſcape, and this, of conſequence, is the only bleſſing that remains with wretched mortals.

PANDOSIA, in *Ancient Geography*, a town of Italy, in Brutium, upon the W. coaſt, near the ſea, and the boundaries of Lucania. It was founded by the Œnotrians, who made it the capital of their territory. It was ſituated on a ſmall mountain, at the foot of which ran a ſtream called "Acheron."—Alſo, a town of Epirus, in the interior of the country.

PANDROSOS, Πανδροσος, in *Antiquity*, an Athenian feſtival in honour of Pandroſia, the third daughter of king Cecrops, who, not diſobeying Minerva, was rewarded by the Greeks for her piety with a temple, built after her death, near that of the goddeſs, as Pauſanias relates the ſtory.

PANDSA Tala, in *Geography*, a group of ſeveral ſmall lakes in Thibet. N. lat. 30° 42′. E. long. 79° 26′.

PANDU, in *Mythology*, the name of a perſonage of ſome importance in the heroic hiſtory of the Hindoos. He was the father of the five brothers or Pandavas, whoſe conteſts with the ſons of Kuru form the ſubject of that ſplendid poem, the Mahabarat, under which article the names and parentage of the Pandus, or Pandavas, and ſome other particulars of them, will be found. To theſe five heroes, it is uſual in India to attribute the conſtruction of any great work whoſe origin is loſt in its antiquity. Such as the excavations on Elephanta, at Elora, &c.

PANDURA, or Pandoron, a muſical inſtrument, uſed among the ancients, much reſembling the lute.

The word, according to ſome, is formed from the Greek παν, and δωρον, *i. e.* all gifts, all ſorts of gifts. Iſidore derives the name from its inventor Pandorus; others from Pan, to whom they attribute this invention, as well as that of the flute.

It has the ſame number of ſtrings with the lute; but they are of braſs, and of conſequence give a more agreeable ſound than thoſe of the lute. Its frets are of copper, like thoſe of the ciſtre; its back is flat, like that of the guitar; and the rims of its table, as well as its ribs, are cut in ſemicircles.

Du-Cange obſerves, that Varro, Iſidore, and others of the ancients, mention it as having only three ſtrings; whence it is ſometimes alſo ſpoken of under the denomination τριχορδον, *trichordum*.

The inſtrument called the Pandura or Bandoræ, of the lute kind, was very much in favour in our own country during the 17th century: but now, not only its ſcale, but even its form is forgotten. Julius Pollux relates that the Aſſyrians made uſe of an inſtrument with three ſtrings, called the *Pandore*, or Pandarum, invented by the Arabians, and by them called the *trichord*. Pythagoras attributes this invention to the Troglodites, and pretends that this inſtrument was made of the water laurel.

PANDURIFORME, Folium, in *Botany*, a leaf ſo named from its reſemblance to the form of an ancient lyre, or πανδουρα, being rounded and dilated at each end with a contraction in the middle. The form of the modern violin ſeems to have been borrowed from that inſtrument, though it does not clearly appear for what reaſon. The leaf ſo denominated is ſcarcely to be found but in the ſpecies of *Rumex*, called from this reſemblance, which is very correct and ſtriking, Fiddle Dock. See Leaf.

PANDYSIA, Πανδυσια, in *Antiquity*, public rejoicings when the ſeaſon, through its coldneſs and intemperance, forced the ſailors to ſtay at home.

PANE′, in *Geography*, a town on the N. coaſt of the iſland of Sumatra. N. lat. 2° 40′. E. long. 99° 35′.

PANEAS, a town of Syria, called alſo Cæſarea-Philippi (ſee Cæsarea); 24 miles E. of Seir.

PANEGYRIC, Panegyris, or *Panegyricus*, an oration in praiſe of ſome extraordinary thing, perſon, or virtue.

The name is Greek, πανηγυρις, formed of παν, *all*, and αγειρω, *I aſſemble*; becauſe anciently held in public and ſolemn aſſemblies of the Greeks, either at their games, their feaſts, or their religious meetings.

The panegyric is ranked among the demonſtrative kind of orations. See Oration.

To make their panegyrics the more ſolemn, they uſed to begin with the praiſes of the deity in whoſe honour the games, &c. were celebrated; then they deſcended to the praiſe of the people or country where they were celebrated; then to the princes or magiſtrates who preſided at them; and at length to the champions, eſpecially the conquerors, who had gained the prizes in them.

F. De Colonia lays down two methods, or ſeries, obſerved in panegyrics. The *artificial*, where, without any regard to the order of time, every thing is reduced to certain heads. Thus Tully refers the whole praiſe of Pompey to his ſkill in war, his virtue, authority, and felicity.

The other *natural*; in which the order and time of hiſtory are obſerved. This ſeries he divides into three periods: the ſpace before the perſon's birth; that wherein he lived; and, if he be dead, that which followeth his death. This natural ſeries requires much leſs art, genius, &c. than the other.

The topics or ſources of panegyric are, chiefly, the family and country of the hero, auguries at his birth, his virtues,

tues, the talents of his body and mind, honours, riches, manner of his death, and the conſequences thereof.

Panegyric, πανηγυρικος, is alſo the name of a church-book in uſe among the Greeks: ſo called, as conſiſting of panegyrics, or diſcourſes in praiſe of Jeſus Chriſt, and the ſaints; it is found in MS. in moſt churches, but is not the ſame in all, each church having its particular ſaints; and the compilers of this kind of books uſually ſuited their collections to the taſte of their own devotion. They are diſpoſed according to the order of months, and frequently conſiſt of twelve volumes, anſwering to the twelve mouths of the year.

PANEGYRIS, Πανηγυρις, among the Greeks, a fair, or feſtival day, on which the people uſed to meet together. It exactly correſponded to the Nundinæ of the Romans.

PANEL, Panella, or *Panellum*, in *Law*, is derived, by Spelman, from *pagella*, *a ſchedule*, or *page*; in which ſenſe we ſay, a *panel* of parchment, a *counterpanel* of an indenture, &c.

Panel, or *Pannel*, is more commonly uſed for a ſchedule, or roll, containing the names of ſuch jurors as the ſheriff returns to paſs upon any trial.

Hence the impanelling of a jury, is the entering of their names, by the ſheriff, into a panel, or little ſchedule of parchment; called alſo the *panel of aſſize*, *panellum aſſiſæ*. Coke on Littleton will have panel to be an Engliſh word, ſignifying a little part; as being a diminutive of the word *pane*, *part;* but Spelman takes this for an overſight.

Panel, in *Joinery*, &c. See Pannel.

Panel, in *Ship-Building*. The captain's cabin and ward-room bulkheads conſiſt of rails, ſtiles, and panels, framed together. The other cabins, of panels grooved and tongued together only.

PANELLENIA, Πανελληνια, in *Antiquity*, a public feſtival, celebrated by an aſſembly of people from all parts of Greece.

PANEMUS, in *Chronology*, the Bœotian name of the Athenian month Metagitnion, which was the ſecond of their year, and anſwered to the latter part of our July and beginning of Auguſt.

Panemus, among the Corinthians, anſwered to the Attic month Boedromion, or, according to Petavius, to our November. In the ancient Macedonian calendar, it was the ninth month of the year: but after the conqueſt of Arabia, they gave this name to the ſixth month.

PANEPHYSIS, in *Ancient Geography*, a town of Egypt, and capital of a nome, called by Ptolemy "Neut."

PANERE, in *Geography*, a town of the iſland of Ceylon; 24 miles N.N.E. of Columbo.

PANEROS, the name of a beautiful ſtone dedicated to Venus; it was called alſo by ſome *panſebaſtos*, and was probably one of the beautiful agates.

PANES, in the *Ancient Theology*. See Fauns.

PANETURE, in *Geography*, a town of the iſland of Ceylon; 18 miles S. of Columbo.

PANGA, a town on the E. coaſt of Celebes. S. lat. 1° 54′. E. long. 121° 16′.

Panga, a town of France, in the department of the Moſelle, and chief place of a canton, in the diſtrict of Metz. The place contains 232, and the canton 12,847 inhabitants, on a territory of 247½ kiliometres, in 48 communes.

PANGÆUS Mons, in *Ancient Geography*, a mountain of Thrace, on the confines of Macedonia, the foot of which was watered by the Neſtus.

PANGASINAN, in *Geography*, a town on the W. coaſt of the iſland of Luçon, and capital of a province or kingdom. N. lat. 15° 40′.

PANGASMAN, a ſmall iſland in the Sooloo Archipelago. N. lat. 6° 8′. E. long. 120° 58′.

PANGESANA, an iſland in the Eaſt Indian ſea, about 45 miles long, and 9 broad, ſituated between the iſlands of Celebes and Boutan. S. lat. 5° 5′. E. long. 122° 50′.

PANGIMODOO, a ſmall iſland in the South Pacific ocean, at the entrance of the harbour of Tongataboo.

PANGKER, a town of the duchy of Holſtein; 3 miles N.N.W. of Lutkenborg.

PANGLO, or Panglao, one of the ſmaller Philippine iſlands; 60 miles N. of Mindanao.

PANGO, a town of Africa, capital of a province in the kingdom of Congo, on the Barbela; 40 miles N. of Congo Batta.

PANGOLIN, of Buffon, in *Zoology*, is the ſhort-tailed manis, or Manis *pentadactyla* of Linnæus; which ſee.

PANGONIA, in *Natural Hiſtory*, the name of a genus of cryſtal.

The word is derived from the Greek παν, *numerus*, and γονυ, *an angle*, or *bending*, and expreſſes a cryſtal compoſed of many angles.

The bodies of this genus are ſingle-pointed, or imperfect cryſtals, compoſed of dodecangular, or twelve-planed columns, terminated by twelve-planed pyramids, and the whole body, therefore, made up of twenty-four planes. Of this genus there are only three known ſpecies.

PANGOOTARAN, in *Geography*, an iſland in the Sooloo Archipelago, about 10 miles long and 4 broad. N. lat. 6° 15′. E. long. 120° 28′.

PANGUCI, a ſmall iſland in the Eaſt Indian ſea, near the coaſt of Queda. N. lat. 5° 50′. E. long. 100° 5′.

PANGY, a town on the E. coaſt of the iſland of Celebes, in Gunong Tally bay. S. lat. 1° 6′. E. long. 120° 15′.

PANJAB, a province of Hindooſtan, watered by the five branches of the Indus, frequently called *Lahore*, which ſee; though Panjab, being applied to a natural diviſion of country, is applicable alſo to part of *Moultan*, which ſee. The five rivers from which Panjab derives its name, are Behut or Jhylum (the *Hydaſpes* of Alexander), the Chunaub or Junaub (Alexander's *Aceſines*), the Rauvee (Alexander's *Hydraotes*), the Beyah (Alexander's *Hyphaſis*), and the Setlege, Suttuluz, or Sutluj. The ſources of all theſe rivers are ſituated in the great chain of ſnowy mountains, that extend from Sirinagur to the north of Caſhmere, and which are in fact the true *Imaus*, which ſee. The eaſtern boundary of the Panjab is properly this ridge of mountains; but in a more limited ſenſe, and particularly according to the ideas of the preſent times, the Panjab means the country ſituated *without*, or to the weſt of the hilly tract; and which is of conſiderable width, being poſſibly from 50 to 60 miles from the edge of the plains to the ſummits of the higheſt mountains. From the Setlege to the Jhylum, and to the hills that bound the Panjab, on the N. and E., it appears to be chiefly a tract of flat and very fertile land; and, indeed, the courſes of the four eaſtern rivers very plainly indicate a regularity of ſurface and fertility of ſoil. But between the Jhylum or Behut and the Indus, there is a large proportion of hilly country, which may be ſuppoſed to influence the courſe of the Jhylum, and give it ſo different a form from the others; the river conforming to the border of the hilly tract. The Panjab country being the frontier province towards Tartary, and the northern parts of Perſia, from whence have ſprung the conquerors of Hindooſtan in every age, Alexander excepted, their route to the interior parts of the country muſt have led through it. Nadir Shah's route was the ordinary one, by Attock and Lahore. For the other routes of Timur and Alexander, we refer to Rennell's memoir.

memoir. From theſe we learn that the lower part of the Panjab towards Moultan is flat and marſhy, and inundated, like Bengal, by the periodical rains, which fall between the months of May and October. The revenues of this province, under Aurungzebe, amounted annually to 206½ lacks of rupees.

PANJANY, an iſland in the Eaſt Indian ſea, near the coaſt of Siam, about 14 miles long, and 6 broad. N. lat. 8°. E. long. 98° 42'.—Alſo, a ſmall iſland in the Eaſt Indian ſea, near the eaſt coaſt of the iſland of Borneo. N. lat. 2° 15'. E. long. 117° 59'.—Alſo, an iſland near the weſt coaſt of Siam, about 40 miles in circumference. N. lat. 8°. E. long. 98° 42'.—Alſo, a ſmall iſland in the Pacific ocean, near the north coaſt of New Guinea. S. lat. 3° 18'. E. long. 135° 25'.

PANIANY, a town of Hindooſtan, in Calicut; oppoſite to which is a paſſage through the Gauts, about 16 miles wide, and 14 or 15 miles long, occupied by foreſt trees, and defended by the fort of Annamally on the E., and Palicaudcherry on the W., and opening finally into the low country on the Malabar coaſt; 42 miles S.S.E. from Calicut. N. lat. 10° 41' 45". W. long. 75° 55'. The river of Paniany takes its courſe from the Coimbettore country, through the above-mentioned opening; and is ſaid to be navigable in the rainy ſeaſon, for ſmall boats, to the foot of the Gauts. This circumſtance, together with the inundated ſtate of the country at that ſeaſon, may ſerve to ſhew, that the country W. of the Gauts has no great declivity, in a courſe of nearly 60 miles. This river, as well as that of Daraporum, has its ſource from an elevated plain, about 60 miles in extent, ſtretching itſelf acroſs the eaſtern mouth of the gap or valley already menioned. This plain riſes ſuddenly from the level of the ſurrounding country, like a vaſt terrace; and the foreſt bounds it on the weſt.

PANJAPILLY, a town of Hindooſtan, in Myſore; 13 miles W.S.W. of Caveripatam.

PANJASSAS, a town of Louiſiana, on the Akanſas. N. lat. 36° 25'. W. long. 94° 21'.

PANIC, or PANIC *Fear*, a term uſed for a needleſs or ill-grounded fright.

Polyænus fetches the origin of the phraſe from Pan, one of the captains of Bacchus, who, with a few men, put a numerous enemy to rout, by a noiſe which his ſoldiers raiſed in a rocky valley, favoured with a great number of echoes. This ſtratagem making their number appear much greater than it really was, the enemy quitted a very commodious encampment, and fled. Hence all ill-grounded fears have been called *panics*, or *panic fears*; and it was this that gave occaſion to the fable of the nymph Echo's being beloved by the god Pan.

Others derive the origin of the expreſſion hence; that, in the wars of the Titans againſt the gods, Pan was the firſt who ſtruck terror into the hearts of the giants. Theon on Aratus ſays, he did it by the means of a ſea-ſhell, which ſerved him for a trumpet, of which he was the inventor. See PAN.

PANIC, in *Botany*. See PANICUM.

PANICASTRELLA, a ſort of Italianized name, formed by Micheli from *Panicum*, for what is now the *Cenchrus* of Linnæus and other botaniſts, which Micheli perceived to be akin to that genus. There is certainly a reſemblance in character, as well as in habit, to ſome of the numerous ſpecies which have been arranged under it. See PANICUM, and PENNISETUM.

PANICLE, in *Gardening*, is the part which ſhews the particular mode of flowering in ſome plants, and which is of two ſorts or deſcriptions, the one looſe or diffuſe, the other cloſe or bound up. See PANICULA.

PANICOLO, in *Geography*, a town of Naples, in Lavora; 22 miles N.W. of Naples.

PANICULA, in *Botany*, is uſed by Pliny for the flowery tuft which crowns the ſummit of the reed, as well as for the male catkins of the fir tribe, whoſe denſe ſcaly ſtructure he very clearly mentions. Linnæus uſes the word technically, according to the firſt meaning, for a particular kind of infloreſcence, called in Engliſh a panicle. In this the flowers are diſpoſed in a ſort of looſe ſubdivided bunch or cluſter, without any order, as in the Common Reed, *Arundo Phragmites*, and the Oat. If the ſtalks are diſtant, as in the latter example, it conſtitutes a diffuſe or lax panicle; if otherwiſe, a cloſe or denſe one. *Panicula ſparſa*, implies a panicle whoſe branches ſpread every way; *ſecunda* is uſed when they are all turned to one ſide, uſually in a drooping manner. The panicles of graſſes are, for the moſt part, *ſemi-verticillata*, or half-whorled, their principal branches being diſpoſed in a cloſe ring, half round the main ſtalk. Very denſe panicles are found in ſome of this family, as *Agroſtis ſtolonifera*, the Fiorin graſs, now ſo much talked of; *Panicum italicum*, the Millet; and eſpecially the *Phleum paniculatum*, (ſee Engl. Bot. t. 1077.) whoſe infloreſcence cannot be diſtinguiſhed from a ſpike, till it is bent to one ſide, by which means it ſeparates into lobes. Some plants have a forked panicle, ſo termed becauſe a ſolitary flower is placed between each of its ramifications, as in various ſpecies of *Silene*, *Spergula*, *&c.* A remarkably divaricated, or rigidly ſpreading, panicle is ſeen in the Wall Lettuce, *Prenanthes muralis*. The ſugar-cane, when it bloſſoms, which moſt Weſt Indians will tell us never happens, but which the writer of this has ſeen with admiration, bears one of the largeſt and moſt elegant panicles in nature. The diſtinction between a panicle and a ſpike is in all caſes very great, but particularly important in the natural family of graſſes, where it ſeparates moſt of the genera into two grand ſections.—A very compact panicle is, in ſome inſtances, termed a THYRSUS; ſee that article.

PANICUM, an old Latin name for the moſt celebrated ſpecies of the genus, *P. italicum*, and which Faber and Ambroſinus, after Pliny, declare to allude to its panicle of ſeed. Certainly the infloreſcence of that graſs, or corn, though now termed a ſpike, anſwers peculiarly well to the claſſical idea of a panicle. (See PANICULA.) Other etymologiſts deduce the word *Panicum* from *panis*, *bread*; for which, however, it ſeems to have ſerved leſs than many other ſorts of grain. Linn. Gen. 32. Schreb. 46. Willd. Sp. Pl. v. 1. 333. Mart. Mill. Dict. v. 3. Sm. Fl. Brit. 64. Prodr. Fl. Græc. Sibth. v. 1. 39. Ait. Hort. Kew. ed. 2. v. 1. 139. Brown Prodr. Nov. Holl. v. 1. 189. Swartz. Ind. Occ. 139—178. Juſſ. 29. Lamarck Illuſtr. t. 43. Michaux Boreal-Amer. v. 1. 46. Gærtn. t. 1. (Digitaria; Juſſ. 29.)—Claſs and order, *Triandria Digynia*. Nat. Ord. *Gramina*.

Gen. Ch. reformed. *Cal.* Glume of two flowers, and two, nearly ovate, ribbed valves; the outermoſt minute and ſomewhat inferior; one floret perfect, the other either neuter or male. *Cor.* of the perfect floret a glume of two nearly ovate cartilaginous valves; the outermoſt convex, embracing with its margins the inner one, which is ſmaller and flatter; that of the neuter or male, often very ſmall, a glume of two valves; the outermoſt, in the boſom of the ſmaller valve of the calyx, flattiſh and ribbed; the innermoſt membranous, flat, with inflexed margins. Nectary, in the perfect as well as male florets, minute, gibbous, of two leaves; in the neuter wanting. *Stam.* in the perfect and male florets only; filaments three, capillary; anthers oblong. *Piſt.* in the perfect florets only, germen roundiſh; ſtyles two, capillary; ſtigmas feathery. *Peric.* none, except the corolla cloſely combined with the ſeed. *Seed* ſolitary, clothed with the corolla, roundiſh, flattened at one ſide.

Eſſ. Ch. Calyx of two very unequal valves, containing two flowers, the outer one male or neuter. Corolla of two unequal valves, finally cartilaginous, and inveſting the ſeed.

Obſ. Schreber remarks, that botaniſts, having overlooked the inner glume of the imperfect floret, conceived its outer glume to belong to the calyx; hence the latter was thought to conſiſt of three valves, of which the third was much the leaſt. We plead guilty to this charge, but have never been ſatisfied with the opinion we adopted. The inner valve of the imperfect floret, diſcovered by Dr. Stokes and Mr. Sowerby in *P. Crus-galli,* is figured in Engl. Bot. t. 876; and though we agreed to refer it, as a fourth valve, to the calyx, this was, in reality, becauſe we could diſpoſe no otherwiſe of the troubleſome intruder. Mr. Brown has adopted the ideas of Mieg, Adanſon, Forſkall, and Schreber, on this ſubject, and we have profited by their corrections of the Linnæan characters. It is neceſſary to obſerve, however, that the neutral floret very generally conſiſts of but one valve, ſo that the above error might eaſily be committed. —Our learned friend, in his *Prodr. Nov Holl.* v. 1. 193—195, has eſtabliſhed three new genera as diſtinct from *Panicum,* which we ſcruple to adopt. Theſe are, 1ſt, *Chamæraphis,* diſtinguiſhed only by having three ſtyles inſtead of two, and conſiſting of but one ſpecies; 2d, *Orthopogon,* which has nearly equal calyx-valves, as well as ſmooth awns, and conſiſts of *P. compoſitum* and *hirtellum,* with a few new ſpecies; 3d, *Penniſetum* of Richard, compriſing *P. viride, verticillatum, glaucum, helvolum, italicum,* with a new ſpecies called by Mr. Brown *compreſſum,* all which have a partial involucrum, compoſed of ſeparate briſtles, including one or three flowers. The genus of *Panicum* is indeed overburdened with ſpecies, but above all things we heſitate to admit *Penniſetum,* as its character is taken rather from a part of the infloreſcence than of the flower, and as it embraces the original *Panicum* of the ancients, from whence, and its allies, all botaniſts have taken their ideas, in general, of the genus in queſtion. We perceive, moreover, in *P. Crus corvi, Crus galli, &c.* ſomething of an approach to a ſimilar briſtly involucrum.

Panicum conſiſts of thirty-four ſpecies only, in Linn. Syſt. Veg. ed. 14. Willdenow has eighty, having profited much by the labours of Retzius and Swartz, the former of whom has deſcribed many new ſpecies from the Eaſt, and the latter a conſiderable number from the Weſt Indies. The new edition of Ait. Hort. Kew. contains twenty-five ſpecies, all among thoſe of Willdenow. Five of them are natives of England. One new ſpecies only is defined in the Prodr. Fl. Græc. Sibth.

The whole are diſtributed by Linnæus, and conſequently by Willdenow, into two ſections, *flowers ſpiked,* and *flowers panicled.* The author laſt named has forty ſpecies in each ſection. Mr. Brown, however, who has defined thirty-two new ſpecies of *Panicum,* even as he limits the genus, from New Holland alone; beſides five other new ones referred to his genera of which we have ſpoken above; has divided *Panicum,* upon new principles, into ſeven ſections. Of theſe, for want of knowing his new ſpecies, we can form no concluſive judgment; and we ſhall therefore content ourſelves with the old arrangement, ſelecting a few examples, that may indicate certain ſubdiviſions of the ſections, or aſſemblages of ſpecies, ſo as to give a comprehenſive idea of the whole, with the characters of the moſt remarkable.

Sect. 1. *Flowers ſpiked.*

Here at firſt nine ſpecies preſent themſelves, which belong to Mr. Brown's *Penniſetum,* and of which two are Britiſh.

P. verticillatum. Rough Panick-graſs. Linn. Sp. Pl. 82. Willd. n. 3. Curt. Lond. faſc. 4. t. 6. Engl. Bot. t. 874. (Gramen geniculatum; Ger. em. 15. f. 1.)—Spike whorled; ſpikelets in fours. Involucrum of two briſtles, rough, with reverſed teeth to each flower.—Native of the warmer parts of Europe, in cultivated ground, eſpecially where the ſituation is rather moiſt, but rare in England, chiefly occurring in Batterſea fields and that neighbourhood. We have found it on the weſt ſide of Norwich, in gravelly fallow fields, flowering in July or Auguſt. The *root* is annual, fibrous. *Stems* ſtraight, but widely ſpreading, leafy, rough above. *Leaves* harſh, ſtraight, pointed, dark green, very rough at the edges; their *ſtipula* fringed. *Spikes* ſolitary, terminal, erect, green, with a purpliſh tinge, compoſed of many denſe whorled ſpikelets. The briſtles which compoſe the *involucrum,* being rough with teeth that point backwards, afford the moſt certain mark of diſtinction, firſt pointed out by the ingenious Mr. Curtis, between this and *P. viride.* Both theſe are harſh uſeleſs graſſes, not abundant enough to be known to the farmer as noxious weeds.

P. *viride.* Green Panick-graſs. Linn. Sp. Pl. 83. Curt. Lond. faſc. 4. t. 5. Engl. Bot. t. 875. Knapp, t. 10. Leerſ. 13. t. 2. f. 2. (G. panici effigie ſpicâ ſimplici; Ger. em. 17.)—Spike cylindrical; ſpikelets crowded. Involucrum of ſeveral briſtles, rough, with erect teeth, and embracing two flowers.—Native of the warmer parts of Europe, rather leſs rare in England than the former, and uſually found in more dry ſandy ground. It is annual, flowering at the ſame time with the *verticillatum,* and, as far as we know, equally unprofitable to the agriculturiſt. Small birds however are fond of the ſeeds of both ſpecies. The *ſpikelets* in the preſent are irregularly crowded, not whorled. *Flowers* generally in pairs, with about ſix briſtles, which are rough with teeth that point forwards or upwards, a clear and deciſive character. The ſame difference is obſervable in the direction of the minute briſtly teeth which form the roughneſs of the upper part of the *ſtem* in each ſpecies. Theſe marks were, nevertheleſs, unknown to Linnæus, nor were his ideas clear concerning the two graſſes in queſtion.

P. *glaucum.* Glaucous Panick-graſs. Linn. Sp. Pl. 83. Willd. n. 5. Schreb. Gram. 21. t. 25. Leerſ. 12. t. 2. f. 2. +. (Penniſetum glaucum; Brown Prodr. Nov. Holl. v. 1. 195.) —Spike cylindrical; ſpikelets crowded. Involucrum of many briſtles, rough, with erect teeth, and uſually embracing two flowers. Caſe of the ſeed tranſverſely wrinkled.—Native of the ſouth of Europe, as well as of America, the Eaſt Indies, and New Holland, being one of the moſt general of graſſes, though not found wild in England. Its habit is like the two former, but the *ſtems* are taller and more erect; the herbage rather glaucous; the numerous briſtles of the *involucrum* with a tawny or golden tinge, not purple; and the outer glume of the perfect *floret* curiouſly marked, in its upper part, with tranſverſe wavy wrinkles. The upper part of the *ſtem* is ſtrongly furrowed, but not rough to the touch.

P. *italicum.* Italian, or True, Panick-graſs. Linn. Sp. Pl. 83. Willd. n. 8. Bauh. Theatr. 519. (Panicum; Matth. Valgr. v. 1. 368. Rumph. Amboin. v. 5. 202. t. 75. f. 2.)—Spike compound, drooping; interrupted at

the baſe; ſpikelets cluſtered. Involucrum of many, very long, rough briſtles. Common ſtalk woolly.—Native of both Indies. Cultivated in Italy and other parts of Europe. This is believed to be the true *Panicum* of the ancients, and its drooping panicle is deſcribed by Pliny, who ſpeaks of it as not ſo much uſed as the Millet, *P. miliaceum*, in making bread, but weighing more than any other grain, as well as increaſing more in bulk when cooked. It is annual, with the habit of the foregoing, but much larger, the *root* producing ſeveral *ſtems*, four or five feet high, with broad harſh *leaves*, and a ſolitary, very heavy, denſe *ſpike*, or rather condenſed *panicle*, bent downwards, beſet with innumerable very long briſtles, and producing abundance of ſmall oval ſmooth *ſeeds*, not bigger than thoſe of *P. glaucum*.

P. *germanicum*, Willd. n. 7, ſeems to us but a ſtarved variety, or perhaps the true wild ſtate, of the *italicum*.

After this tribe follows a train of ſpecies, with rather diſtantly branched compound ſpikes, which Mr. Brown conſiders as properly belonging to *Panicum*. We cannot but concur with him in the union of three ſuppoſed ſpecies, under the following.

P. *Crus galli*. Looſe Panick-graſs. Linn. Sp. Pl. 83. Curt. Lond. faſc. 4. t. 8. Engl. Bot. t. 876. Knapp. t. 11. Leerſ. 13. t. 2. f. 3. (P. Crus corvi; Linn. Sp. Pl. 84. P. ſtagninum; Retz. Obſ. faſc. 5. 17.)—Spike twice compound; its branches angular, rough and briſtly, alternate or in pairs. Calyx angular, hiſpid, awned.—Native of Europe, North America, the Eaſt Indies, and New Holland, in cultivated or waſte land, that is either moiſt or inundated. With us it is rare, flowering in July. This is a coarſe annual graſs, two feet or more in height. *Leaves* broad, harſh, with long tumid ſheaths, and either no *ſtipula*, or only a few hairs in the place of one. The common *ſpike* is four or five inches long, with a five-angled, rough and furrowed, common ſtalk, and from ſix to ten alternate branches, diſtant below, crowded into the top of the ſpike above. The *branches* are alſo ſlightly compound. *Flowers* crowded, all turned to one ſide, hiſpid or prickly, accompanied by ſcattered tufts of rather diſtant, fine, ſmooth, pellucid briſtles, about as long as the flowers. The outer valve of the neuter *floret* is hiſpid, and awned or pointed, like the valves of the calyx, of the nature of which it participates throughout the genus; the reſt are ſmooth, that which inveſts the *ſeed* even and poliſhed.

P. *brizoides*. Briza-like Panick-graſs. Linn. Mant. 184. Willd. n. 17. Ait. n. 10. (Gramen paniceum, multiplici ſpicâ maderaſpatanum; Pluk. Phyt. t. 191. f. 1.)—Spike compound; its branches alternate, erect, oblong. Flowers crowded, turned to one ſide, without awns. Stem ſimple, ſmooth.—Native of the Eaſt Indies. A ſmooth pale graſs, whoſe *ſtem* is ſimple, or rarely branched; the *leaves* long, looſely ſpreading, ſmooth and naked. *Spike* terminal, ſtraight, compoſed of ſeveral alternate, oblong, obtuſe branches, of crowded whitiſh-green *flowers*, all turned to one ſide. The outer *glumes* are ovate, tumid, with hairy ribs, the inner one which inveſts the *ſeed* very ſmooth and ſhining.

P. *eruciforme*. Caterpillar Panick-graſs. Sm. Fl. Græc. Sibth. v. 1. 44. t. 59.—Spike compound; its branches alternate, erect, cloſe-preſſed, linear, hairy. Flowers crowded, turned to one ſide, without awns. Stem branched from the bottom.—Diſcovered by Dr. Sibthorp in fields about the temple of Juno, in the iſland of Samos. Differs from the laſt in having a ſlender hairy *ſtem*, branched from the bottom, with numerous bent joints; *leaves* ſhort and ſpreading; branches of the *ſpike* more ſlender, linear, and hairy; *glumes* leſs tumid, and the outermoſt valve of the *calyx* much more minute.

This tribe, including ſeveral more ſpecies, is followed by ſuch as conſtitute the genus ORTHOPOGON of Mr. Brown, (ſee that article,) who indicates ſix ſpecies, *P. Burmanni*, Willd. n. 20; *hirtellum* and *compoſitum*, Linn. with three new ones named by him *Orthopogon æmulus*, *flaccidus* and *imbecillis*, the four laſt being found in New Holland. One example is ſufficient.

P. *hirtellum*. Rough-haired Panick-graſs, called in the Weſt Indies Scotch-graſs. Linn. Sp. Pl. 83. Willd. n. 21. Ait. n. 1. Hoſt. Gram. Auſtr. v. 3. 36. t. 52. Spike compound; its branches alternate, cloſe-preſſed. Flowers ſmooth, in pairs, turned to one ſide. Calyx with long, ſmooth, channelled awns. Leaves ovate, pointed.—Native of the Weſt Indies, as well as of the ſouth of Europe. *Root* biennial. *Stems* branched, decumbent, taking root at the joints, two or three feet long. *Leaves* ſpreading, ovate, pointed, varying in breadth, ribbed, rough, beſprinkled with ſoft hairs; their ſheaths extremely hairy, particularly at the top and bottom. *Spikes* terminal, conſpicuous for the prominent purpliſh awns of the *calyx*, which are linear, obtuſe, quite ſmooth, flattened or channelled above, three quarters of an inch long. The *corolla* has ſimilar, but much ſhorter, awns. The common *ſtalk* is winged and hairy.

A tribe with fingered ſpikes, the *Digitariæ* of Haller and Juſſieu, ſucceeds. The differences in the number of the calyx-valves in different ſpecies, or their variableneſs in the ſame, have cauſed a diverſity of ſentiments among botaniſts. The genus *Cynodon*, Brown Prodr. Nov. Holl. v. 1. 187, is formed out of this tribe. Their habit, eſpecially their long, linear, cluſtered, but divaricated, ſpikes, give them an aſpect very diſtinct from all the ſpecies we have hitherto mentioned.

P. *ſanguinale*. Cocks-foot Panick-graſs. Linn. Sp. Pl. 84. Willd. n. 28. Ait. n. 12. Curt. Lond. faſc. 4. t. 7. Engl. Bot. t. 849. Knapp. t. 12. Schreb. Gram. v. 1. 119. t. 16. Hoſt. Gram. Auſtr. v. 2. 14. t. 17. Mart. Ruſt. t. 78. (Iſchæmon vulgare; Ger. em. 27.)—Spikes fingered; knotty on the inſide at the baſe. Flowers in pairs, awnleſs. Sheaths of the leaves dotted.—Native of various parts of Europe, as well as of America; rare in England. It is annual, flowering in July, and prefers a rich moiſt ſoil. The *ſtems* are numerous, bent and decumbent at their baſe, ſpreading widely upwards, twelve or eighteen inches long, ſmooth, rigid, leafy. *Leaves* linear-lanceolate, broad, nearly ſmooth, generally ſhorter than their ſheaths, which are ſtriated, and beſprinkled with ſmall cartilaginous dots or tubercles, frequently producing fine hairs. *Spikes* about four or five, ſpreading, two inches or more in length, nearly umbellate, or at leaſt approximated, linear; the common ſtalk of each zigzag, winged, tumid at the bottom. *Flowers* dull violet, in alternate pairs leaning one way, on unequal ſhort partial ſtalks. Outer valve of the *calyx* very minute, and often abortive. This is a hard coarſe graſs, of no agricultural uſe.

P. *dactylon*. Creeping Panick-graſs. Linn. Sp. Pl. 85. With. 116. t. 21. Engl. Bot. t. 850. Knapp. t. 13. Sm. Fl. Græc. Sibth. v. 1. 45. t. 60. (Cynodon Dactylon; Brown Prodr. Nov. Holl. v. 1. 187.)—Spikes fingered; hairy on the inſide at the baſe. Flowers ſolitary. Calyx equal to the corolla. Shoots creeping. Leaves pungent.—Native of the ſandy ſhores of Cornwall, as well as of the ſouth of Europe, the Levant, the Eaſt Indies, and New South Wales. In the north of Italy it is common in the ſtreets of many towns, and flowers at various ſeaſons. The ſtrong perennial *roots*, with ſmooth fibres, are formed of hard poliſhed runners, ſhooting horizontally to a great extent in the ſand, and clothed with the permanent ſheathing baſes of the rigid, pungent, glaucous, hairy *leaves*. Flowering *ſtems* a ſpan high, more or leſs, leafy. *Spikes* from three to five, ſhorter than in the laſt, their common ſtalks zigzag and angular, but not winged. *Flowers* ſolitary, alternate, cloſe-preſſed, at one ſide only. *Calyx* of two nearly equal lanceolate valves, almoſt as long as the *corolla*, which is compreſſed, poliſhed and beardleſs. Mr. Brown notices the rudiment of a ſecond *floret*, in the form of a naked briſtle, at the baſe of the inner valve of the *corolla*. This graſs was perceived by Mr. Lambert, Tr. of Linn. Soc. v. 7. 309, to be no other than the *Agroſtis linearis* of Koenig, Retzius, and Willdenow, Sp. Pl. v. 1. 375, the *Durva* of the Hindoos, which the late Sir William Jones, in the 4th volume of the Aſiatic Reſearches, has celebrated for the extraordinary beauty of its flowers, and its ſweetneſs and nutritious quality as paſture for cattle. We cannot but remark what extraordinary celebrity is attached, every now and then, to one graſs or other, and how their fame paſſes away "like the morning cloud," while the beſt graziers ſcarcely know perhaps, better than their fat cattle, any thing of the nature of the common never-failing herbage, to which they are both ſo much indebted. It is but juſtice however to the memory of the great Sir William Jones, to mention, that the very *Panicum* in queſtion appears to be, as Dr. Sibthorp judged, the real αγρωστις of Dioſcorides, which that ancient botaniſt deſcribes as having "jointed creeping ſhoots, throwing out ſweet roots from their joints; and pointed, hard, broad leaves, like a ſmall kind of reed, which are the food of cattle." This deſcription is very characteriſtic; and the graſs is called by the modern Greeks, on all whoſe coaſts it abounds, either αγρώστω or αγριάδα.

Section 2. *Flowers panicled.*

P. *repens*. Panicled Creeping Panick-graſs. Linn. Sp. Pl. 87. Willd. n. 45. Ait. n. 18. Sm. Fl. Græc. Sibth. v. 1. 45. t. 61. Cavan. Ic. v. 2. 6. t. 110.—Panicle with ſtiff upright branches. Leaves divaricated. Root creeping.—Native of the banks of rivers in the Levant; gathered by Dr. Sibthorp near Platania in Crete, flowering in June; by Mr. Schlanbuſch about 30 miles ſouth of Naples; and by Brouſſonet and Desfontaines at Algiers. It is ſaid in Hort. Kew. to be cultivated in the Eaſt Indies. The *root* is perennial, creeping to a very great extent, and by no means annual. It throws out copious fibres from its joints, and many aſcending *ſtems*, twelve or eighteen inches high, ſimple, ſmooth, clothed with numerous, ſpreading, rather ſtiff *leaves*, whoſe margins and long ſheaths are fringed with hairs, but their under ſide is very ſmooth to the touch. *Panicles* terminal, rather cloſe, of numerous, upright, zigzag, rough-edged, repeatedly ſubdivided, ſlender branches; bearing a number of ſolitary, upright, ſmooth *flowers*. The *glumes* are ovate, tumid, ribbed. *Anthers* yellow. *Stigmas* purple, beautifully feathered, cylindrical. We are not informed whether the grain or the herbage be the object of culture in this plant.

P. *miliaceum*. Millet Panick-graſs, or true Millet ſeed. Linn. Sp. Pl. 86. Willd. n. 49. Ait. n. 19. Hoſt Gram. Auſtr. v. 2. 16. t. 20. (Milium; Matth. Valgr. v. 1. 367. M. ſemine luteo vel albo; Bauh. Theatr. 502.)—Panicle looſe and flaccid. Sheaths of the leaves hairy. Glumes pointed, ribbed.—Native of the Eaſt Indies. Cultivated from time immemorial in the ſouth of Europe for the ſake of its ſeeds, which are among the more delicate, though not the moſt nutritious, kinds of grain. Small birds are very fond of theſe ſeeds, and the crop therefore requires ſtrict vigilance while ripening. It is ſown in the ſpring. The *root* is annual. *Stem* four or five feet high. *Leaves* pale, broadiſh; their ſheaths ribbed, dotted, clothed with long, ſpreading or deflexed, hairs. *Panicle* terminal, lax and ſpreading, of innumerable, ſlender, compound, angular, rough-edged branches. *Flowers* larger than in the laſt, tumid, ſmooth, ribbed, awnleſs, a little drooping. Covering of the *ſeed* exquiſitely poliſhed.

P. *latifolium*. Broad-leaved American Panick-graſs. Linn. Sp. Pl. 86. Willd. n. 62. Ait. n. 21. (Milium virginianum lato brevique folio; Moriſ. ſect. 8. t. 5. f. 4.)—Lateral branches of the panicle ſimply racemoſe. Leaves ovato-lanceolate, finely fringed at the baſe. Outer glumes obtuſe, ſtrongly furrowed, hairy.—Native of North America, from whence Kalm ſent it to Linnæus. This is perennial and hardy in our climate, flowering late in autumn. The very broad *leaves*, almoſt heart-ſhaped at their baſe, where they are finely and denſely fringed, mark this ſpecies; their ſheaths are tight and ſmooth. *Panicle* wavy, looſely ſpreading, its branches angular, but ſcarcely rough; the lateral ones, for the moſt part, ſimply racemoſe, with diſtant *flowers*, on ſlender ſtalks of various lengths. The *glumes* are turgid, ovate, obtuſe; the outer ones very ſtrongly ribbed and furrowed, clothed with ſhort hairs; the inner highly poliſhed, and perfectly even.

P. *oryzoides*. Rice-like Panick-graſs. Swartz Ind. Occ. 162. Willd. n. 65. (Milium indicum arundinaceo caule; Sloane Jam. v. 1. 104.)—Panicle nearly ſimple, erect. Leaves ovato-lanceolate; their ſheaths finely fringed at the ſummit. Glumes acute, all ſmooth and even; the outer ones obſcurely ribbed.—Native of mountainous ſhady places, in the ſouth of Jamaica, according to Dr. Swartz, whoſe obſcure reference to Sloane leads us to ſuppoſe this is the plant the latter intended under the above name, which he ſays is "planted every where in Jamaica, yielding very great increaſe. It is thought to nouriſh little, and to be aſtringent as rice." Linnæus, who had a ſpecimen from Browne's herbarium, confounded it, at the ſuggeſtion of Solander, with *latifolium*, from which the preſent ſpecies widely differs, in having *flowers* three times as large, with perfectly ſmooth, even, pointed glumes.

P. *clandeſtinum*. Sheath-flowered Panick-graſs. Linn. Sp. Pl. 86, excluding the ſynonym. Willd. n. 66.—Panicles ſimple, concealed in the hairy ſheaths of the heart-ſhaped leaves.—Native of Pennſylvania, from whence Kalm communicated it to Linnæus. The latter greatly errs in quoting a ſynonym of Sloane, which evidently belongs to his own *Cenchrus granularis*. We can indeed find no figure of the preſent ſpecies, nor have we ſeen it but in the Linnæan herbarium. The *ſtem* is very much branched, round, purpliſh, ſmooth and poliſhed. *Leaves* about three inches long and one broad, alternate, ſpreading, heart-ſhaped and minutely crenate at the baſe, flat, tapering gradually into a ſharp point; ſmooth on both ſides, finely ſtriated, paler beneath: *ſheaths* nearly as long as the leaves, rather inflated, ribbed, beſprinkled with cartilaginous umbilicated tubercles, as in *P. ſanguinale*, many of which bear horizontally prominent briſtly hairs. Within the ſheaths of ſeveral of the uppermoſt *leaves* are completely concealed ſolitary, ſimple *panicles*, or rather cluſters, of but few *flowers*, whoſe outer glumes are ribbed, ovate, obtuſe and awnleſs, ſcarcely hairy or downy. The *glumes* do indeed greatly reſemble thoſe of *P. latifolium*, to which Linnæus conſiders this plant nearly allied. The ſheaths of the *leaves* however, as well as the *inforeſcence*, are very unlike that ſpecies.

P. *arboreſcens.* Tree Panick-graſs. Linn. Sp. Pl. 87. Willd. n. 67. Ait. n. 22.—Stem arboreſcent, very much branched, ſmooth. Leaves heart-ſhaped-oblong, crenate, ſomewhat fringed, with ſmooth ſheaths. Panicles capillary, level-topped, many-flowered. Glumes elliptical; the outer ones ribbed.—Native of the Eaſt Indies. Said to have been ſent to Kew garden in 1776, by M. Thouin; flowering in the ſtove in March and April. We know neither figure nor deſcription of this, except that Linnæus ſays it vies in height with the moſt lofty trees, though the *ſtem* is ſcarcely thicker than a gooſe-quill. That part, in his ſpecimens, is very much branched and divaricated, round, ſmooth, highly poliſhed, ſlender, but hard and rigid, with many knotty joints, and hard ſcaly buds, from whence the copious lateral ſhoots are produced. The *leaves* are lanceolate, pointed, three or four inches long, ſcarcely one broad; ovate at the baſe, but much contracted, almoſt into a ſhort footſtalk, before they join the ſheaths, as well as very hairy there at the back, though otherwiſe naked, or merely roughiſh to the touch. The *ſheaths* are tight, hard, ſmooth and poliſhed, crowned with a tuft of briſtles. In the younger or flowering branches, the *leaves* are larger, with leſs elongation of the contracted part at their baſe. *Panicles* terminal, on long ſtalks, with repeatedly ſubdivided, long, capillary, ſmoothiſh, level-topped branches, bearing numerous, ſmall, upright, ſolitary *flowers*, whoſe glumes are elliptical and naked; the outer ones ribbed; that which encloſes the ſeed highly poliſhed. We are not certain of our two Linnæan ſpecimens belonging to the ſame ſpecies, as only one of them has *flowers*, and the *leaves* differ as above mentioned, as well as in being more harſh, with larger ſtipulaceous briſtles, in the barren ſpecimen. The younger *branches* moreover are ſtriated, and not ſo finely poliſhed. Both however are marked, and conſidered as the ſame, by Linnæus.

P. *divaricatum.* Straddling Panick-graſs. Linn. Sp. Pl. 86. Willd. n. 80. Ait. n. 25. Jacq. Hort. Schoenbr. v. 1. 10. t. 25.—Stem arboreſcent, very much branched, divaricated, ſmooth. Leaves linear-lanceolate, entire, with ſmooth ſheaths. Panicles rigid, compound, divaricated. Glumes obovate, tumid; the outer ones ribbed.—Native of Jamaica; flowering in our ſtoves in ſummer. The *ſtem* agrees in habit with the laſt, and is perennial, climbing apparently to a great height if it meets with ſupport; the branches copious, ſpreading, leafy, round, ſmooth and poliſhed. *Leaves* about three inches long, and half an inch wide, lanceolate, acute, ſtriated, ſmooth, except at the edges, dark green; their *ſheaths* much ſhorter than the leaves, ribbed, naked, a little ſwelling; each crowned with a ſhort, membranous, fringed *ſtipula*. *Panicles* terminal, erect, twice compound, with alternate, divaricated, rigid, angular, zigzag branches, roughiſh at the edges. *Flowers* five times as big as the laſt and much fewer, being the ſize of a grain of wheat, bent to one ſide, obovate, poliſhed; their outer glumes ribbed. Sometimes the glumes all aſſume a black or dark purple colour.

We have received from M. Delile, a celebrated French botaniſt and traveller, many ſpecimens of this genus which appear to be nondeſcript. Of theſe ſome are the produce of North America, others of Egypt, and ſeveral of them very curious. They may probably have been publiſhed at Paris, ſince the ſpecimens reached us, and therefore we ſhall not venture on their particular determination here. Michaux has alſo many ſpecies unknown to us. All theſe, added to the New Holland ones of Mr. Brown above-mentioned, will perhaps extend the ſpecies of *Panicum* to about 130 in all.

PANICUM, in *Agriculture*, a genus of graſſes of which there are ſeveral ſpecies, but none of which can be cultivated, except for bird-feed.

PANIEFOULE, in *Geography*, a lake of Africa, in Hoval, which communicates with the Senegal. N. lat. 16° 40′.

PANIGAROLA, JEROME, in *Biography*, an Italian prelate, and one of the moſt celebrated preachers in the ſixteenth century, was born at Milan, of a noble family, in 1548. At a very early age he diſcovered great genius and abilities, and beſides an uncommon facility in acquiring knowledge, he poſſeſſed ſurpriſing powers of memory, which enabled him to retain whatever he learned. Being ſent to the univerſity at Pavia he diſtinguiſhed himſelf in a few months by the rapidity of his progreſs in learning, though it was, at the ſame time, a matter of great regret, that he rendered himſelf notorious for his irregularities and turbulent ſpirit. No diſturbance ever occurred in the univerſity, but Panigarola would be found deeply concerned in it; and ſcarcely a night paſſed, in which, at the head of pupils from Milan, he was not engaged in quarrels and battles with the ſtudents from Placentia, Pavia, or ſome other place. At length his exceſſes became ſo great, that the ſenate of Milan ordered his father to withdraw him from Pavia. He was now ſent to Bologna, where, for ſome time, he rendered himſelf equally notorious for his ill conduct, and for the licentious example which he gave to his contemporaries. Suddenly an entire change took place in his mind, and he expreſſed a ſtrong inclination for embracing the monaſtic life. He accordingly took the habit of St. Francis at Florence in 1567, when he was only nineteen years of age. His whole delight now conſiſted in the moſt regular and punctual obſervance of the duties of the cloiſter, and in aſſiduous ſtudy. In the year 1570, the perſon appointed to preach the Lent ſermons was ſuddenly taken ill, and Panigarola was appointed his ſubſtitute. The diſplay of his eloquence on this occaſion obtained for him the higheſt reputation. From this moment, wherever he appeared in the pulpit admiring crowds of all ranks attended. Pope Pius V. heard him, and was aſtoniſhed; but thinking that ſo young a man ſtood in need of a more perfect acquaintance with the ſacred ſcriptures, and the fathers, than it was poſſible he could have acquired ſo ſoon, recommended it to him to devote ſome time to cloſe ſtudy. He accordingly went to France for this purpoſe, and attended the profeſſors at the univerſity of Paris. Upon his return to Italy his celebrity was ſo great, that there was no church ſufficiently large to accommodate the crowds who were attracted by his preaching, and when he was upon a journey, he could ſcarcely paſs through any city or town, without being, in a manner, compelled to preach. In 1586 he was conſecrated at Rome titular biſhop of Chryſopolis, and appointed coadjutor to the biſhop of Ferrara; but in leſs than three months he received an order to quit Ferrara, and the duchy, a diſgrace which he attributed to the intrigues of a miniſter jealous of his renown, who perſuaded the duke that he betrayed the ſecrets of the ſtate to cardinal Ferdinand de Medici. Under theſe circumſtances he was received with great kindneſs by pope Sixtus V. who appointed him to preach at St. Peter's in the year 1587. In 1589 he was ſent by the ſame pontiff into France to encourage the party of the league againſt Henry IV. He was preſent at the ſiege of Paris, and employed all his eloquence in animating the citizens to ſubmit cheerfully to the privations and miſeries which they ſuffered during the memorable blockade of that place. He died in 1594, at the early age of forty-ſix. As an author, his moſt celebrated productions conſiſt of ſeveral volumes of ſermons, in Latin and Italian: beſides theſe he publiſhed many other theological pieces, theſes, orations, and poems; alſo "Paraphraſi ſopra Demetrio Falerio, &c." conſiſting of a learned commentary upon the treatiſe of Demetrius Phalereus on eloquence. Moreri.

PANIGENA, in *Ancient Geography*, a town on this ſide of the Ganges, and on a gulf of this river, between Paluga and Conagera. Ptolemy.

PANIONIA, Πανιωνια, in *Antiquity*, a feſtival in honour of Neptune, celebrated by a concourſe of people from all the cities of Ionia.

One thing is remarkable in this feſtival, that if the bull offered in ſacrifice happened to bellow, it was accounted an omen of divine favour; becauſe that ſound was thought to be acceptable to Neptune.

PANIS, in *Geography*, an iſland in the Atlantic, at the mouth of the river Bandi, near the coaſt of Africa. N. lat. 5°.

Panis, a tribe of Indians, 120 miles from the mouth of the river Platta, or Shallow river, a weſtern branch of the Miſſouri. This tribe numbers 700 warriors, in four neighbouring villages. They hunt but little, and have few fire-arms. They are often at war with the Spaniards in the vicinity of St. Fé, near which is the place of their abode.

Panis & *cereviſiæ aſſiſa*, in *Law*. See Assisa.

Panis & *cereviſiæ emendatio*. See Emendatio.

Panis *Dæmonum*, in *Natural Hiſtory*, a name given by authors to a ſort of coarſe ſtone, common in Sweden, and ſome other places, and uſually found in roundiſh, but ſomewhat flatted maſſes, reſembling a loaf in form.

PANIUM, in *Ancient Geography*, a promontory of Europe, on the coaſt of the Thracian Boſphorus.

PANIUS, or Paneus, a mountain of Syria, which formed part of mount Libanus, and at the foot of which was ſituated the town of Paneus.

PANKE, in *Botany*, a name, as we preſume, of American origin, publiſhed by Feuillée, and adopted by Molina, though the latter has transferred it from the original plant of Feuillée, which is a *Gunnera*, to a totally diſtinct genus, termed by that author *Llaupanke*. Willdenow has retained this name, and thus it has found a place in a popular work, which we greatly lament, the word being, according to every ſound principle, inadmiſſible.—Molin. Chil. (the German edition according to Willd.) 119. Willd. Sp. Pl. v. 2. 486.—Claſs and order, *Enneandria Monogynia*. Nat. Ord. near *Bocconia?*

Eſſ. Ch. Calyx four-cleft. Corolla bell-ſhaped, four-cleft. Capſule of two valves, with one ſeed.

1. P. *tinctoria*.—"Leaves ſtalked, five-lobed."—Native of moiſt ſituations on the mountains of Chili.—*Root* perennial. *Leaves* five-lobed, ſerrated, five-ribbed, papillary, downy, pulpy, permanent. *Footſtalks* round, prickly, half a foot long. *Cluſter* terminal. *Flowers* very numerous, on partial ſtalks. *Willd after Molina.*

Juſſieu ſays, Gen. 452, that the *ſtem* is five feet high, with three or four *leaves* at the top.

2. P. *ſonchifolia*. Willd. n. 2. (Llaupanke ampliſſimo Sonchi folio; Feuill. Peruv. v. 2. 742. t. 31.)—Leaves lyrate, claſping the ſtem. Found by Feuillée on the mountains of Chili. The *root* is ſaid to be perennial, tapering. *Stem* herbaceous, three feet high, ſimple, round, leafy. *Leaves* a foot long, lyrate, obtuſe, ſlightly wavy, and finely toothed or crenate; their lobes rounded, cloſe, lying over each other, finely downy, reticulated with veins; their baſe oblong, claſping the ſtem; midrib ſtrong and convex; the under ſide paleſt. *Cluſter* terminal, erect, bracteated, many-flowered. *Flowers* crimſon, the lowermoſt a little remote, and of ſix petals or rather ſegments, the reſt of but four; each ſegment is oval, about half an inch long, with a violet ſpot in the middle. *Stamens*, according to Feuillée, only equal in number to the petals, or rather ſegments of the flower. There is a diſagreement between his account and the claſs, as well as character, indicated by Molina. This ſpecies is uſed in dyeing black. It alſo ſerves to ſtop the bleeding of the piles, when immoderate, as well as to relieve the pain of that complaint; the qualities of the herb being, as it ſeems, aſtringent.

For the *Panke* of Feuillée, a very different genus, ſee Gunnera, ſp. 2.

PANKINA, in *Geography*, a town of Ruſſia, in the government of Kolivan; 68 miles N.W. of Biiſk.

PANKIRA, a town of Hindooſtan, in Baglana; 12 miles N. of Saler Mouler.

PANKLIER, a town of Curdiſtan, in the government of Van, on the lake Van; 25 miles E. of Aklat.

PANKOVA, a town of Ruſſia, in the government of Irkutſk, on the Ilim; 56 miles W. of Orlenga.

PANLANG, a town of the Birman empire, on the Rangoon branch of the Irrawaddy, from which the Rangoon is frequently called the Panlang-mioup. This was once a place of conſiderable magnitude, and is now of ſome importance; 16 miles N.W. of Rangoon.

PANNAGE, Panage, or *Pawnage*, are uſed in our law-books, &c. for the maſt of woods; as of beech, acorns, &c.

As alſo for the running and feeding of ſwine, or other cattle, in foreſts.

And for the money taken by the agiſtors for the ſame.

PANNAGIUM Liberum, or *Free Pannage*, was a liberty of free running of ſwine in certain foreſts or woods, granted by privilege to certain private perſons, and ſeveral religious houſes.

Linwood defines pannagium, by "paſtus pecorum in nemoribus, & in ſilvis, utpote de glandibus. & aliis fructibus arborum ſylveſtrium, quarum fructus aliter non ſolent colligi." It is alſo mentioned, 20 Car II. "Quiſque villanus habens decem porcos dat unum porcum de pannagio;" by which it appears that one hog in ten was given for the pannage.

PANNAH, in *Geography*, a town of Hindooſtan, in the country of Allahabad; 30 miles E.S.E. of Chatterpour. N. lat. 24° 48′. E. long. 80° 28′.

PANNEL, in *Law*. See Panel.

Pannel, in the *Scotch Law*, denotes the priſoner at the bar or perſon who takes his trial before the court of juſticiary for ſome crime.

Pannel, or *Panel*, in *Joinery*, &c. a tympan, or ſquare piece of wainſcot, ſometimes carved, framed, or grooved in a large piece, between two mounters or upright pieces, and two traverſes or croſs pieces.

Hence alſo pannels or panes of glaſs, are compartiments or pieces of glaſs of various forms; ſquare, hexagonal, &c.

Pannel, in *Maſonry*, denotes one of the faces of a hewn ſtone.

Pannel, in *Rural Economy*, a low ſtuffed ſaddle.

Pannels *of a Saddle*, the two cuſhions or bolſters, filled with cow, deer, or horſe hair, and placed under the ſaddle on each ſide, ſo as to touch the horſe's body, and prevent the bows from galling or hurting the back.

PANNELA, Old, in *Geography*, a town of Hindooſtan, in Viſiapour; 12 miles E. of Merritch.

Pannela, *New*, a town of Hindooſtan, in Viſiapour; 22 miles W. of Merritch. N. lat. 7° 3′. E. long. 74° 58′.

PANNERBARY, a town of Bengal; 8 miles N.E. of Goragot.

PANNI, a town of Naples, in Capitanata; 9 miles S. of Troja.

PANNICULUS Adiposus, in *Anatomy*, the ſtratum of fat placed under the ſkin. See Cellular *Subſtance*, and Membrane, *Cellular*.

Panniculus *Carnoſus*, in *Comparative Anatomy*, a thin ſubcutaneous ſtratum of muſcular fibres in animals, to which there is no correſponding ſtructure in the human ſubject. See Mammalia.

PANNIER, in *Architecture*. See Corbel.

PANNIPUT, in *Geography*, a town of Hindooſtan, in the country of Delhi; 50 miles N.W. of Delhi. N. lat. 29° 25′. E. long. 77° 10′.

PANNONA, in *Ancient Geography*, a town ſituated in the interior of the iſle of Crete, between Gortyna and Gnoſſus. Ptolemy.

PANNONIA, a large province of Europe, which was known to the Romans in the time of Auguſtus. It was bounded on the N. by the Danube, on the W. by Noricum, on the E. by the Danube as far as its junction with the Savus, near Mœſia, and on the S. it extended as far as Illyricum. The principal rivers of Pannonia were the Danube, the Dravus, and the Savus, which diſcharged themſelves into the Danube, the Dravus E. of Murſa, and the Savus a little to the S. of Sirmium. It was during the war of Auguſtus with the Japydes and the Dalmatians that the Roman arms penetrated into the country of the Pannonians. But it became a Roman province under Tiberius. In the time of Antonine, Pannonia was divided into ſuperior and inferior, the ſeparation being made by the river Arrabo (Raab): one of theſe diviſions was called Pannonia prima, and the other Pannonia ſecunda. The more ancient inhabitants of Pannonia were the Scordiſci and Tauriſci, who were in their origin Gauls. Ptolemy aſſigns to this country a great number of places; but none of them appear to be very conſiderable. This country was occupied by a ſemibarbarous people, when Philip, king of Macedon, conquered it: but they ſoon afterwards revolted, and Alexander reconquered them. The Gauls, under the conduct of Brennus and Belgius, forcibly transferred it to Ptolemy, brother of the king of Macedon. Cæſar gained a ſettlement in part of it, and paſſed to it acroſs the mountain, hence called "Alpes Juliæ." Tiberius, as we have ſaid, added Pannonia to the Roman empire, and it continued tributary to the Romans till the fall of their empire. It afterwards became ſubject to the Goths, and then to the Huns, from whom Hungary is ſaid to have derived its name.

PANNONICA Bolus, in the *Materia Medica*, a name by which Kentman, and ſome others, have called the earth more uſually known by the name of *bolus Toccavienſis*.

PANNONIUS, Janus, in *Biography*, a modern Latin poet, born in 1434, was a native of Hungary. He travelled into Italy for inſtruction in polite literature, in which he excelled, and for the ſpread of which he felt ſo much ardour, that he uſed every effort to promote the ſtudy of it in his own country. He was raiſed to the ſee of Funfkirchen, in Lower Hungary, where he died in 1472. He was diſtinguiſhed for his proficiency in the Greek and Latin languages, in the latter of which he compoſed a variety of poems, which were printed ſeparately, and alſo in the "Deliciæ Poetarum Hungarorum." An edition of them was publiſhed at Utrecht ſo lately as 1784, in two volumes 8vo.

PANNUNAH, in *Geography*, a town of Hindooſtan, in the circar of Karieh; 20 miles S.E. of Maltoy.

PANNUS, derived from πανος, *a web*, a Latin word ſignifying cloth, web, &c.

Pannus, in *Medicine*, a diſeaſe of the eye, popularly called the *web*.

The pannus is an excreſcence ariſing on the adnata or conjunctiva, leſs hard and membranous than the unguis; and repreſenting a web, or plexus of little veins ſwelled with blood.

Its cauſe is, an obſtruction of the blood in the minute veſſels of that tunic.

Its cure is much the ſame with that of the ophthalmia.

A chief difference is, that, in the unguis, the membranous excreſcence only covers part of the eye, after the manner of a nail; whereas in the pannus it covers the whole.

PANNYA, in *Geography*, a town of Bengal; 45 miles W. of Nagore.

PANNYALLUM-Crutch, a town of Hindooſtan, in Tinevelly; 15 miles S.E. of Coilpetta.

PANOCHIÆ, a name by which ſome chirurgical authors call *buboes* in the groin.

PANOMI, in *Geography*, a town of European Turkey, in Macedonia; 16 miles S. of Saloniki.

PANOMPHÆUS, Πανομφαιος, in *Mythology*, a deſignation given to Jupiter, becauſe he was looked upon as the original author of all ſorts of divination, having the books of fate, and out of them revealing either more or leſs, as he pleaſed, to inferior dæmons.

PANOPOLIS, in *Ancient Geography*, a town of Egypt, in the Thebaid, and the capital of the Panopolite nome.

PANOPSIA, Πανοψια, in *Antiquity*. See Pyanepsia.

PANORAMA is a picture exhibiting a ſucceſſion of objects, ſuch as may be by the rays of light intercepted by the ſurface of a hollow ſphere or cylinder, from all points of external objects to the eye in the centre of the ſphere, or at a fixed point in the axis of the cylinder.

Panoramic Projection is the method of forming a panorama from the geometrical conſideration of the properties of viſion.

In the following principles of the panorama, the ſurface on which objects are ſuppoſed to be repreſented is that of a cylinder; though a ſphere may be conſidered ſtill more perfect, as its ſurface is every where equally diſtant from the eye, but a cylindric ſurface is more convenient for the purpoſe of delineation; and if the objects are not very diſtant from the interſection of a plane paſſing through the eye perpendicular to the axis, the diſtortion will not be perceptible. We premiſe the following definitions.

1. The cylindric ſurface on which objects are to be repreſented, is called alſo the panoramic ſurface; and the picture formed is called a panoramic view, or panoramic picture.

2. The point of ſight is the place where the organ of viſion is placed, in order to receive the impreſſion of the images of the objects on the panoramic picture.

3. An original object is any object in nature, or an object which may be ſuppoſed to exiſt in a given poſition and diſtance, as a point, line, or ſolid.

4. An original plane is the plane on which original objects are ſuppoſed to be placed.

5. The point where an indefinite original line cuts the picture, is called the interſection of that original line.

6. The line on the picture where an original plane meets

or interſects it, is called the interſection of that original plane.

7. A line drawn through the point of ſight parallel to an original line, is called the parallel of that original line.

8. A plane paſſing through the point of ſight parallel to any original plane, is called the parallel of that original plane.

9. A ſurface of rays is that which proceeds from an original line, or from any line of the original object, by rays from all points of that line terminating in the eye. If the line in the original object be ſtraight, the ſurface of rays is called a plane of rays, optic plane, or viſual plane.

10. When the rays proceed from one or more ſurfaces of an original plane, the whole is called a pyramid of rays, or optic pyramid; and if the baſe is circular, it is called a cone of rays, viſual cone, or optic cone.

In every kind of projection from a given point, the projection of a ſtraight line upon any ſurface is the interſection of a plane of rays with the ſurface from all points of the ſtraight line to the given point. Therefore the panoramic projection of a ſtraight line is the interſection of the cylindric ſurface and a plane. If a right cylinder is cut by a plane perpendicular to its axis, the ſection is a circle; if cut parallel to the axis, the ſection is a rectangle; and if cut obliquely to the axis, the ſection is an ellipſis. If the ſurface of the cylinder be extended upon a plane with the ſections of the cylindric ſurface and a plane cut in each of the poſitions here ſtated, the ſection made by the plane perpendicular to the axis will be a ſtraight line; and the ſection made by cutting it parallel to the axis will alſo be a ſtraight line; but the ſection made by cutting it obliquely will be a curve of ſimilar properties as that known to mathematicians by the name of the ſinical curve, or figure of the ſines; therefore the projection of every ſtraight line in a plane paſſing through the eye perpendicular to the axis of the cylinder, will alſo be a ſtraight line on the extended ſurface; and every ſtraight line in a plane paſſing through the axis will alſo be a ſtraight line on the extended ſurface, perpendicular to that formed by the plane paſſing through the eye perpendicular to the axis.

The panoramic projection of any ſtraight line not in a plane paſſing through the eye perpendicular to the axis, nor in a plane paſſing through the axis, is in the curve of an ellipſis; for in this caſe the optic rays which cut the cylinder will neither be in a plane parallel to the axis, nor in a plane perpendicular to it.

The panoramic repreſentation of any ſtraight line in a plane perpendicular to the axis, but not paſſing through the eye, is in the curve of an ellipſis, and the optic plane will be at right angles to another plane paſſing through the axis at right angles to the original line.

In the panoramic repreſentation of any ſeries of parallel lines, the optic planes have a common interſection in a ſtraight line paſſing through the eye, and the common interſection will be parallel to each of the original ſtraight lines; therefore the indefinite repreſentations will paſs through the extremities of the common interſection.

In the panoramic repreſentation of any ſeries of parallel lines in a plane perpendicular to the axis, but not paſſing through the eye, the common interſection of the optic planes is parallel to the plane on which the original lines are ſituated.

In the indefinite repreſentations of any number of ſtraight lines parallel to the axis, the viſual planes will have a common interſection in the axis, and will divide the circumference of the cylinder into portions which have the ſame ratio to each other as the inclination of the viſual planes.

If an original ſtraight line parallel to the axis be divided into portions, the repreſentations of the portions will have the ſame ratio to each other as the originals.

If in any original plane there be a ſeries of ſtraight lines parallel to each other, and alſo another ſeries of ſtraight lines parallel to each other, and at any given angle with the former ſeries, the common interſections of the viſual planes will make the ſame angle with each other, which any line of the one ſeries makes with any one of the other ſeries, and the common interſections will be in a plane parallel to the original plane; and, therefore, if the original plane be perpendicular to the axis, the common interſections of the viſual planes will alſo be in a plane perpendicular to the axis. Hence the common interſections of viſual planes from any two ſyſtems of ſtraight lines, parallel to any two ſtraight lines at a given angle with each other in a plane perpendicular to the axis, are alſo in a plane perpendicular to the axis, and make the ſame angle with each other which the two lines in the original plane make with each other.

11. The two points where the parallel of an original line inclined to the axis of the cylinder meet the panoramic ſurface, are called the vaniſhing points of that original line.

12. The interſection of the parallel of an original plane is called the vaniſhing line of that plane.

13. A ſtraight line drawn from any point in the axis of the cylinder at right angles to the ſame to meet the panoramic ſurface, is called the diſtance of the picture.

14. The centre of a plane parallel to the axis, is the point where a ſtraight line from the eye perpendicular to the plane meets it.

15. The panoramic centre of a plane parallel to the axis, is the point where a ſtraight line drawn from the eye perpendicular to the plane cuts the picture.

16. The ſtation point, is the point where the axis interſects the original plane.

17. The centre of an original line, is the point where a ſtraight line, drawn from the ſtation point perpendicular to the original line, cuts the original line.

18. The panoramic centre of an original line, is the point where a ſtraight line, drawn from the ſtation point perpendicular to the original line, cuts the picture.

19. The diſtance of an original plane parallel to the axis from the picture, is the ſtraight line drawn from the panoramic centre to the centre of the original plane.

20. The diſtance of an original line from the picture, is the ſtraight line drawn from the panoramic centre to the centre of the original line.

21. The diſtance of an original plane, is the ſtraight line drawn from the eye to the centre of the original plane.

22. The diſtance of an original line, is the ſtraight line drawn from the ſtation point to the centre of the line.

An original line parallel to the axis of the panorama has no vaniſhing points.

An original plane parallel to the axis of the panorama has two vaniſhing lines.

The vaniſhing line of a plane perpendicular to the axis of the panorama, is a circle on the panoramic picture; but if the panoramic ſurface be extended upon a plane, it becomes a ſtraight line.

The vaniſhing lines of all planes inclined to the axis are ellipſes, and when extended upon a plane become ſinical curves, which are alſo termed panoramic curves, as being the only curve which the cylindric picture produces when developed.

PROBLEM I.

To deſcribe the panoramic curve to given dimenſions. Let A B

A B (*Plate* I. *fig.* 1.) be the length of the curve; biſect A B in C, draw C D perpendicular to A B; make C D equal to the deflection of the arc from the chord A B; from the point C, with the diſtance C D, deſcribe the quadrant D E; divide the arc D E into any number of equal parts (ſay four,) alſo divide either half, C B, into the ſame number (four) of equal parts; let l, i, g, be the points of diviſion in the quadrantal arc; draw lk, ih, gf, perpendicular to A B, cutting it at k, h, f; and let K, H, F, be the points of diviſion in C B; draw K L, H I, F G, perpendicular to A B; make K L, H I, F G, reſpectively equal to kl, hi, fg; conſtruct perpendiculars upon C A in the ſame manner; through all the points G, I, L, D, deſcribe a curve, which will be that of the panorama.

The curve A D B is that which would be found by cutting a ſemi-cylinder, whoſe circumference is A B, at an altitude C D diſtant on the ſurface from a plane perpendicular to the axis, at a quadrant's diſtance from the point A or B in the extremity of the diameter of the plane, perpendicular to the axis. Therefore the whole panoramic curve will be double the length of A B; the other part being a ſimilar and equal curve above the line A B produced, and conſequently a curve of contrary flexure.

The panoramic curve takes place when the cylinder is cut by a plane at oblique angles to the axis.

Prob. II.

To find the indefinite repreſentation of lines parallel to the original plane, in a plane parallel to the axis of the picture; given the height of the eye, the interſection of the original plane, and the diſtance of the original plane from the picture.

Let P, *fig.* 2. N° 1, be the ſtation point; G K H I the interſection of the picture; and A B a line in the original plane on which the plane parallel to the axis ſtands.

In *fig.* 2, N° 5, draw P K, which make equal to P K, N° 1. In N° 5, draw P O and K w perpendicular to P K; make P O equal to the height of the eye; draw O w parallel to P K; produce P K to r; in N° 1, draw P r perpendicular to A B, cutting A B at r, and the interſection of the original plane with the panoramic ſurface at K; make P r, N° 5, equal to P r, N° 1: draw rs perpendicular to K P: in N° 5, make rt, tu, uv, equal to the height of the ſeveral lines, whoſe indefinite repreſentations are required above the original plane; produce O w, meeting rs at s; produce K z to meet O s at w; draw O r, O t, O u, and O v, cutting K w reſpectively at v, x, y, and z. In N° 2, make G H equal to the ſemi-circumference G K H, N° 1; biſect G H at w; draw wv perpendicular to G H; make wv, wx, wy, and wz, reſpectively equal to wv, wx, wy, and wz, N° 5; then with the common length G H, and the deflections wv, wx, wy, and wz, deſcribe the curves G v H, G x H, G y H, G z H, which will be the envelope of the repreſentation of the lines required, and G and H will be their vaniſhing points. For O P rs, N° 5, may be conſidered as a plane paſſing along the axis of the cylinder; O P the axis, O the eye, P the ſtation point, K w a ſection of the cylindric ſurface, and O r, O t, O u, and O v, viſual rays; and, conſequently, the points v, x, y, z, will be the repreſentations of r, t, u, v; and ſince r, t, u, v, may be conſidered as the centres of the original lines, whoſe repreſentations are required, and ſince the optic planes of theſe lines cut the cylinder obliquely, the ſections will be elliptical, and, conſequently, their envelope will be the figure of the ſines as here deſcribed.

Prob. III.

To deſcribe the repreſentation of a line in a plane perpendicular to the axis of the cylinder, giving the ſeat of the line on the original plane.

In N° 2, draw G d perpendicular to G H; make G d equal to the deſcent or deflection of the curve, and deſcribe the quadrantal ſinical curve dw, and dw will be the repreſentation of a line perpendicular to the plane, in which the originals of G v H, G x H, G y H, and G z H, are ſituated.

Prob. IV.

Given the indefinite repreſentation G z H, N° 2, of a ſtraight line, to determine the finite portion, whoſe ſeat is A B, N° 1.

Draw P A and P B, N° 1, cutting the interſection at a and b; make wa, N° 2, equal to the extenſion of K a, N° 1; and wb, N° 2, equal to the extenſion of K b, N° 1; draw aa^{i} and bb^{i}, N° 2, perpendicular to G H, cutting the curve G z H at a^{i} and b^{i}, and $a^{\mathrm{i}}zb^{\mathrm{i}}$ will be the finite portion required; $a^{\mathrm{ii}}yb^{\mathrm{ii}}$, $a^{\mathrm{iii}}xb^{\mathrm{iii}}$, and $a^{\mathrm{iv}}vb^{\mathrm{iv}}$, will be the ſame portions of the indefinite repreſentations G y H, G x H, and G v H.

The following examples ſhew the application of the principles in the repreſentation of ſolid objects.

Example 1.—Let C D E F, *fig.* 2, N° 1, be the plan of a houſe, in contact with the picture at C. Through the ſtation point P draw G H parallel to D C, cutting the interſection of the panoramic picture in the points G and H; alſo through P draw K I parallel to E D, or F C, cutting the picture in I and K: then G and H are the vaniſhing points of all lines parallel to E F or D C, and I and K the vaniſhing points of all lines parallel to C F or D E; draw F P and D P cutting the picture at f and d. Let W V be the ridge of the building, biſecting E D at W, and E C at V; produce W V to Y, cutting I K at U; make U Y equal to the height of the houſe, N°s 3 and 4; and make the angle U Y Z equal to half the vertical angle of the roof, and let Y Z cut I K at Z; draw X Q parallel to Y Z, cutting K I or K I produced at Q; draw Z x parallel to V W; produce E D to x, and F C to meet x Z at T; join Q x and Q T, which are the interſections of the optic planes, formed by the inclined ſide of the roof, and the vertical planes ſtanding upon D E and C F; draw I N parallel to P O and O N parallel to I P. To find the inclination of the optic planes; draw P M perpendicular to x Q, cutting x Q at u, and the panoramic interſection at M; from P, with the diſtance P u, deſcribe the arc u J, cutting P I at J; join O J; produce N I and O J to meet each other in S. In like manner, draw P t perpendicular to T Q, cutting T Q at v, and the panoramic interſection at t; from P as a centre, with the radius P v, deſcribe the arc vw, cutting I P at w; join O w; produce N I and O w to meet each other in R; then N O S is the inclination of the optic plane whoſe interſection is Q x, and N O R is the inclination of the optic plane whoſe interſection is Q T.

Upon any convenient line I H, *fig.* 2, N° 6, extend the panoramic interſection; according to the correſponding places of N° 1, are ſhewn by ſimilar letters; that is, I t, t G, G d', d C′, C′ f', f' K, and K H, N° 6, would cover I t, t G, G d', d' C′, C′ f', f' K, and K H, N° 1. In N° 6, draw t R, G o, $d'd$, C′ c, ff, K k perpendicular to I H.

In N° 5, produce K P to a; make P a equal to the radius of the cylinder; through a draw io parallel to O P; on P a make P j equal to P j, N° 1, and P q, N° 5, equal to P q, N° 1; draw jg and qh, N° 5, perpendicular to P a;

make $q h$ and $j g$ each equal to the height of the walls, N^{os} 3 and 4; join $O g$ and $O h$; produce $O g$ to l, and $O h$ to i, meeting $o i$; produce $O j$ and $O q$ to meet $G o$ at o and k.

In N° 6, make $t R$ equal to N R, N° 1; $G o$ equal to $G o$, N° 5; $G l$ equal to $G l$; $K k$ equal to $G k$; $K i$ equal to $G i$: deſcribe the panoramic curves $I l K$, $I o K$; $G k H$, $G i H$; then the curves $I o K$ and $G k H$ will cut each other at c, and the curves $I l K$, $G i H$, will cut each other at C, ſo that the points C′, C, c, will be in the ſame perpendicular; $C c$ will thus repreſent the angular line of the building; let the perpendicular $d' d$ cut the curve $G i H$ at D, and the curve $G k H$ at d; and the intercepted portion $D d$ is the angular line at one end; in like manner, let the perpendicular $f' f$ cut the curve $I l k$ at F, and the curve $I o K$ at j; and the intercepted portion $F f$ of the perpendicular $f' f$, is the repreſentation of the angular line at the other end; therefore $c C D d$ repreſents the front, and $c C F f$ the end, excluſive of the triangular part adjoining the roof, which will be formed in the following manner; make $t x$ and $x u$ equal to G K each; deſcribe the ſame panoramic curve $R C x$; and if the other ſemi-panoramic curve $x v w$ is deſcribed, and if $k K$ be produced to v, v will be the vaniſhing point for the gable top; and if $K n$ be made equal to $K v$, n will be the vaniſhing point of the other inclined plane of the roof; and thus the repreſentation of lines and planes will have vaniſhing points and vaniſhing lines, as in the methods of deſcribing the perſpective repreſentation of objects upon a plane ſurface; and if the points d, D, c, C, f, F, are found, and the lines $c d$, C D, and $c f$, C F, are made ſtraight inſtead of being curved and produced, they will find their own vaniſhing points in the line I H; but more remote from each other than the points G and K. What is here obſerved, is exemplified in N° 7, as will appear ſufficiently clear by a little reflection.

The example here ſhewn is very diſtorted, on account of the ſmallneſs of the panoramic cylinder, and the ſize of the object, which was obliged to be very large, in order to give a clear elucidation of the principles.

Example 2, *fig* 3, ſhews the panoramic repreſentation of a row of houſes, upon the ſurface of a cylinder of greater radius than that of *fig.* 2, N° 1, where the pictural objects appear much more agreeable to the eye than that of *fig.* 2; the lines which form the roofs are in this example repreſented ſtraight, though in reality they are curves, as a great deal of trouble is ſaved, and as the error occaſioned by their introduction is ſo trifling as not worth regarding.

It now remains to ſhew the truth of the operations uſed in the conſtruction of *fig.* 2; let it now be proved, that $x Q$ and T Q are the interſections of the optic planes, formed by the inclined lines of the gables. From the definition given, an optic plane is that paſſing along an original line, and through the eye; therefore, if a ſtraight line be drawn through the eye parallel to the original line, the line thus paſſing through the eye, and the original line, will be in the ſame plane, that is, both in the optic plane; and if two planes be drawn along two parallel lines, their interſections with a third plane will be parallel; now the parallels F T and K I are the interſections of two parallel planes; F T that of the vertical plane in which the inclined original line is ſituated, and K I that in which the eye is ſituated, or in which the line parallel to the inclined line is ſituated; the point T is the interſection of the inclined line of the roof, and the point Q the interſection of the line drawn through the eye parallel to the inclined line of the roof; therefore the optic plane will paſs through the points T and Q, and conſequently T Q is the interſection of the optic plane, and the original plane. In the ſame manner it may be ſhewn that $x Q$ is the interſection of the optic plane, formed by the other inclined line of the farther gable in the ſame plane with the former line.

Next let it be ſhewn that the angles N O S and N O R, N° 1, are the inclinations of the optic planes, whoſe interſections are $x Q$ and T Q. The inclination of any two planes is meaſured by a third plane, perpendicular to their common interſection; now T Q is the interſection of the optic plane, and $P v$ is perpendicular to T Q; and becauſe $P w$ is equal to $P v$, and $P o$ perpendicular to $P w$, and equal to the height of the eye; conceive the plane of the triangle $w P O$ to be raiſed perpendicular to the original plane, ſo that the baſe $P w$ may coincide with $P v$; then O will repreſent the eye in its true place, and the point w will be upon v; and ſince the interſection T Q would be perpendicular to the plane of the triangle, every line drawn in the plane of the triangle from v, would be perpendicular to the interſection T Q, and conſequently, the line drawn in this plane from v to O, would alſo be perpendicular to the interſection; therefore the angle $P w O$ is the inclination of the plane, and, conſequently, the alternate angle N O R. In the ſame manner it may be ſhewn, that N O S is the inclination of the plane whoſe interſection is $x Q$.

Now to ſhew that N R is the deflexion of the curve made by the optic plane, it only requires to be conſidered that the tranſverſe axis of the ellipſis made by the optic plane, is in the plane which meaſures the inclination of the optic plane to the original plane: for this purpoſe, P O N R may be conſidered as a ſemi-ſection of the cylinder along the axis, and N R a ſection upon the ſurface; therefore O R will repreſent half the greater axis, and N R the deflexion of the curve, or its deſcent below the vaniſhing line of the horizon. *Fig.* 2. N° 5. is alſo to be conſidered as a ſection of the cylinder, of which O P repreſents the axis, $G o$ and $w K$ the ſides; and becauſe the appearance of all points in the ſame plane perpendicular to the axis, at equal diſtances from the ſtation point, will be at the ſame height on the ſurface from the original plane, or from the plane paſſing through the eye parallel to the original plane, their heights will be found by ſetting their diſtances upon $P a$, then erecting lines perpendicular to $P a$, from each point of the ſection; then ſetting the heights of the points upon theſe lines, and drawing lines from O through the top of each perpendicular till they cut $G o$; then the diſtance from G to each point of ſection, gives the diſtance of each point from the plane paſſing through the eye upon the panoramic ſurface.

Now let the cylinder be conceived to be enveloped by N° 6, ſo that I H may fall upon the circumference of a circle in a plane perpendicular to the axis, then every line will fall in its true poſition, and the repreſentative object will produce the ſame pyramid of rays as the original object, the eye being ſuppoſed to be fixed at its true diſtance above the line I H; and, conſequently, nothing more will be required to excite the exiſtence of the object, than to give the repreſentative ſurfaces their proper colours, light, and ſhade, according to the diſtance of the original.

Hitherto ſtraight lines have been repreſented by portions of the ſinical curve when extended, or by portions of an ellipſis, when the ſheet on which the objects are repreſented is brought in contact with the ſurface of the cylinder, as they ought properly to be; but if the radius of the cylinder is of ſufficient extenſion, and the objects to be repreſented of proper magnitude, any attempt to repreſent ſtraight lines by curves from the hands of an artiſt would be abſurd, except when the object to be repreſented is very near to the panoramic

ramic ſurface, in which caſe a curvature in the line may be ſenſible, alſo at a moderate diſtance: the curve can only be obſerved in a ſeries of objects in a ſtraight line; it will therefore be ſufficient to repreſent the ſtraight lines of each individual object by ſtraight lines alſo, but to preſerve the curve, or rather the polygonal figure inſcribed in the ſinical curve in the ſeries, as the inflexions or angles will hardly be viſible.

A ſtraight line will therefore be repreſented by finding the repreſentation of its extremities, and joining the repreſentative points; but if it is of great extent, it may be found by finding a number of points, and joining every two adjoining points in ſucceſſion by a ſtraight line, and the whole will aſſume the form of a curve, which will be the repreſentative of the ſtraight line.

Plate II. ſhews a ſeries of figures, ſuch as may be ſuppoſed to conſtitute the whole of the practice of repreſenting panoramic objects. S is the ſtation point; the objects are referred to in alphabetical order from A, B, C, &c. to H; each extreme point of the lineal parts of the ſame object has the ſame letter affixed, with a numerical index, which increaſes, by unity, in tracing round the circumference in progreſſive order. The points where the optic lines cut the panoramic ſurface are numbered with the ſame figure from the ſame object, each number having an index correſponding to that of the point of the object to be repreſented. The numbers are placed in ſucceſſive order, agreeing with the order of the alphabet.

N° 1. The interſection of the panorama and the original plane, with the figures of the objects to be repreſented.

N^{os} 2, 3, 4, Vertical ſections of the panorama paſſing along its axis, in order to aſcertain the heights of the ſeveral places of each object; E the point of ſight or place of the eye, S the ſtation point, P Q a ſection of the cylinder, ſhewing the heights of the objects.

The objects to be repreſented are, A, a point, the optic ray from which cutting the interſection at 1; B a ſtraight line, the optic rays from which cutting the interſection at 2^1 2^2; C a line ſtanding upon C, the optic ray from which cutting the interſection at 3; D an inclined line, whoſe ſeat is repreſented by D^1, D^2, the optic rays from which cutting the interſection at 4^1, 4^2; E an angle, the optic rays from which cutting the interſection at 5^1, 5^2, 5^3; F a triangle, the optic rays from which cutting the interſection at 6^1, 6^2, 6^3; H a rectangle, the optic rays from which cutting the interſection at 7^1, 7^2, 7^3, 7^4; and, laſtly, G a circle, the optic rays from which cutting the interſection at 8^1, 8^2, 8.

The diſtances of the objects are placed upon the panoramic ſections N^{os} 2, 3, 4, from S, upon the lines S, P, or upon S P produced; then drawing lines from the points to E, give the heights upon P Q.

The perpendicular ſtanding upon C, N° 1, is thus found: In N° 3, draw C C from C, perpendicular to S P, equal to the height of the perpendicular upon C, N° 1, and draw the ſtraight lines C E, C E, N° 3. cutting P Q at 3 3, then 3 3 is the panoramic length of C C. The upper extremity of the inclined line D will be found by aſcertaining the panoramic height of the perpendicular, from the elevated end to the original plane.

N° 5 ſhews the panoramic repreſentation of the ſeveral objects; V L the vaniſhing line of the horizon; the interſections of the optic rays are extended upon V L from N° 1, the references upon the interſection N° 1, and upon V L N° 5, being the ſame. The heights of the ſeveral points are taken from the ſections N^{os} 2, 3, and 4, from Q downwards towards P, and placed from the correſponding points in V L, N° 5, alſo downwards upon the perpendiculars, gives the ſeveral points of the objects; thus *a* is the repreſentation of the point A, N° 1; *b*^{1}, *b*^{2}, of B^1, B^2, &c. In the circle, the points for half the curve are found, the other half being repeated in the ſame order from the middle line, each line ſerving for two points, ſo that the three lines give eight points; the extreme lines are tangents which are equivalent to two points.

The points around the circumference of the interſection N° 1, are extended upon V W and X Y, according to the principle of Renaldinus, by ſetting three-fourths of the radius, without the circle, upon the oppoſite ſide of the tangents V W and X Y; and transferring the diviſions of V W and X Y upon V L, N° 5, gives the points correſponding to the interſection.

The panoramic ſurface being enveloped by N° 5, the repreſentations of the objects will be placed in their true poſition, and will form the ſame picture at the point of ſight, if correctly, painted as the objects themſelves.

A practical method of forming all ſtraight lines on the panoramic ſurface in its place, without developement, is to aſcertain the poſition of the objects, alſo the heights of the centres of the line to be repreſented; then fixing the eye in its poſition, and holding a ſtraight edge parallel to the line to be drawn in a plane with the point of ſight and the point repreſenting the centre of the line, mark ſeveral points in the ſame plane, on the panoramic ſurface; theſe points being joined, will give the repreſentation of the line required.

In preparing for panoramic projections, whatever objects are intended to be repreſented, a proper point of view ſhould be choſen from this ſituation; a ſketch of all the ſurrounding objects ſhould be made according to the developement of the panorama; for though the painting itſelf may be performed upon the cylindric ſurface. it is more eligible to ſketch upon a plane. The next thing to be done is to take a ſurvey of the objects, obſerving their poſitions to each other; then with a plane table fixed on the point of view quite level, take the ſucceſſive angles of the ſurrounding objects by means of a moveable limb which may carry two pieces, one at each extremity, perpendicular to the ſurface of the plane table; one piece being fixed in the ſuppoſed axis of the panorama, containing a ſight hole for the point of view, ſo that the moveable part will conſiſt of three bars, the bottom one ſerving as a ſtraight edge for drawing the angles of poſition: the heights of the objects may be marked upon the other limb parallel to that fixed in the axis; and let it be obſerved, that the point of view in the axis, the edge of the limb which gives the heights of the objects, and the edge of the bottom bar by which the angles are drawn, muſt be in a plane paſſing along the axis: mark the vertical lines on the ſketch, and the lines on the plane table, which ſhew their poſition, with correſponding characters, otherwiſe it would be difficult to diſtinguiſh what the numerous lines apply to. The moveable edge of the index, which deſcribes the circumference of the cylinder, ſhould be of ivory, as the various heights may be marked with pencil, and rubbed out at pleaſure, as theſe heights may be transferred to a piece of paper marking them with the ſame character as that of the ſketch, and with the addition of top of chimney, ſhaft, ridge of roof, top of wall, as the heights may be the terminations of ſuch parts of the ſaid objects, or inſtead of writing any mark, in drawing by repreſenting a ſlight form of the parts of the object.

Inſtead of the ivory edge of the bar, which deſcribes the panoramic ſurface, a ſlit, or very narrow aperture, formed by a double bar, may be uſed.

The tendency of every line, horizontal or inclined, may be found by a fifth bar, moveable round a centre, which centre muſt be alſo moveable upon the edge of the limb which gives the panoramic heights of the objects; the plane in which this fourth bar moves muſt be a tangent to the panoramic ſurface, at the line which is interſected by the plane paſſing along the axis, along the ſtraight edge of the bottom bar, and along the edge where the heights of the objects are marked; then if the edge of this fourth moveable bar be brought in a plane with the eye and the original line, the angle which it forms with the edge of the vertical limb is the inclination of the line on the picture.

PANORMA, or Panorama, in *Geography*, a harbour on the N. coaſt of the iſland of Myconi. N. lat. 37° 29′. E. long. 25° 23′.

PANORMO, a town of Aſiatic Turkey, in Natolia, on the S. coaſt of the ſea of Marmora; 16 miles S.E. of Artaki.—Alſo, a town of European Turkey, in Albania, ſituated on a gulf of the Adriatic, oppoſite to the iſland of Corfu; 45 miles S.S.E. of Valona. N. lat. 40°. E. long. 20° 1′.

PANORMUS, in *Ancient Geography*, (*Palermo*,) a town of Sicily, ſituated towards the N.W., founded, as it has been ſaid, by the Phœnicians. It held a diſtinguiſhed rank among the towns of Sicily. In the year of Rome 499 it was taken by the Romans, and in 503 they gained a battle there under the orders of the proconſul Metellus. It afterwards became a Roman colony.—Alſo, a ſmall gulf of Achaia, towards the N.W., into which the three rivers Charadus, Lelemus, and Bolineus diſcharged themſelves.—Alſo, a port of Greece, and the firſt on the E. coaſt of Attica, near the promontory of Sanium. Ptolemy.—Alſo, a town on the N. coaſt of the iſle of Crete, between Citæum and Heraclæum. Ptol.—Alſo, a port of the iſle of Cephalonia.—Alſo, a port of Epirus, near that of Oncheſmus. Ptol.—Alſo, a town of the Thracian Cherſoneſus, between Elœa and Cardia. Pliny.—Alſo, a town of Macedon, in Chalcidia. Ptol.—Alſo, a port of Africa, in Marmorica, upon the coaſt of the nome of Lybia. Ptol.—Alſo, a port of the town of Oricum, on the Ionian ſea. Strabo.—Alſo, a ſmall port of Aſia Minor, in Ionia, N.E. of the promontory of Poſidium, S.E. of the promontory of Trogilium, and S. of Miletus. South of this port was the famous temple of Apollo Branchidæ, and to this place ſtrangers repaired to conſult the oracle. The ancients pretended that the ſtream which diſcharged itſelf into the ſea at this port, ſprang from mount Mycale, and paſſed under the ſea till it re-appeared in the vicinity of this temple.

PANORPA, in *Entomology*, a genus of inſects of the order Neuroptera: the generic character is, mouth lengthened into a cylindrical horny proboſcis; feelers four, nearly equal; ſtemmata three; antennæ filiform, longer than the thorax; tail of the male armed with a chelate appendage; but in the female it is unarmed. There are nine

Species.

* Communis. This, as its name imports, is the moſt familiar of all the ſpecies. It is frequently ſeen in our meadows during the early part of the ſummer. It is a longiſh-bodied fly of a moderate ſize, with four tranſparent wings, elegantly variegated with deep brown ſpots; the tail of the male inſect, which is generally carried in an upright poſition, is furniſhed with a forceps, ſomewhat in the ſhape of a lobſter's claw.

Germanica. Wings equal, hyaline, tipt with brown. It inhabits Germany, and reſembles the communis.

Scorpio. Wings equal, black ſpotted with white; body duſky. It is found in different parts of North America.

Fasciata. The wings of this likewiſe are equal, yellowiſh with black dots and bands. It is found in North America.

Hyemalis. Wings ſubulate, ſlightly incurved, ciliate: the female is apterous. It is a ſmall inſect, and is found in Saxony.

Tipularia. Wings immaculate; abdomen falcate; the legs are very long. It inhabits Italy; the body is yellow, the wings equal.

Capensis. The wings are equal and immaculate; body ferruginous. It inhabits the Cape.

Japonica. Wings equal, hyaline, with two black wings. It is found in Japan.

Cos. Wings erect, lower ones nearly linear and very long. This is a native of Greece and the iſlands of the Archipelago, and is an inſect of a very peculiar appearance. It is diſtinguiſhed by having the lower wings ſo extremely narrow or ſlender as to reſemble a pair of linear proceſſes with an oval dilatation at the tip, while the upper wings are very large, oval, tranſparent, and beautifully variegated with yellowiſh-brown bars and ſpots.

Panorpa. See Cicada *Tibicen*.

PANOV, in *Geography*, a river of Ruſſia, which runs into the Niznei Tunguſku, N. lat. 64° 40′. E. long. 102° 54′.

PANREEDY, a town of Bengal; 30 miles S.S.E. of Currackdeagh.

PANSACCHI, Don, in *Biography*, an Italian ſerious opera ſinger with a tenor voice, who having reſided nine years in Spain, was allowed to qualify himſelf with the title of Don. He was in the ſervice of the elector of Bavaria in 1772, when we often heard him. His voice was not bright, or very mellifluous; but his knowledge of muſic, intelligence in the drama, taſte, and expreſſion, were of a ſuperior kind. He had acquired, by his long reſidence in Spain, the true national ſtyle of ſinging *ſequidillos*, *tonadillas*, and other muſic of that country.

PANSAGUTCHY, in *Geography*, a town of Bengal; 8 miles N. of Rajemal.

PANSANG, or Pulo-Pansang, a ſmall iſland in the gulf of Siam. N. lat. 9° 15′. E. long. 103° 30′.

PANSAR, a town of Hindooſtan, in Guzerat; 16 miles N. of Amedabad.

PANSHAH, a town of Meckley; 55 miles S.S.E. of Munnypour.

PANSHALA, a town of Guriel; 30 miles E. of Pati.

PAN-SIEN-ING, a town on the W. coaſt of the iſland of Formoſa. N. lat. 23° 56′. E. long. 119° 52′.

PANSRUCKY, a town of Hindooſtan, in Bahar; 27 miles S. of Bahar. N. lat. 24° 46′. E. long. 85° 44′.

PANTÆNUS, in *Biography*, a learned Chriſtian philoſopher of the Stoic ſect in the ſecond century, flouriſhed, according to Cave, about the year 182. His deſcent, his country, and the time of his birth, are all uncertain. He is thought to have been one of the maſters of Clement of Alexandria; and is mentioned with high reſpect by Alexander, biſhop of Jeruſalem, in a fragment of a letter to Origen, preſerved by Euſebius, in which he expreſsly ſays that Pantænus was the perſon who introduced him to the acquaintance of that father. He was held in very high eſtimation, and is referred to by Origen with great reſpect, and Photius ſpeaks of him as a hearer of ſome of thoſe who had ſeen the apoſtles, and even of the apoſtles themſelves. He preſided over the catechetical ſchool at Alexandria with great reputation and ſucceſs. He was extremely zealous in the cauſe of Chriſtianity, and undertook a miſſion into Ethiopia, to inſtruct the inhabitants in the principles of that religion. After his return to Alexandria Pantænus reſumed the preſidency of the catechetical ſchool, in which he continued to explain the ſcriptures publicly under the reigns of the emperors Severus and Caracalla. According to Jerome, there were, in his time, extant "Commentaries" of Pantænus upon the Scriptures, but there is nothing now remaining of his writings, excepting a ſhort paſſage in the "Eclogæ," aſcribed to Clement of Alexandria, containing the following rule reſpecting the language uſed in the prophecies of the Old Teſtament; "that the prophets often expreſs themſelves in indefinite terms, and that the preſent tenſe is frequently uſed by them both for the preterite and future." Pantænus is ſuppoſed to have died about the year 213. Dupin. Lardner.

PANTAIA, in *Geography*. See Pandaia.

PANTALARIA, a ſmall iſland in the Mediterranean, between the iſland of Sicily and Cape Bon, on the coaſt of Tunis; about 25 miles in circumference, and containing about 4000 inhabitants. Its chief productions are olives, figs, raiſins, capers, and cotton; the cattle are numerous; but bread corn is imported from Sicily. The language is a mixture of Italian and African. N. lat. 36° 55'. E. long. 12° 15'.

PANTALEO, St., a town of the iſland of Sardinia, the ſcite of which was anciently that of the epiſcopal city of Dolio; 16 miles N. of Cagliari.

PANTALEONE, a ſmall iſland in the Mediterranean, near the W. coaſt of Sicily, formerly united to the continent by a neck of land, which was deſtroyed by the inhabitants in order to ſecure themſelves againſt the enemy. The ancient Motya ſtood in this iſland. N. lat. 37° 56'. E. long. 12° 28'.

Pantaleone, in *Muſic*, a ſtringed inſtrument in Germany at the latter end of the ſeventeenth century. The inventor's name was Hebenſtrict; but from the ſucceſs of his inſtrument, he aſſumed that of *Pantaleone*. It was more than nine feet long, and had, when in order, 186 ſtrings. The tone was produced by two *bagettes*, or ſticks, like the dulcimer; it muſt have been extremely difficult to the performer, but ſeems to have been capable of great effects. Mr. Binder, organiſt of the Duom Kirk, at Dreſden, was the laſt perſon who played upon it. It was this inſtrument, and the performance upon it at Paris in 1705, which gave birth to a very ingenious little work, under the title of "Dialogue ſur la Muſique des Anciens," by the abbé Chateauneuf. When we ſaw the ruins of this inſtrument at Dreſden, ſoon after the ſeven years' war, the ſtrings were almoſt all broken, and the court was ſo impoveriſhed as not to like to be at the charge of new mounting it. It uſed to be one of the muſical curioſities of that city, during the time that the elector of Saxony was king of Poland.

PANTALOON, or Pantalon, the name of an ancient garment frequent among our forefathers, conſiſting of breeches and ſtockings all of a piece. A dreſs ſomewhat ſimilar has been lately revived and much uſed.

The denomination comes from the Venetians, who firſt introduced this habit, and who are called *Pantaloni*, from St. Pantaleon, who was formerly their patron.

Pantaloon, on the *Theatre*, is a buffoon or maſked perſon who performs high and groteſque dances, and ſhews violent and extravagant poſtures and airs.

The word is alſo uſed for the habit and dreſs theſe buffoons uſually wear; which is made preciſely to the form of their body, and all of a piece from head to foot.

And hence thoſe who wear a habit of this kind, for conveniency under their other clothes, are called pantaloons of Venice.

PANTANO, in *Geography*, a town of Sicily, in the valley of Noto; 10 miles S. of Modica.—Alſo, a town of Italy, in the department of the Panaro; 15 miles S.W. of Modena.—Alſo, a town of Naples, in Calabria Ultra; 9 miles E. of Bova.—Alſo, a river of Naples, which runs into the ſea; 10 miles E. of Bova.

PANTAR, an iſland in the Eaſt Indian ſea, of a ſquare form, about 48 miles in circumference, ſeparated from the E. coaſt of the iſland of Lomablen by the ſtrait of Alvo; and from the W. coaſt of Ombay by a narrow channel, called the "Strait of Pantar." S. lat. 8° 10'. E. long. 124° 30'.

PANTARBE, in *Natural Hiſtory*, a name given by authors to an imaginary ſtone, the virtues of which were ſimilar to thoſe of the magnet; but exerted upon gold as thoſe of the load-ſtone upon iron. The ancients, as well as later writers, ſeem to have all had an opinion, that there was ſuch a ſtone as this, and the amphitane of Pliny is deſcribed as poſſeſſing this remarkable quality; but neither they nor we ever found reaſon from any experiment to believe that there was any ſuch ſtone.

PANTHEA, Πανϑεια, among the *Ancients*, were ſingle ſtatues, compoſed of the figures, or ſymbols, of ſeveral different divinities combined.

Father Joubert, who calls them Panthea, and who has obſerved them on ſeveral medals, ſays their heads are moſt commonly adorned with the ſymbols or attributes belonging to ſeveral gods.

An inſtance of this kind we have in a medal of Antoninus Pius; which at the ſame time repreſents Serapis, by the buſhel it bears; the Sun, by the crown of rays; Jupiter Ammon, by the ram's horns; Pluto by the large beard; and Æſculapius, by the ſerpent twiſted in his hand.

M. Baudelot, in a diſſertation on the Lares, will have the Panthea to have had their riſe from the ſuperſtition of thoſe, who, taking ſeveral gods for the protectors of their houſes, united them all in the ſame ſtatue, by adorning it with the ſeveral ſymbols proper to each of theſe deities.

PANTHEISTS, is a denomination by which the followers of Spinoza are diſtinguiſhed, and derived from the nature of their doctrine, which confounds God with the univerſe; repreſenting them as one and the ſame being, and admitting only one ſubſtance whence all things proceed, and into which they all return. See Spinozism.

PANTHEON, Πανϑεον, thus named from ϖαν, *all*, and ϑεος, *God*, in *Architecture*, a temple, or church, of a circular form; dedicated to all the gods, or to all the ſaints.

The Pantheon of ancient Rome is of all theſe edifices the moſt celebrated, and that from which all the reſt take their names. It was built by Agrippa, ſon-in-law of Auguſtus, in his third conſulate, twenty-five years before Chriſt: though ſeveral antiquarians and artiſts have ſuppoſed that the Pantheon exiſted as long ago as the commonwealth, and that Agrippa only embelliſhed it and added the portico. To this purpoſe they allege the authority of Dion Caſſius, who ſpeaking of Agrippa, ſays, he alſo finiſhed or perfected the Pantheon.

It was dedicated by him to Jupiter Ultor, Jupiter the Revenger, according to Pliny's account; according to Dion Caſſius, to Mars, Venus, and Julius Cæſar; but according to the moſt probable opinion, to all the gods; and had the name Pantheon, on account of the great number of ſtatues of the gods ranged in ſeven niches all round it; and becauſe it was built of a circular form, to repreſent heaven, the reſidence of the gods; or becauſe it was dedicated to all the gods, (quaſi παντων ϑεων.) It has but one door.

It was one hundred and forty-four, or, as Fabricius ſays, one hundred and forty feet diameter within, and juſt as much in height, and of the Corinthian order. The roof was curiouſly vaulted, void ſpaces being left here and there for greater ſtrength. The rafters, forty feet long, were plated with braſs. There were no windows in the whole edifice; but ſufficient light was let in through a round hole in the top of the roof. Before each niche were two columns of antique yellow marble fluted, and of one entire block. The whole wall of the temple, as high as the grand cornice incluſive, was caſed with divers ſorts of precious marble in compartments: and the frieze was entirely of porphyry. The outſide of the front was anciently covered with plates of braſs gilt, and the top with plates of ſilver, in lieu of which lead was afterwards ſubſtituted. The gates were of braſs, and of extraordinary ſize and workmanſhip.

The eruption of Veſuvius, in the reign of Tiberius, and a great fire in the reign of Titus, damaged the Pantheon very conſiderably: but it was ſucceſſively repaired by Domitian, Adrian, and Septimius Severus: and it ſubſiſted in all its grandeur till the incurſion of Alaric, in the time of Honorius: on this occaſion it was ſtripped of ſeveral of its ſtatues and ornaments of gold and ſilver. About thirty-nine years after this, Genſeric, king of the Vandals, took away part of its marbles and ſtatues: at length pope Boniface IV. obtaining this Pantheon of the emperor Phocas, converted it into a church, without any alteration in the building; and dedicated it to the Virgin, and all the martyrs. And it ſtill ſubſiſts at Rome under the title of Notre Dame de la Rotonda. However, in 655, Conſtantius II. ſtripped it of its inſide and outſide brazen coverings, which he tranſported to Syracuſe.

There was alſo at Rome another Pantheon, dedicated to Minerva, as the goddeſs of medicine. It was in the form of a decagon, and the diſtance from one angle to another meaſured 22½ feet. Between the angles there were nine chapels of a round figure, deſigned for ſo many deities: and over the gate there was a ſtatue of Minerva. The Pantheon of Athens was in many reſpects little inferior to that of Rome, built by Agrippa. The Greek Chriſtians converted it into a church, dedicated to the Virgin, under the name of *Panegia*. The Turks changed it into a moſque.

The Pantheon of Niſmes, was a temple in that city, in which were twelve niches, for ſtatues, ſuppoſed to have been deſtined for the twelve great gods.

In the Eſcurial is a magnificent chapel, called Pantheon, thirty-five feet in diameter, and thirty-eight high, from the pavement, which is of marble and jaſper inlayed. The whole inſide of the chapel is of black marble, except the luthern, and ſome ornaments of jaſper, and red marble.

In this chapel are depoſited the bodies of the kings and queens: there are only places made for twenty-ſix; eight of which are already filled.

The ſquare of the Pantheon, or "Piazza della Rotonda" is adorned with a fountain and an obeliſk, and terminated by the portico of Agrippa. This noble colonnade conſiſts of a double range of Corinthian pillars of red granite. Between the middle columns, a paſſage opens to the brazen portals, which, as they unfold, expoſe to view a circular hall of immenſe extent, crowned with a lofty dome, and lighted ſolely from above. It is paved and lined with marble. Its cornice of white marble is ſupported by ſixteen columns, and as many pilaſters of Giotto antico: in the circumference there are eight niches, and between theſe niches are eight altars, adorned each with two pillars of leſs ſize, but the ſame materials. The niches were anciently occupied by ſtatues of the great deities; the intermediate altars ſerved as pedeſtals for the inferior powers. The proportions of this temple are admirable for the effect intended to be produced, its height being equal to its diameter, and its dome not an oval, but an exact hemiſphere. The Pantheon is the moſt noble and perfect ſpecimen of Roman art and magnificence which time has ſpared, or the ancients could have wiſhed to tranſmit to poſterity. It has ſerved in fact as a leſſon and a model to ſucceeding generations, and to it Conſtantinople is indebted for Santa Sophia, and to it Rome, or rather the univerſe, owes the unrivalled dome of the Vatican. Upon the whole this is the moſt ancient edifice that now remains in a ſtate of full and almoſt perfect preſervation. It has neverthleſs undergone many alterations from pillage and reparations, chiefly reſtricted to its decorations. It was firſt altered by Domitian, and afterwards repaired by Severus. The pillars, pilaſters, and marble lining remain nearly as they were placed by the latter. It was plundered of part of its bronze ornaments, by Genſeric, the Vandal monarch of Africa, and afterwards more completely ſtripped of all its metal decorations by Conſtantine, the grandſon of Heraclius, in the 7th century. It was converted into a church by pope Boniface IV., about the year 609, and ſince that period has attracted the attention and enjoyed the patronage of various pontiffs. Although the Pantheon probably owes its preſervation to its having been converted into a church; yet, leaving to it its principal character as a temple, it ſeems better adapted to the purpoſes of a mauſoleum; and it has actually been in ſome degree appropriated to this uſe; for it contains at preſent the tombs or rather the buſts of ſeveral diſtinguiſhed characters, among which are the celebrated antiquary Winckelman, Metaſtaſio, Mengs, Pouſſin, Hannibal Carracci, and Raffaello himſelf. Two muſicians alſo, Corelli and Sacchini, have been admitted to the honours of the Pantheon.

The dedication of this church on the 1ſt of November, in the year 830, gave occaſion to the inſtitution of the feſtival of All Saints.

Pantheon, in England, a modern building erected in Oxford-ſtreet, London, begun in 1768, and finiſhed in 1771, for concertos and other muſical performances. It was built by Mr. James Wyatt, and regarded, both by natives and foreigners, as the moſt elegant ſtructure in Europe, if not on the globe. This ſplendid and elegant edifice was opened as a place of public entertainment, on Monday, January 27, 1772. During the firſt winter there were aſſemblies only, without dancing or muſic, three times a-week. On other days, each perſon paid five ſhillings for ſeeing the building only. But the great room, though ſpacious, was ſo crowded on all theſe occaſions, that in July, a general meeting of the proprietors was advertiſed, in order to take into conſideration the enlarging of the building.

After the opera-houſe in the Haymarket was burnt down in 1790, this maſter-piece of architecture was transformed into a theatre for the performance of operas; when, though many of its internal beauties were hidden and annihilated, it ſtill was a perfect model of a complete theatre in its new form. But unhappily, before it had been uſed as a lyric theatre two ſeaſons, it was burnt down by ſome fatal accident or deſign, which has never yet been divulged to the ſatisfaction of the public.

During its pre-exiſtent ſtate, it was here that the Agujari and Pacchierotti exerciſed their talents; it was here that the king, queen, and royal family, with all the firſt nobility in the kingdom, aſſembled, at the commemoration of Handel in 1784; and it was here that one of the firſt bands in Europe graced the orcheſtra, alternately headed by Giardini, La Motte, Cramer, or Giornovichi, who, with Fiſcher, Croſdil, Cervetto, &c. produced effects in ſymphonies, concertos, ſolos, and vocal accompaniments, which had never before been heard in this country. No perſons of taſte in architecture, or muſic, who remembers the Pantheon, its exhibitions, its numerous, ſplendid, and elegant aſſemblies, can hear it mentioned without a ſigh!

PANTHER, in *Zoology*. See FELIS *Pardus*, *Leopardus*, and *Uncia*.

PANTHER *Creek*, in *Geography*, a river of Kentucky, which runs into the Green river, N. lat. 37° 29′. W. long. 84° 48′.

PANTHERA LAPIS, in *Natural Hiſtory*, the name of a ſpecies of ſtone found in Egypt, and the Eaſt Indies, and deſcribed to be of a yellowiſh colour, variegated with duſky ſpots of the colour of thoſe on the ſkin of the panther. The writers of the middle ages have attributed many abſurd properties to it: it ſeems to have been a ſpecies of agate.

PANTHERINE TABLES, *Pantherinæ Menſæ*, among the Romans, tables made of citron wood, which were held in ſuch high eſteem, as to equal the value not only of ſilver and gold, but likewiſe of pearls. They had this name from their being ſpotted after the manner of panthers.

PANTICAPÆA, in *Ancient Geography*, a town of the Tauric Cherſoneſus, according to Ptolemy and Strabo. This town became the capital of the kingdom of Cimmerian Boſphorus. Under the ſucceſſors of Spartacus, according to Diodorus Siculus, Panticapæa was the place where the waters of the Palus Mæotis diſcharged themſelves into the Euxine ſea.

PANTICAPES, a river of European Scythia. According to Pliny it ſeparated between the Nomades and the Georgians. Herodotus ſays that it took its riſe from a lake ſituated towards the north, that it purſued a S.W. courſe and paſſed by Ilæa, which was the firſt country which thoſe enter who have traverſed the Boryſthenes, near the ſea. He adds that Panticapes ran into the Boryſthenes, a little above the mouth of this large river. Strabo, however, does not mention a river of this name; he might indeed have omitted it, and it might be the river now known under the name of Samara.

PANTICOSA, in *Geography*, a town of Spain, in Aragon; 13 miles N.N.E. of Jaca.

PANTICUM, or PANTICHIUM, in *Ancient Geography*, a town of Aſia, in Bithynia, between Chalcedon and Libyſſa, according to the Itinerary of Antonine.

PANTIKA, in *Geography*, a town of Aſiatic Turkey, in Natolia, on the N.E. coaſt of the ſea of Marmora; 12 miles S.E. of Conſtantinople.

PANTIN, a town of France, in the department of the Seine, and chief place of a canton, in the diſtrict of St. Denis. The place contains 1172, and the canton 10,932 inhabitants, on a territory of 57$\frac{9}{10}$ kiliometres, in 12 communes.

PANTIPIOLIS, in *Ancient Geography*, a town of India, on this ſide the Ganges, between Berderis and Adirama. Ptolemy.

PANTOMATRIUM, a promontory on the N. coaſt of the iſle of Crete, between the promontory Dion and the town Rithymac. Ptolemy.

PANTOMIME, Παντόμιμος, among the *Ancients*, a perſon who could imitate all kinds of actions and characters by ſigns and geſtures, without ſpeaking.

The pantomimes made a part in the theatrical entertainments of the ancients; their chief employment was to expreſs, in geſtures and action, whatever the chorus ſung, changing their countenance and behaviour as the ſubject of the ſong varied.

They were very ancient in Greece, being derived from the heroic times, according to ſome; but however this may be, they were certainly known in Plato's time. In Rome it was ſo late as the time of Auguſtus before they made their appearance. Under his reign and that of Tiberius, the pantomime, carried on by much geſticulation, was the favourite entertainment of the public. The people were moved, and wept at it, as much as at tragedies; and the paſſion for it was ſo ſtrong, that laws were obliged to be made for reſtraining the ſenators from ſtudying the pantomimic art.

As to the dreſs, it was various, being always ſuited, as near as poſſible, to that of the perſon they were to imitate. The crocota was much uſed among the Roman pantomimes, in which, and other female dreſſes, they perſonated women. See MIME, BALLET, and BATHYLLUS.

PANTON, in *Geography*, a townſhip of America, in Addiſon county, Vermont, on the E. ſide of lake Champlain, about 87 miles N. of Bennington.

PANTON-*Shoe*, in the management of farm and other horſes, an old ſort of invention contrived for the purpoſe of receiving the narrow and hoof-bound heels of them, in particular caſes. The ſpunges of it are much thicker on the inſide than on the outſide, ſo that the part which reſts upon the horn or hoof, runs ſloping to the end, that the thickneſs of the inſide of the ſhoe may bear up the heel, and throw or puſh it to the outſide. Shoes of this kind were recommended by Guillet as proper for horſes which had falſe quarters.

PANUCO, in *Geography*, a river of North America, which runs into the gulf of Mexico; 21 miles E.S.E. of Panuco. N. lat. 22° 40′. W. long. 98° 36′.

PANUCO, or *St. Stilvara del Puerto*, a town of Mexico, and capital of the province of Guaſteca or Panuco, on a river of the ſame name, navigable for barks up to the town. It is the ſee of a biſhop, and contains about 500 families; 190 miles N.N.E. of Mexico. N. lat. 23° 23′. W. long. 99° 6′. See GUASTECA.

PANUCO, a town of South America, in the province of Tucuman; 15 miles W. of St. Fernando.

PANVILAO, a town on the S. coaſt of the iſland of Luçon. N. lat. 14° 2′. E. long. 121° 36′.

PANVINIO, ONOFRIO, in *Biography*, a very learned hiſtorian and antiquary, was born at Verona in the year 1529. From a very early period of his life he manifeſted an inſatiable thirſt for ſtudy, and to indulge it he entered into the order of the Auguſtins. He was ſent to Rome to complete his ſtudies, and in 1553 he was appointed to inſtruct novices in the ſciences. After a few months' reſidence in Rome, he was ſent to Florence to teach ſcholaſtic theology, but that ſcience not being adapted to his taſte, he quitted his charge, and obtained permiſſion to live at large out of the cloiſter. He paſſed ſome time at Venice, where he printed one of his works, but his ordinary abode was at Rome, being patronized by cardinal Marcello Cervini, whoſe pontificate, under the name of Marcellus II., was of too ſhort duration to contribute to his advancement. From thence he paſſed into the court of cardinal Alexander Farneſe, with whom he travelled into Sicily in 1568, where he died. "Very few inſtances," ſays his biographer, "are to be met with of ſuch extenſive erudition, and indefatigable induſtry, left by one whoſe career was reſtricted to ſuch narrow limits. Beſides his publiſhed works, which form a numerous catalogue, he left a ſtill greater number in MS. either completed er begun." One of the firſt objects of his labours was Roman hiſtory and antiquities. The "Faſti Conſulares," though firſt brought to light by Sigonius, were publiſhed and illuſtrated with notes by him at Venice in 1557. He publiſhed treatiſes alſo, "De Antiquis Romanorum Nominibus;" "De Principibus Romanis;" "De Republica;" "De Triumphis et Ludis Circenſibus;" and "Topographia Romæ." Theſe valuable works are founded in a great meaſure upon ancient inſcriptions, of which he had collected and copied nearly three thouſand. He was a profound inveſtigator of ſacred or Chriſtian antiquities. Of his publiſhed works in this claſs are treatiſes "De Ritu ſepeliendi mortuos apud veteres Chriſtianos;" "De Antiquo Ritu baptizandi Catechumenos;" "De Primatu Petri;" "Chronicon Eccleſiaſticum;" "De Epiſcopatibus Titulis, et Diaconis Cardinalium;" "Annotationes et Supplementa ad Platinam de Vitis Pontificum;" "De Septem præcipuis Urbis Romæ Baſilicis;" "De Bibliotheca Vaticana." He had undertaken a general eccleſiaſtical hiſtory, for which he collected matter ſufficient to fill ſix large manuſcript volumes, which are preſerved in the Vatican. He wrote a Chronicle of his own order, and a hiſtory of his native city, Verona, including an account of its antiquities, printed many years after his death.

PANWELL, in *Geography*, a town of Hindooſtan, in Viſiapour; 60 miles W.N.W. of Poonah.

PANYASUS, in *Ancient Geography*, a river of Macedonia, the mouth of which is placed by Ptolemy between Dyrrhachium and the mouth of the river Apſus.

PAZA, or PENGA, in *Geography*, a town of Africa, in Congo, in the province of Bamba.

PANZANO, a town of Etruria; 14 miles S. of Florence.

PANZEN, a town of Bohemia, in the circle of Leitmeritz; 15 miles N.N.E. of Leitmeritz. N. lat. 50° 44'. E. long. 14° 25'.

PANZERA, in *Botany*, named by Willdenow in honour of Dr. G. W. F. Panzer, a phyſician at Nuremberg, author of ſome well known tracts on Botany and Entomology. This genus was originally called *Eperua* by Aublet, and is conſidered by Schreber as not diſtinct from *Dimorpha*, though Willdenow ſays it is perfectly different in its ſtamens and legume, as well as in other particulars.—Willd. Sp. Pl. v. 2. 540. (Eperua; Aubl. Guian. v. 1. 369. Juſſ. 349. Lamark Illuſtr. t. 338.)—Claſs and order, *Decandria Monogynia*. Nat. Ord. *Lomentaceæ*, Linn. *Leguminoſæ*, Juſſ.

Gen. Ch. *Cal.* Perianth inferior, of one leaf, cloven into four, broad, oblong, obtuſe, concave ſegments. *Cor.* Petal one, broad, ſpreading, roundiſh, convolute at the ſides of its baſe, inſerted at the mouth of the calyx. *Stam.* Filaments ten, very long, variouſly inflexed, inſerted into the calyx, thicker at the baſe, villoſe, nine of them united at the bottom, one ſingle; anthers oblong, obtuſe, two-celled, nodding, five of them barren. *Piſt.* Germen ſuperior, ſtalked, nearly ovate; ſtyle very long, incurved; ſtigma obtuſe. *Peric.* Legume coriaceous, compreſſed, rather downy, ruſty, long, hooked, with an acute, incurved point, of one cell and two valves, burſting elaſtically. *Seeds* three or four, large, compreſſed, coriaceous, ſometimes emarginate on one ſide.

Eſſ. Ch. Calyx of one leaf, four-cleft. Petal one, lateral, convolute at the baſe. Filaments thickened at the baſe, bearded, five of them abortive. Legume.

1. P. *falcata*. Willd. (Eperua falcata; Aubl. Guian. t. 142.)—Native of woods, and banks of rivers, in Guiana. It flowered and bore fruit towards winter.—The *trunk* of this large tree is ſixty feet in height, much branched at the upper part. *Branches* widely ſcattered. *Leaves* alternate, pinnate; leaflets in three pairs, oppoſite, nearly ſeſſile, ovate-oblong, acute, ſmooth, entire, ſpringing from the furrow of the leaf-ſtalk. *Stipulas* two, ſmall, deciduous. *Flowers* numerous, red. See DIMORPHA *Falcata*.

As there is ſo much diverſity of opinion about this plant, we have thought it beſt to exhibit Willdenow's view of it, though it had been already mentioned under DIMORPHA.

PANZY. See VIOLA.

PAO, in *Geography*, a river of South America, which riſes near Valencia, in the province of Caraccas, and after a courſe of about 100 miles, joins the Bariquicemeto, in N. lat. 8° 20'; and the united ſtreams form the Portugheſſa.—Alſo, a town of Corea; 30 miles S.E. of Ou-tchuen.

PAO-DE-NAO, a town on the coaſt of Africa, near the river Camarones, belonging to the Portugueſe.

PAO-KING, a city of China, of the firſt rank, in Hou-quang. N. lat. 27° 4'. E. long. 111°.

PAOLI, PASCAL DE, in *Biography*, a very diſtinguiſhed character in modern times, born at Roſtino, in the iſland of Corſica, in 1726, was the ſon of Hiacente Paoli, who had been always attached to the popular cauſe, and who, when all his attempts againſt the Genoeſe had proved unavailing, had retired with his family to Naples. Paſcal was educated among the Jeſuits, and at their college he made a rapid progreſs in his ſtudies, and diſplayed an underſtanding equally ſolid and capacious. He appears to have been formed by nature with powers capable of attaching to himſelf the hearts and ſuffrages of his countrymen; for his deportment was grave and prudent, and his judgment was matured by reflection rather than by age, while his patriotiſm was unqueſtioned, and his eloquence ſuperior to that of any of his rivals. He was accordingly unanimouſly choſen generaliſſimo, in a full aſſembly of the people, when he had attained but to the 29th year of his age. He was not long in deciding how he ſhould act: he complied with his country's call, and devoted himſelf to its ſervice. Having taken leave of his father, now advanced in years, he embarked for the iſland, and was formally inveſted with the chief command. The ſituation of the iſland, in reſpect to its internal government, being exceedingly unpromiſing, this chief new-modelled the laws, and eſtabliſhed the appearance, if not the reality, of ſubordination: he inſtituted ſchools, and laid the foundation of a maritime power. In 1761 the government of Genoa, perceiving the change lately effected among the natives, ſent a deputation to a general council, convoked at Veſcovato, for the expreſs purpoſe of propoſing terms of accommodation; but it was unanimouſly reſolved never to make peace with the oppreſſor, unleſs upon the expreſs condition of Corſica being guaranteed in the full enjoyment of its independence. A memorial to the ſame effect was alſo addreſſed, at the ſame time, to all the ſovereigns of Europe. But appeals to the principles of freedom were not likely to obtain favour in royal cabinets, and nothing was gained by the memorial of the Corſicans: indeed the court of France entered into a treaty with the Genoeſe, for ſupplying them with a force to garriſon the towns yet remaining in their hands. The preſence of the French ſoldiers effectually prevented any progreſs towards freeing the iſland, and the only military tranſaction of any note that took place during the four years in which this treaty ſubſiſted, was the conqueſt, by the Corſicans, of the iſle of Capraia.

At length, in 1768, the Genoeſe deſpairing of rendering the ſtubborn iſlanders ſubſervient to their will, transferred the ſovereignty of Corſica to France, on condition of receiving in lieu of it 40,000,000 of livres. This was a thunderſtroke to the wretched Corſicans, but the noble leader remained firm to his cauſe: he rouſed and prepared the ſpirit of his followers for a freſh contention, and animated them to perſevere, with additional zeal, in defence of their rights and liberties as an independent people, promiſing never to abandon them, but either to triumph or fall at the head of his countrymen. This heroic reſolution was circulated with rapidity, and, when coupled with the juſtice of the cauſe in which he had embarked, obtained for him the eſteem and regard of every lover of freedom and humanity throughout Europe.

He was at firſt tempted with the offer of being confirmed in his ſupreme authority, provided he would conſent to hold it under the French government, but he rejected the propoſal with indignation: he was a lover of liberty, and not attached to the mere exerciſe of power; and he nobly declared, in anſwer to the diſgraceful application, as he thought it, that "the rocks which ſurrounded him ſhould melt away, ere he would betray a cauſe which he held in common with the meaneſt Corſican." A rigorous war commenced, in which, for ſome time, the French were beaten, and in one inſtance their general was obliged to capitulate, with all his infantry, artillery, and ammunition. An immenſe force was now ſent from France which overwhelmed the Corſican patriots; they were defeated with great ſlaughter, and Paoli, left with only about 500 men, was ſurrounded by the French, who were anxious to get poſſeſſion of his perſon; he, however, cut his way through the enemy, and eſcaped to England with his friends, where they were received with all the ſympathy and reſpect due from freemen to patriots who had ſo nobly ſupported the cauſe of liberty. Dumourier, who afterwards made a figure in the revolution of his own country, and was at length deſervedly diſgraced, ſerved at this period againſt the Corſicans, with the rank of adjutant-general; and in his own memoirs, publiſhed a few years ſince, he pays very high compliments both to the people of the iſland and their chief: "it is aſtoniſhing," he ſays, "that this handful of iſlanders, deſtitute of artillery, fortifications, magazines, and money, ſhould have kept France at bay during two campaigns, although ſhe had no other enemy to cope with. But liberty doubles the valour and ſtrength of man."

The caſe of the oppreſſed Corſicans had excited much intereſt in this country, and it was but a few days before his final retreat, that he received a liberal ſubſcription from a number of private individuals, of which number were aldermen Beckford and Trecothic, and Samuel Vaughan, eſq. who were alſo truſtees for the ſums raiſed, for the expreſs purpoſe of enabling him to carry on the war againſt France. On his arrival Paoli was introduced at court, and the duke of Grafton, then prime miniſter, obtained for him a penſion of 1200*l.* a-year, which he liberally ſhared with his companions in exile.

From this time the ex-general lived a retired life, devoting himſelf chiefly to the cultivation of literature. During his retirement, which laſted more than twenty years, he was introduced to Dr. Johnſon by Mr. Boſwell, who had viſited the general while he was in Corſica; and who ſpeaks of the interview with pleaſure, ſaying, "the general ſpoke Italian, and Dr. Johnſon Engliſh, and underſtood one another very well, with a little aid of interpretation from me, in which I compared myſelf to an iſthmus, that joins two great continents."

At length the revolution that promiſed to raiſe France to the rank of a free ſtate, extended its influence to Corſica, and the national convention paſſed a decree by which that iſland was numbered among the departments of France, and entitled to all the privileges of the new conſtitution. The return of Paoli to the dignified ſtation of its chief, was the firſt wiſh of his liberated countrymen, and Paoli could not reſiſt their entreaties, which were enforced by the ſolicitations of the French aſſembly. He reſigned his penſion from the Engliſh court, took a grateful leave of the country in which he had been ſo hoſpitably entertained, and in the month of April 1790, preſented himſelf at the bar of the national aſſembly at Paris, together with the Corſican deputies. Soon after this he embarked for Corſica, where he was received with an extraordinary degree of attachment and reſpect. He was elected mayor of Baſtia, commander-in-chief of the national guard, and preſident of the department; and, in ſhort, he at once acquired more authority in the iſland, than before its ſubjugation by the French. He was, however, not quite contented; he was ambitious of ſeeing Corſica wholly independent, which, upon the execution of Lewis XVI., was the prevailing wiſh of the Corſicans. The convention was ſoon apprized of their views, and ſummoned Paoli to their bar to juſtify himſelf againſt the charges exhibited againſt him: to gain time, he pleaded his age and infirmities as excuſes why he could not comply with their demand. To a ſecond order, more peremptory than the firſt, he replied in a different manner, and with more frankneſs. After this he repaired to Corte, the ancient capital, in the centre of the iſland, where, ſurrounded by his friends and adherents, he laughed at the proclamation which had been iſſued, declaring him a traitor, and ſetting a price upon his head. Senſible, however, that it would be impoſſible for a ſmall iſland permanently to withſtand the power of France, without foreign ſupport, he reſolved upon an expedient, which, though it was a renunciation of independence, promiſed to ſecure all the advantages of real liberty. This was an union of Corſica with the crown of Great Britain; the particulars of this buſineſs will be found in the article Corsica. Paoli, as will be ſeen in that article, returned to England, having unfortunately loſt all his property, by the failure of a mercantile houſe at Leghorn, and paſſed the remainder of his life in great privacy. He died in London, February 5, 1807, in the eighty-firſt year of his age. Few foreigners, however diſtinguiſhed, have been ſo much careſſed in England as general Paoli. By living in habits of familiarity with men of letters, his name and exploits acquired high celebrity: and Boſwell, Goldſmith, Johnſon, and many others, equally eminent in the literary world, although differing in almoſt every thing elſe, cordially united in his praiſe. On the continent his reputation was greatly reſpected: it was uſual to compare Paoli to Timoleon and Epaminondas. He was unqueſtionably a great man; but it is the opinion of thoſe who have enjoyed the opportunity of ſtudying his character, that he was a politician rather than a ſoldier: that he ſhone more in council than in arms; and that the leading feature of his public conduct was a certain degree of Italian policy, which taught him to refine and ſpeculate on every event. Boſwell's Account of Corſica. Athenæum, vol. i. Monthly Mag. vol. xxiii.

PAOLO, Agostino, a learned eccleſiaſtical compoſer of muſic, ſcholar of Bernardo Nanini, and ſucceſſor in the pontifical chapel to Soriano. Antimo Liberati ſpeaks of him as one of the moſt ſcientific and ingenious compoſers of his time, in every ſpecies of muſic then cultivated: and tells us, that while he was maeſtro di capella of St. Peter's church at Rome, he aſtoniſhed the muſical world with his productions for four, ſix, and eight choirs or choruſſes; ſome of which might be ſung in four or ſix parts only, without diminiſhing or enervating the harmony. Padre Martini, who bears teſtimony to the truth of this eulogium, has inſerted an Agnus Dei, in eight parts, of this compoſer, which is truly a curious production: three different canons being carried on at the ſame time, in ſo clear and natural a manner, both as to melody and harmony, that this learned father, who had been long exerciſed in ſuch arduous enterprizes, ſpeaks of it as one of the greateſt efforts of genius and learning in this moſt difficult kind of compoſition.

Paolo, in *Commerce*, a ſmall ſilver coin at Florence, Rome, and other places in Italy. As a money of account at Florence, the ſcudo d'oro is worth $7\frac{1}{2}$ lire, $11\frac{1}{4}$ paoli, or 90 crazie. The ducato, or ſcudo corrente, called alſo the piaſtra, is an imaginary coin, valued at 7 lire, $10\frac{1}{2}$ paoli, or 84 crazie; the lira = $1\frac{1}{2}$ paoli; the paolo or giulio = 8 crazie = 40 quatrini = 160 denari di lira; a teſtone = 2 lire = 3 paoli.

The coins in ſilver are pieces of 10 paoli, or $6\frac{2}{3}$ lire, called franceſconi and leopoldoni; half ditto, called franceſchini, of 5 paoli; tallari, of 6 lire, or 9 paoli; teſtoni of 2 lire, or 3 paoli; ſingle, half, and quarter lire, of 20, 10, and 5 ſoldi; double, ſingle, half, and quarter paoli; double, ſingle, and half crazie.

The piece called franceſcone weighs 23 denari 10 grani, Florence weight, or 426 Engliſh grains; and the ſilver is 10 denari 22 grani, or 10 oz. $18\frac{1}{3}$ dwts. fine; and therefore contains $387\frac{1}{2}$ Engliſh grains of fine ſilver, or 419 grains of ſtandard ſilver, and is worth 4*s.* 6*d.* ſterling. According to this valuation, the ſcudo d'oro, of $7\frac{1}{2}$ lire, = 5*s.* $0\frac{3}{4}$*d.* ſterling; the ducato, or ſcudo corrente, of 7 lire, = 4*s.* $8\frac{3}{4}$*d.* ſterling; the pezza, of $5\frac{3}{4}$ lire, = 3*s.* $10\frac{3}{4}$*d.* ſterling; the lira is worth about 8*d.*; or 1*l.* ſterling = 29 lire, 12 ſoldi, 7 denari. or 4 ducati, 4 ſoldi, 7 denari di ducato; or 5 pezze, 2 ſoldi, 8 denari di pezza, all in ſilver. For the paoli of Rome, ſee Rome.

Paolo, *St.*, in *Geography*, a river of Sicily, which runs into the ſea, on the E. coaſt, N. lat. 37° 16'. E. long. 15° 12'.—Alſo, a ſmall iſland, near the coaſt of Naples, in the gulf of Tarento. N. lat. 40 42'. E. long. 17° 6'.—Alſo, a town of Naples, in the Capitanata; 3 miles S.E. of Dragonera.

PAOLOS, in *Geography*, a town of Aſiatic Turkey, in the province of Sivas; 25 miles W. of Sivas.

PAON, in *Ornithology*. See Tringa *Pugnax*, and Pavo *Criſtatus*.

PAO-NGHAN, in *Geography*, a city of China, of the ſecond rank, in Pe-tche-li, on the river San-cam; 62 miles N.W. of Pekin. N. lat. 40° 20'. E. long. 114° 41'.

PAO-NING, a city of China, of the firſt rank, in the province of Se-tchuen, comprehending within its juriſdiction ten cities.

PAOOM, one of the ſmaller *New* Hebrides; which ſee.

PAOS, a town of Portugal, in the province of Beira; 16 miles N.W. of Viſeu.

PAO-TCHING, a town of Corea; 30 miles S. of Koang-tcheou.

PAO-TCHUEN, a town of Corea; 28 miles S.S.W. of Hoang-tcheou.—Alſo, a town of Corea; 23 miles E. of King-ki-tao.

PAO-TING, a city of China, in the province of Pe-tche-li, in which the viceroy reſides, and the moſt conſiderable in the province, next to Pekin. It has 20 others under its juriſdiction; the country round it is pleaſant, and inferior in fertility to no part of China. In going from Pe-kin to the province of Chan-ſi, it is neceſſary to paſs through this city. N. lat. 38° 54'. E. long. 115° 14'.

PAOULA, a town of Naples, in Principato Ultra; 4 miles N.E. of Benevento.

PAOWAH, a town of Hindooſtan, in Bahar; 5 miles S. of Bahar.

PAP, in *Rural Economy*, a provincial term applied to the teats of cows, or other animals that give milk. The paps diſtend after the young is produced, and as the bodies of them contain the terminations of the tubuli lactiferi, where they are tortuous, and act as valves; they are diſtenſible, as they are ſqueezed becoming ſtraight, and thus the milk has a free paſſage, whether the preſſure be cauſed by the mouth of the young animal in ſucking, or the hand in the act of milking. See Teat.

Papa. See Pope.

Papa, in *Ornithology*. See Vultur.

Papa, in *Geography*, a town of Hungary; 25 miles S. of Raab.

Papa *Stour*, one of the Zetland or Shetland iſlands of Scotland, is ſituated about a mile weſtward from the Mainland. This iſland extends about two miles in length, and one in breadth. Its ſoil is a rich ſand, producing excellent paſturage graſs, and even good crops of oats, with beans and potatoes. Along the coaſt are numerous ſmall *voes*, or harbours, which afford a ſafe retreat to the boats employed in the Zetland iſlands. Here is a remarkable cave, by which the ſea flows for a conſiderable diſtance into the interior of the iſland, under the rocks. The beach, being admirably adapted for drying fiſh, is occupied by a number of houſes appropriated to that purpoſe. Hiſtory of the Zetland Iſlands, by Dr. A. Edmonſton. Sinclair's Statiſtical Account, vol. xx.

Papa, or **Papay-*Stronſay***, one of the Orkney iſlands, off the coaſt of Scotland, is ſituated on the north-eaſt quarter of the iſle of Stronſay. Though little more than three miles in circumference, its ſurface is remarkably level, and equally beautiful as fertile. Here are the ruins of two ancient chapels, one dedicated to St. Bride, and the other to St. Nicholas. On an eminence called Earl's knoll, are ſeveral graves, and ſome veſtiges of buildings which formerly belonged to one of the ancient earls of Orkney. Hiſtory of the Orkney Iſlands, by the Rev. Dr. Barry, 2d edit. 1808, by the Rev. James Headrick.

Papa, or **Papay-*Weſtray***, one of the Orkney iſlands of Scotland, lies about one mile to the north of Weſtray. It is nearly four miles long, and one broad; and ſcarcely yields in fertility of ſoil to any diſtrict in Scotland. At its ſouth-eaſtern extremity is a beautiful lake of freſh water, the centre of which is adorned with an iſlet, where are the ruins of the once noble chapel of St. Tredwall, to whom ſuperſtition, till lately, attributed many wonderful and miraculous works. Hiſtory of the Orkney Iſlands, by Dr. Barry, 2d edit. 1808.

PAPACY. See Popedom.

PAPAGAY, or **Papegay**, in *Ornithology*. See Psittacus.

PAPAGAYO, in *Geography*, a river of Mexico, which runs into the Pacific ocean, 25 miles N. of Acapulco, N. lat. 17° 40'. W. long. 101° 46'.

Papagayo *Bay*, or ***Parrot Bay***, a bay on the North Pacific ocean, and on the W. ſide of the iſthmus of Nicaragua, at a ſmall diſtance from the weſtern part of the lake of Nicaragua. N. lat. 11° 10'. W. long. 87° 36'.

PAPAKUNK, a town of New York, on the Papachton. N. lat. 42° 5'. W. long. 74° 58'.

PAPAL Crown is a deep cap, or mitre of cloth of gold, encompaſſed with three coronets, or circles of gold, adorned with flowers; and the whole enriched with precious ſtones; having a globe at top, finiſhed with a croſs. See Crown.

PAPALLACLA, in *Geography*, a town of South America, in the province of Quito; 50 miles N.W. of Archidona.

PAPALOAPAIN, a river of Mexico, called Alvarade, or Alvarodo; which ſee.

PAPALQUIAN, a town of Mexico, in New Biſcay; 130 miles N.W. of Durango.

PAPAMOW, a town of Hindooſtan; 8 miles N. of Allahabad.

PAPAN, in *Ornithology*, the name given by the inhabitants of the Philippine iſlands, to a ſpecies of duck common in their lakes and marſhes. This is very large and beautiful, and is called by father Camelli *anas regia*, or the *royal duck:* it is not ſo common, however, as the little kind which they call *ſalayaſir*.

PAPANAUD, in *Geography*, a town of Hindooſtan, in the Carnatic; 25 miles S.S.E. of Tanjore.

PAPAS, a lake of South America; 40 miles S. of Popayan.

PAPAS *Adaſſi*, or *Papadoniſſa*, or *Prince's Iſlands*, a cluſter of ſmall iſlands in the N.E. part of the iſland of Marmora, at the entrance of the Straits of Conſtantinople; 8 miles S. of Conſtantinople. The iſlands known under the name of Prince's iſlands, are nine in number, four large, and five ſmall. The firſt is called "Prota;" the ſecond, "Antigona;" the third, "Chalkis;" and the fourth, "Prinkipos:" to the ſouth of the latter lies the little iſland, called "Rabbit" iſland; to the weſt are two ſmall iſlands, one of which is known by the name of "Oxya," and the other by that of "Plata;" the two others are nameleſs rocks. The principal of theſe iſlands is *Prinkipos*; which ſee.

PAPAS-ILI, a town of European Turkey, in Romania; 32 miles N. of Adrianople.

PAPAVER, in *Botany*, the Poppy, ſo called, according to the moſt learned etymologiſts, becauſe it was commonly mixed with the pap, *papa*, given to children, in order to procure ſleep. This plant and its name have ever been aſſociated with the idea of ſleep in moſt languages, in poetry and philoſophy, in hiſtory and fable. Its juice is ſtill the beſt opiate known, and in the moſt general uſe.—Linn. Gen. 263. Schreb. 350. Willd. Sp. Pl. v. 2. 1144. Mart. Mill. Dict. v. 3. Sm. Fl. Brit. 565. Prodr. Fl. Græc. Sibth. v. 1. 358. Ait. Hort. Kew. ed. 2. v. 3. 288. Juſſ. 236. Tourn t. 119, 120. Lamarck Illuſtr. t. 451. Gærtn. t. 60.—Claſs and order, *Polyandria Monogynia*. Nat. Ord. *Rhœadeæ*, Linn. *Papaveraceæ*, Juſſ.

Gen. Ch. *Cal.* Perianth inferior, ovate, emarginate, of two nearly ovate, concave, obtuſe, immediately deciduous leaves. *Cor.* Petals four, roundiſh, flattiſh, ſpreading, large, contracted at the baſe, alternately ſmaller. *Stam.* Filaments numerous, capillary, inſerted into the receptacle, much ſhorter than the corolla; anthers oblong, compreſſed, erect, obtuſe. *Piſt.* Germen ſuperior, ſeſſile, large, roundiſh; ſtyle none; ſtigma depreſſed, peltate, flat, radiated. *Peric.* Capſule oval, or ſomewhat oblong, crowned with the large, flat, permanent ſtigma, of one cell, though imperfectly divided into many, burſting at the top by numerous orifices under the ſtigma. *Seeds* numerous, minute. *Receptacles* longitudinal folds, attached to the inſide of the capſule, equal in number to the rays of the ſtigma.

Eſſ. Ch Calyx of two leaves. Petals four. Stigma radiated. Capſule ſuperior, of one cell, opening by pores under the permanent ſtigma.

Obſ. The ſeed-veſſel differs in ſhape in different ſpecies, from globoſe to oblong, and the rays of the ſtigma differ greatly in number, according as the ſhape of the capſule appropriated to each ſpecies, is more or leſs oblong and narrow. The ſpecies are commodiouſly divided into two ſections, diſtinguiſhed by the roughneſs or ſmoothneſs of the capſule.

Sect. 1. *Capſules briſtly.*

1. P. *hybridum.* Mongrel Poppy. Linn. Sp. Pl. 725. Engl. Bot. t. 43. (Argemone capitulo torulo; Ger. em. 373.)—Capſule nearly globular, furrowed, briſtly. Stem leafy, many-flowered.—Native of fields, on a light ſoil, in the more temperate or ſouthern parts of Europe; rare in England, though we have ſeveral times gathered it ſparingly about Norwich. The *root* is annual. *Stem* branched, about a foot high, leafy, covered with cloſe-preſſed briſtles. *Leaves* dark green, alternate, doubly pinnatifid, in many narrow ſegments, briſtly like the ſtem. *Flowers* terminal, ſolitary, erect, ſmaller than uſual in the genus. *Calyx* rough with tawny hairs. *Petals* deep red, with more or leſs of a violet ſpot at the baſe. *Stamens* violet. *Pollen* bright blue. *Capſule* the ſize of a filberd, deeply channelled, obovate, beſet with aſcending prickles. The whole herb partakes of the fœtid and diſagreeable flavour common to its genus, but is ſcarcely milky.

2. P. *Argemone.* Long rough-headed Poppy. Linn. Sp. Pl. 725. Curt. Lond. faſc. 5. t. 38. Engl. Bot. t. 643. Fl. Dan. t. 867. (Argemone capitulo longiore; Ger. em. 373.)—Capſules club-ſhaped, briſtly. Stem leafy, many-flowered.—Native of ſandy fields, in various parts of Europe, flowering in June or July. Much like the laſt, but the ſegments of the *leaves* are generally broader, and the colour of the whole herb, as well as of the *flowers*, is lighter. The briſtles of the *ſtem* are not ſo cloſely preſſed. *Stamens* very broad at their ſummit, each *anther* being ſupported by a little partial ſtalk. *Stigma* with only four or five rays, the *capſule* being ſlender, obſcurely five-ſided, by no means channelled like the former, nor is it ſo briſtly, except in the upper part. The *flowers* have been found double in England, but ſuch a circumſtance is rare. Both theſe ſpecies occur but ſparingly, in a ſcattered manner, and never in the abundance of the common *P. rhœas* hereafter deſcribed, let the ſoil and ſituation be ever ſo favourable.

3. P. *alpinum.* Alpine Poppy. Linn. Sp. Pl. 725. Jacq. Auſtr. t. 83. Seguier. Veron. 416. t. 4. f. 4.—Capſule briſtly. Stalk radical, ſingle-flowered, briſtly, leafleſs. Leaves doubly pinnate.—Native of the mountains of Switzerland, Auſtria, the rocks of mount Baldus, Dauphiny, and the Pyrenees. Miller appears to have cultivated this ſpecies in 1759, but it is now rarely to be ſeen with us. Though tolerably hardy, it thrives beſt in a frame, flowering in May or June. *Root* perennial, tufted. *Leaves* numerous, all radical, ſtalked, doubly pinnatifid, the ſegments linear or obovate, decurrent, entire, rather glaucous, ſmooth, or ſlightly hairy. *Flower-ſtalks* few, aſcending, ſimple, five or ſix inches high, briſtly, with cloſe hairs, leafleſs, each bearing one *flower*, about an inch and half broad, uſually pale yellow, ſometimes, according to Villars, reddiſh or whitiſh; Jacquin ſays it is conſtantly pure white in Auſtria. The *anthers* are always yellow. *Capſule* ovate, briſtly, with four, five, or ſix angles in the upper part, and as many rays to the *ſtigma*.

4. P. *nudicaule.* Naked-ſtalked Poppy. Linn. Sp. Pl. 725. Fl. Dan. t. 41. (P. erraticum nudicaule, flore flavo odorato; Dill. Elth. 302. t. 224.)—Stalk radical, ſingle-flowered, briſtly, leafleſs. Leaves ſimple, pinnatifid.—Native of Norway and Siberia. More frequently ſeen in our gardens than the laſt, being a hardy biennial, flowering in June and July. The *leaves* differ from the laſt in being ſimply pinnatifid, and their ſegments much broader. The *ſtalk* is a foot high. *Flower* of a moſt delicate ſulphur colour, but with a diſagreeeable ſmell, at leaſt in our opinion, Dillenius nevertheleſs compares it to the ſcent of a Jonquill.

and ſays it is chiefly perceptible in a morning and evening. Linnæus conſidered the two ſpecies laſt deſcribed as too nearly related to each other, but they ſeem diſtinct, notwithſtanding the agreement in their habit, the hairy *calyx*, and ovate briſtly *ſeed-veſſel*. The preſent is ſaid to have occaſionally a white *flower*.

Sect. 2. *Capſules ſmooth.*

5. P. *Rhœas*. Common Red Poppy, or Corn Roſe. Linn. Sp. Pl. 726. Curt. Lond. faſc. 3. t. 32. Engl. Bot. t. 645. Woodv. Med. Bot. t. 186. Ger. em. 371. (P. erraticum; Matth. Valgr. v. 2. 404.)—Capſules ſmooth, nearly globular. Stem many-flowered; rough with horizontal hairs. Leaves pinnatifid, cut.—Native of cultivated and waſte ground, throughout Europe, and a very troubleſome, though ſplendid weed in ill managed corn-fields. It flowers in Greece in the early ſpring, with us not till June or July, The *root* is annual. *Stem* about two feet high, branched, clothed all over with briſtly hairs, that all ſpread horizontally. *Leaves* pinnatifid; often in ſome degree bipinnatifid; their ſegments oblong, ſerrated, and cut, more or leſs hairy. *Flowers* larger than in any of the foregoing, of a deep and moſt brilliant ſcarlet red, ſlightly fœtid. *Capſule* quite ſmooth and even, ſhort and abrupt, with a many-rayed *ſtigma*.

Varieties with more or leſs double *flowers*, white, red or parti-coloured, are common in gardens, but if ſuffered to ſcatter their ſeed without a careful renewal of ſoil, their beauties and diſtinctions are tranſient in their offſpring. The heads or capſules of this ſpecies are recommended as an opiate by Dioſcorides, and its uſe is ſtill retained; eſpecially a red ſyrup is made of the flowers, which ſerves as a mild ſoporific for children.

6. P. *dubium*. Long ſmooth-headed Poppy. Linn. Sp. Pl. 726. Curt. Lond. faſc. 5. t. 37. Engl. Bot. t. 644. Fl. Dan. t. 902.—Capſules ſmooth, oblong. Stem many-flowered, hairy; the hairs on the flower-ſtalks cloſe-preſſed. Leaves doubly pinnatifid.—Native of fields in various parts of Europe, chiefly on a ſandy ſoil, and not very abundantly, flowering in June and July. This approaches the laſt very nearly in habit, but the *flowers* are of a paler hue, the *capſule* ſlender, furrowed, with a *ſtigma* of only ſix or eight rays, and the briſtles on the *flower-ſtalks* are cloſely preſſed to the ſtalk, not ſpreading as in *P. Rhœas*. Crantz thought this ſpecies a variety of *P. Argemone*, but there ſeems little reaſon for ſuch an opinion. *P. dubium*, Jacq. Auſtr. t. 25, if correctly drawn, is very puzzling. The briſtles on the *flower-ſtalks* are repreſented deflexed, which is quite the reverſe of our Linnæan ſpecimen, as well as of the Engliſh ones; the *petals* are white, with a violet ſpot.

7. P. *ſomniferum*. White, or Garden, Poppy. Linn. Sp. Pl. 726. Woodv. Med. Bot. 185. Engl. Bot. t. 2145. Bulliard. t. 57. (P. ſylveſtre; Ger. em. 370.)—Calyx and capſules ſmooth. Leaves embracing the ſtem, glaucous, cut. Stem ſmooth in the lower part; rough with ſpreading hairs above.—Native of fields and waſte ground in the ſouth of Europe; rare in England. The Rev. Mr. White obſerved it to be truly wild on the ſandy banks of the fen ditches in Marſhland. In gardens it is well known, as a hardy annual, ſporting in the forms and colours of its rich beautiful double *petals*, but eaſily returning, if neglected, to its ſingle ſtate, and pale purple or white hue, having a violet ſtain on each petal. The largeſt heads, for medical uſe, are obtained from the ſingle-flowered kind, cultivated in warm countries on a fertile ſoil. Theſe being wounded as they grow, yield a milky juice, which by drying becomes opium. The *herb* is erect, four feet or more in height, branched, very glaucous, with broad, obtuſe, ſimple, lobed and crenate, wavy *leaves*, claſping the *ſtem*, which in its upper part only is naturally clothed with coarſe ſpreading hairs. The *buds* droop, but the *flowers* are erect, with a faint unpleaſant ſcent, a ſmooth *calyx*, large *petals*, and a nearly globoſe *capſule*, crowned with a *ſtigma* of many rays. The *ſeeds* are either dark brown or white, of a pleaſant ſweet flavour.

8. P. *piloſum*. Hairy Red Poppy. Sm. Prodr. Fl. Græc. Sibth. v. 1. 360. Fl. Græc. t. 492, unpubliſhed.—Capſules ſmooth. Stem many-flowered, clothed with ſpreading hairs. Leaves claſping the ſtem, cut, hairy all over.—Gathered by Dr. J. Sibthorp, about the Bithynian Olympus. The *root* of this new and handſome ſpecies appears to be perennial. *Herb* about the ſize of the laſt, but of a bright green, not glaucous, and clothed with briſtly hoary hairs, which ſpread horizontally on the *ſtem*, where they are very abundant, as well as on the flower-ſtalks, where they are ſparingly ſcattered. The *leaves* are ſimple, broad, heart-ſhaped, and claſping the ſtem, bluntly lobed and cut, hairy, with ſtrong ribs and veins; the radical ones narrower, oblong, and ſtalked. *Flowers* about the ſize of the laſt, and indeed larger than the wild *P. ſomniferum* of Greece, drooping in the bud, then erect. *Calyx* briſtly. *Petals* of a pale tawny ſcarlet, or full orange, with white claws. *Anthers* yellow. *Germen* obovate, ſmooth, glaucous, with ſix ribs, and the ſame number of broad rays in the *ſtigma*.

9. P. *virgatum*. Wand-like Poppy. (P. orientale, tenuiter inciſum, ad caulem floridum; Tourn. Cor. 17.)—Capſules ſmooth. Stem ſtraight, panicled, many-flowered, rough with ſpreading briſtles. Leaves pinnate, cut, briſtly.—Native of Armenia. We deſcribed it formerly from Tournefort's herbarium at Paris. The *ſtem* is ſtraight and ſtiff, panicled, bearing a great number of *flowers*, and clothed with ſpreading rigid briſtles. Radical *leaves* numerous, pinnate, cut, hiſpid, eſpecially their ribs, all the points callous, and tipped with a briſtle, as in thoſe of *P. orientale*, which they in all reſpects much reſemble. *Flower-ſtalks* ſcattered, each bearing one, two, or three *flowers*. *Calyx* briſtly. *Petals* red. *Germen* roundiſh, ſmooth. This ſpecies differs from the following one, in having a ſtraight, panicled, many-flowered *ſtem*, the briſtles covering which are horizontal, not cloſe-preſſed.

10. P. *orientale*. Great Oriental Poppy. Linn. Sp. Pl. 727. Curt. Mag. t. 57. (P. orientale hirſutiſſimum, flore magno; Tourn. Cor. 17. Voy. v. 2. 118. t. 118. Comm. Rar. t. 34.)—Capſules ſmooth. Stem ſingle-flowered, leafy, rough, with cloſe-preſſed briſtles. Leaves pinnate, ſerrated, briſtly.—Native of the Levant. Tournefort found it near Erzerum, in Armenia, flowering in June. He introduced it into the gardens of Holland and France, and it has been, for about a century, a hardy perennial in our parterres, flowering early in ſummer, and very conſpicuous for the great ſize, and peculiarly brilliant ſcarlet colour of its *flowers*, which are too dazzling to be looked on in the ſunſhine. They are nearly a ſpan wide, with dark *ſtamens*, and ſometimes a black ſpot on each *petal*. *Germen* globoſe, quite ſmooth and even, without ribs. Rays of the *ſtigma* ſixteen, peculiarly dilated. The *root* creeps moderately, by which the plant is increaſed, for it ſcarcely ever ripens ſeed with us. *Stems* about two feet high, ſimple, leafy, round, denſely clothed with erect, rigid, pungent, cloſe-preſſed briſtles. *Leaves* moſt numerous from the root, a foot long, dark green, harſh and briſtly, pinnate, with ſerrated decurrent ſegments. The juice of the plant is hot and acrid, yet Tournefort ſays the Turks and Armenians eat the unripe heads by way of luxury. They extract no opium from this

ſpecies; but perhaps the ſimilarity of its flavour and effects, to that great ſoother of their cares, may cauſe it to be thus employed.

11. P. *fugax*. Small Fugacious Poppy. Lamarck Dict. v. 5. 118.—Capſules ſmooth, orbicular. Stem panicled, many-flowered, ſmooth. Petals minute. Leaves pinnatifid, ſerrated, hiſpid. Brought by Michaux from Perſia. It flowered in May 1789, in the royal garden at Paris. Poiret deſcribed it from Lamarck's herbarium, and we know this ſpecies merely from his deſcription, having ſeen neither ſpecimen nor figure. He ſays it is diſtinguiſhed by the *ſtem*, forming at the ſummit an ample panicle of many very ſmall *flowers*, which laſt but a few hours. Each *ſtem* is ſlender, ſtraight, ſtriated, ſmooth, about eighteen inches high, ſimple, except at the top. *Leaves* ſcattered, ſtalked, not unlike thoſe of *P. orientale*, but leſs deeply pinnatifid, not pinnate, furniſhed with a few long ſcattered hairs, the ſegments or teeth, more or leſs diſtant, each terminated by a long briſtle. *Petals* pale red, very ſmall in compariſon with the reſt of the genus, and extremely fugacious. *Capſule* ſmall, globular, ſmooth, crowned with a conical, obtuſe *ſtigma*, of four or five rays.

12. P. *cambricum*. Yellow Welch Poppy. Linn. Sp. Pl. 727. Engl. Bot. t. 66. (P. cambricum perenne, flore ſulphureo; Dill. Elth. 300. t. 223. Argemone lutea cambro-britannica; Moriſ. ſect. 3. t. 14. f. 12.)—Capſules ſmooth, oblong, beaked. Stem nearly ſmooth, bearing ſeveral flowers. Leaves pinnate, cut.—This ſpecies, one of the moſt elegant of our native plants, ſeems peculiar to rocky ſhady ſituations in Wales and Weſtmoreland; for the reference to Bauhin's Prodromus, on which Linnæus grounds his aſſertion of its being found on the Pyrenées, appears to belong either to the *alpinum* or *nudicaule*. It is perennial, flowering in June; and may be cultivated in the moiſt ſhady parts of a garden, where, though each root does not, in general, laſt many years, the ſeeds ſcatterring themſelves in the undiſturbed ſoil, will from time to time produce new plants. The *ſtem* is twelve or eighteen inches high, leafy, ſomewhat branched, clothed with a few rather upright hairs. *Leaves* tender and delicate, of a pale but pleaſant green, pinnate, their common ſtalk winged; their leaflets ovate, acute, cut or lobed, almoſt entirely ſmooth, glaucous underneath, each above an inch long. *Flowers* terminating the few branches, ſolitary, on long ſtalks, about the ſize of *P. dubium*, but of a beautiful lemon colour, with a ſcent like thoſe of *Craſſula coccinea*, or *Meſembryanthemum noctiflorum*, which moſt people compare to the Bergamot Pear. The *ſtigma* has about five rays, and is elevated on a ſort of beak, reſembling a ſtyle, above the obovate, ſmooth, five-ribbed *capſule*. The *calyx* is hairy. The herb when wounded diſcharges a yellowiſh fluid, not unlike the juice of the common Celandine, to which indeed this plant is ſo nearly allied in botanical affinity, that ſuch a coincidence is not ſurprizing. The ſame may be ſaid of the American *Sanguinaria*.

Papaver, in *Gardening*, contains plants of the hardy, herbaceous, fibrous-rooted, annual, and perennial kinds, of which the ſpecies cultivated are, the white poppy (P. ſomniferum); the corn, or red poppy (P. rhœas); the Welch poppy (P. cambricum); and the Oriental poppy (P. orientale).

There are ſeveral varieties of the firſt ſort, differing in the colour and multiplicity of their petals, which are preſerved in gardens for ornament: the ſingle-flowered ſort is chiefly cultivated for uſe.

The common black variety of poppy has ſtalks about three feet high, ſmooth, and dividing into ſeveral branches; the leaves are large, ſmooth, deeply cut or jagged on their edges, and embracing; the petals purple, with dark bottoms; ſucceeded by oval, ſmooth capſules filled with black ſeeds, which are ſold under the name of *maw-ſeed*.

And of this there are many ſub-varieties; as with large double flowers, variegated of ſeveral colours; with red and white, purple and white, and ſome finely ſpotted like carnations.

There are few plants whoſe flowers are ſo handſome; but as they have an offenſive ſcent, and are of a ſhort duration, they are not in general much regarded.

In the ſecond ſort there is a variety with an oval, black, ſhining ſpot, at the baſe of each petal, from which many beautiful garden ſub-varieties are produced, which have double flowers, white, red bordered with white, and variegated.

The fourth has alſo a few varieties, differing in the colour of the flowers; and it is ſaid that the flower is ſometimes double, but with us it is always ſingle.

Method of Culture.—All the different ſorts may be increaſed by ſeeds, and the two laſt ſorts alſo by parting and planting out the roots.

The ſeeds ſhould be ſown in the autumn, or very early in the ſpring, but the former is the better ſeaſon, either in the places where the plants are to grow, or in beds, to be afterwards planted out. The firſt is probably the beſt method, as theſe plants do not bear removing well.

When they are cultivated for ornament, ſeed of the fineſt double ſorts ſhould be carefully provided and made uſe of, and be ſown in patches.

In the practice of Mr. Ball, in cultivating the firſt ſort for the purpoſe of preparing opium from it, "the ſeed was ſown at the end of February, and again the ſecond week in March, in beds three feet and a half wide, well prepared with good rotten dung, and often turned or ploughed, in order to mix it well, and have it fine, either in ſmall drills, three in each bed, or broadcaſt; in both caſes, thinning out the plants to the diſtance of a foot from each other, when about two inches high, keeping them free from weeds." They produced from four to ten heads each, and ſhewed large flowers of different colours. "With an inſtrument ſomething like a rake, but with three teeth, the drills may be made at once." He found that the plants did not bear tranſplanting; as out of 4000 which he tranſplanted, not one plant came to perfection.

The roots of the two laſt ſorts may be divided in the autumn or ſpring, but the firſt period is the better, leaving ſome root fibres to each parting, planting them out where they are to remain, as ſoon afterwards as poſſible.

In all the ſorts the plants only require afterwards to be kept free from weeds, and thoſe raiſed from ſeed properly thinned out.

They all afford ornament and variety in the clumps, borders, and other parts of pleaſure grounds and gardens; and the firſt ſort may ſometimes be grown to advantage for the purpoſe of having the juice which it affords made into opium.

PAPAVERACEÆ, in *Botany*, a natural order of plants, the 62d in Juſſieu's ſyſtem, the 2d of its 13th claſs. This order owes its name to *Papaver*, the Poppy, the principal, and beſt known, of the genera that compoſe it. For the characters of this 13th claſs, ſee Gerania.

The *Papaveraceæ* are thus defined. *Calyx* moſtly of two leaves, ſoon falling off. *Petals* generally four. *Stamens* either definite or indefinite. *Germen* one; ſtyle often wanting; ſtigma divided. *Fruit* either capſular or ſiliquoſe, for the moſt part of a ſingle cell, and generally with many ſeeds, which are affixed to lateral receptacles, each ſeed half covered with a membranous integument. *Stem* herbaceous, ſcarcely ever ſhrubby. *Leaves* alternate. *Juice* in ſome inſtances coloured. See PAPAVER.

Sect. 1. *Stamens indefinite; their anthers combined with the filaments.* This contains *Sanguinaria, Argemone, Papaver, Glaucium, Chelidonium,* and *Bocconia;* ſee PANKE. Surely *Actæa* and *Podophyllum* more naturally belong to this place, than to the *Ranunculaceæ,* where Juſſieu has placed them.

Sect. 2. *Stamens definite.* This ſection conſiſts of *Hypecoum* and *Fumaria;* to which we would, at the ſuggeſtion of Juſſieu himſelf, add his *Balſamina,* (*Impatiens* of Linnæus,) as more allied, at leaſt to this order, than to his GERANIA; ſee that article

Juſſieu indicates the connection between this order and the *Cruciferæ,* of which *Chelidonium* and *Hypecoum* are the ſlight and obſcure links, they having, like the cruciform plants, four petals and a pod, as well as ſeeds deſtitute of albumen; but differing in having but two leaves to their calyx, and only four ſtamens.

PAPAW. See CARICA.

PAPAW-*Tree* of North America. See ANNONA.

PAPAWS, in *Geography,* a name given in the Weſt Indies to the Negroes of Whidah, or Fida, in Africa. Theſe are unqueſtionably the moſt docile and beſt-diſpoſed ſlaves that are imported from any part of Africa. Without the fierce and ſavage manners of the Koromantyn Negroes, they are alſo happily exempt from the timid and deſponding temper of the Eboes. The cheerful acquieſcence with which theſe people apply to the labours of the field, and their conſtitutional aptitude for ſuch employment, ariſe, without doubt, from the great attention paid to agriculture in their native country. Boſman ſpeaks with rapture of the improved ſtate of the ſoil, the number of villages, and the induſtry, riches, and obliging manners of the natives. He obſerves, however, that they are much greater thieves than thoſe of the Gold Coaſt, and very unlike them in another reſpect, namely, in the dread of pain and the apprehenſion of death. They are, he ſays, ſo very apprehenſive of death, that they are unwilling to hear it mentioned, for fear that alone ſhould haſten their end; and no man dares to ſpeak of death in the preſence of the king or any great man, under the penalty of ſuffering it himſelf, as a puniſhment for his preſumption. He adds, that they are addicted to gaming beyond any people of Africa. Theſe propenſities, it is ſaid, are obſervable in the character of the Papaws in a ſtate of ſlavery in the Weſt Indies. That puniſhment which excites the Koromantyn to rebel, and drives the Eboe negroes to ſuicide, is received by the Papaws as the chaſtiſement of legal authority, to which it is their duty to ſubmit patiently. The caſe ſeems to be, that the generality of theſe people are in a ſtate of abſolute ſlavery in Africa, and having been habituated to a life of labour, they ſubmit to a change of ſituation with little reluctance. Many of the Whidah negroes are found to be circumciſed. Whether it be a religious ceremony common to all the tribes that go under the appellation of Papaws, has not been aſcertained. It is practiſed univerſally by the "Nagoes;" a people that ſpeak the Whidah language; but ſome Negroes on this part of the coaſt diſavow the practice.

PAPAYA, in *Botany,* an Indian name, retained by Tournefort, Plumier, and Juſſieu, for the *Carica* of Linnæus, or Papaw-tree. See CARICA.

PAPAZLI, in *Geography,* a town of European Turkey, in Romania; 12 miles E.S.E. of Filippopoli.

PAPEMBERG, an iſland of Japan, reſembling a mountain, ſurrounded by the ſea. The Dutch ſhips have been accuſtomed to anchor here for wind, when they wiſh to return to Batavia. Its Japaneſe name is "Takaboko," or "Takajama."

PAPENBERG ISLANDS, five ſmall iſlands in the Eaſt Indian ſea. S. lat. 6° 54′. E. long. 131° 58′.

PAPER, a thin flexible leaf, uſually white, artificially prepared of ſome vegetable ſubſtance, chiefly to write upon with ink.

The word is formed from the Greek ϖαπυρος, *papyrus,* the name of an Egyptian plant, called alſo βιϐλος, *biblus,* on which the ancients uſed to write.

Various are the materials on which mankind, in different ages and countries, have contrived to write their ſentiments; as on ſtones, bricks, the leaves of herbs and trees, and their rinds or barks; alſo on tables of wood, wax, and ivory; to which may be added plates of lead, linen rolls, &c. At length the Egyptian papyrus was invented; then parchment, then cotton paper; and, laſtly, the common, or linen paper. Vide Maffei Iſtor. Diplom. lib. ii. § 3. 10. Bibl. Ital. tom. ii. p. 242. Leo Allat. Antiq. Hetruſc. p. 127, ſeq. Hug. de Scrib. Origin. Alex. ab Alexand. lib. ii. cap. 30. Barthol. diſſ. 4. de Libr. Legend. p. 50, ſeq.

In ſome places and ages they have even written on the ſkins of fiſhes; in others on the inteſtines of ſerpents; and in others on the backs of tortoiſes. (Mabill. de Re Diplom. lib. i. cap. 8. Fabric. Biblioth. Nat. cap. 21, &c.) There are few ſorts of plants but have at ſome time been uſed for paper and books: and hence the ſeveral terms, *biblos, codex, liber, folium, tabula, tillura, philura, ſcheda, &c.* which expreſs the ſeveral parts on which they were written: and though in Europe all theſe diſappeared upon their introduction of the papyrus and parchment, yet in ſome other countries the uſe of divers of them obtains to this day. In Ceylon, for inſtance, they write on the leaves of the talipot. And the Bramin MSS. in the Tulinga language, ſent to Oxford from Fort St. George, are written on leaves of the ampana, or palma Malabarica: Hermannus gives an account of a monſtrous palm-tree called *codda pana,* or *palma montana Malabarica,* which, about the thirty-fifth year of its age, riſes to be ſixty or ſeventy feet high, with plicated leaves nearly round, twenty feet broad; with which they commonly cover their houſes; and on which they alſo write; part of one leaf ſufficing to make a moderate book. They write between the folds, making the characters through the outer cuticle. Knox. Hiſt. Ceyl. lib. iii. Le Clerc. Bibl. Univ. tom. xxiii. p. 242. Phil. Tranſ. N° 246. p. 422, ſeq Vide Hort. Ind. Malab. p. 3. Phil. Tranſ. N° 145. p. 108.

In the Maldive iſlands, the natives are ſaid to write on the leaves of a tree called *macaraquean,* which are a fathom and a half long, and about a foot broad. And in divers parts of the Eaſt Indies, the leaves of the muſa arbor, or plantain-tree, dried in the ſun, ſerved for the ſame uſe, till of late that the French have taught them the uſe of European paper. Ray, in fine, enumerates divers kinds of Indian and American trees which bear leaves proper to be uſed as paper; particularly one called *xagua,* which has ſomething in it extraordinary; its leaves are ſo large, and of ſo cloſe a texture, that they cover a man from top to toe, and ſhelter him from the rain, and other inclemencies of the weather, like a cloak: and from the innermoſt ſubſtance of theſe leaves, a paper is taken; being a white and fine membrane like the ſkin of an egg, as large as a ſkin of our vellum or parchment, and nothing inferior for beauty and goodneſs to the beſt of our papers. Vide Savar. D. de Comm. tom. ii. p. 967. Vide Ray Hiſt. Plantar. tom. ii. lib. 32. Nouv. Rep. Let. tom. xii. p. 361.

Paper is chiefly made among us of linen, or hempen rags, beaten to a pulp in water, and moulded into ſquare ſheets, of the thickneſs required. But it may alſo be made of nettles, hay, turnips, parſnips, colewort-leaves, aſbeſtus, or any thing that is fibrous; nay, it may be made of white woollen rags: though this would not ſerve for writing, becauſe of the hairineſs. The Chineſe paper is ſo fine, that many of the Europeans have thought it was made of ſilk; not conſidering, ſays Du Halde, that ſilk cannot be beat into ſuch a paſte, as is neceſſary to make paper: but it is to be obſerved, that the ſame author afterwards ſpeaks of a paper, or parchment, made of the balls of ſilk worms; and the like, we are aſſured by others is done at Cathay. Hought. Collect. N° 360. tom. ii. p. 418, ſeq. Deſcript. of China, p. 360. ſeq. Vide Buſbeq. Legat. Turc. Epiſt. iv. p. 329.

Paper, with regard to the manner of making it, and the materials employed therein, is reducible to divers kinds: as the *Egyptian*, *European*, and *Chineſe paper:* we alſo find mention of *cotton paper*, *bark-paper*, and *aſbeſtine* or *incombuſtible paper*.

Paper, *Egyptian*, is that which was principally uſed among the ancients: it was made of a ruſh called papyrus, or biblus, growing chiefly in Egypt, about the banks of the Nile: though it was alſo found in India; and Guilandinus aſſures us, he ſaw in Chaldæa, at the confluence of the Tigris and Euphrates, large fens, in which, with his own hands he plucked a papyrus differing in nothing from that of the Nile. Strabo likewiſe ſpeaks of a ſort of papyrus growing in Italy; but we do not find this was ever uſed for making paper.

The deſcription given by Pliny of the papyrus, or paper-reed, is ſomewhat obſcure. Its root, according to him, is of the thickneſs of a man's arm, and ten cubits long; from this ariſe a great number of triangular ſtalks ſix or ſeven cubits high, each thick enough to be eaſily ſpanned; its leaves are long like thoſe of the bull-ruſh; its flowers ſtamineous, ranged in cluſters at the extremities of the ſtalks; its roots woody and knotty like thoſe of ruſhes, and its taſte and ſmell near akin to thoſe of the cyperus, under which genus Linnæus has claſſed the papyrus. (See Cyperus.) Vide Plin. Hiſt. Nat. lib. xiii. cap. 11. Vide Theophr. Hiſt. Plant. lib. iv. cap. 9. and Delecamp, who gives us a figure of it, Hiſt. lib. xviii. p. 1883. See alſo Bauhin. lib. xviii. cap. 186, who, with Geſner, makes it a ſpecies of Cyperus. Grew Muſ. Reg. Societ. p. 2. ſect. 2. p. 225, ſeq. Maffei Iſtor. Diplom. Bibl. Ital. tom. ii. p. 246.

Beſides paper, they made ſails, ropes, and other naval rigging; as alſo mats, blankets, clothes, and even ſhips, of the ſtalk of the papyrus. Moſes, we are told, when a child, was expoſed on the banks of the Nile, εν θιϐη ϖαπυρȣ, *i. e.* in a baſket of papyrus. The Egyptian prieſts wore ſhoes of papyrus.

Guilandinus, a Pruſſian phyſician before mentioned, has a celebrated work expreſsly on the ancient papyrus, by way of commentary on three chapters of Pliny, in which is amply, and with great learning, explained all that relates to this ſubject; yet Scaliger has written a ſevere critique on it, in which ſome inaccuracies of Guilandinus are pointed out; but this has not hindered Kirchmayer from adopting almoſt Guilandinus's whole book in his diſſertation on the papyrus. Add, that the moſt ingenious and learned count Scipio Maffei has lately vindicated Guilandinus againſt the exceptions of Scaliger, as well as of Voſſius and Hardouin. (Vide Iſtor. Diplomat. lib. ii. Bibl. Ital. tom. ii. p. 248. Melch. Guilandini Papyrus, h. e. Commentarius in tria C. Plinii Majoris de Papyro capita, ſc. lib. xiii. cap. 11, 12, 13, firſt publiſhed at Venice in 1572, and afterwards at Amberg, in 1613, by Salmuth.) It ſeems, Guilandinus intended a commentary on the whole of Pliny's Natural Hiſtory; but this ſmall part, not exceeding a moderate page, taking him up full ſix months, it is no wonder he was diſcouraged from proceeding with the reſt. In theſe three chapters he has reſtored about twenty paſſages in the text of Pliny, not merely from his own conjecture, or the help of MSS. but from the nature of the things deſcribed, and the teſtimonies of authors of the firſt rank: beſides that, he had been upon the ſpot, where formerly the papyrus was manufactured, and had carefully examined all the ancient Greek and Latin authors who ſpeak of it.

Joſ. Juſt. Scaligeri Animadverſiones in Melchioris Guilandini Commentarium in tria C. Plinii capita, lib. xiii. Hiſtoriæ Mundi ſive Naturalis, quibus agit de Papyro, firſt publiſhed in the Lectiones Bibliothecariæ Memorabiles, of Rudolphus Capellus, at Hamburgh, in 1682, where he follows Guilandinus ſtep by ſtep, finds as many faults in him as his father had done in Cardan, and uſes him altogether as coarſely; every where pointing out his literary miſtakes, and labouring to ſhew, that inſtead of reſtoring Pliny, he has often miſtaken and corrupted him. M. Seb. Kirchmaieri Uffenhaimenſis Franci Diſſertatio Philologica de Papyro veterum, Wittebergæ 1666, 4to.

He had done better ſervice, if, beſides Guilandinus, he had conſulted others, and particularly Scaliger. But as he choſe to follow one rather than many, and that too as the blind follow their guides, his fate has been much the ſame.

The origin of the art of making paper of the papyrus is very obſcure; no doubt it was firſt diſcovered in Egypt. Iſidore fixes it more particularly to the city Memphis, Orig. lib. vi. cap. 10. in which he ſeems to be countenanced by Lucan, where he ſays,

> "Nondum flumineas Memphis contexere biblos
> Noverat——" Pharſal. lib. iii. v. 222.

The era of this invention is warmly diſputed: Varro, the moſt learned of the Romans, fixed it to the time of Alexander the Great, after the building of the city of Alexandria by that conqueror; but ſeveral objections, of no ſmall weight, are brought againſt this deciſion. Pliny recites a paſſage out of a very ancient annaliſt, one Caſſius Hemina, wherein mention is made of paper books found in Numa's tomb, five hundred and thirty-five years after his death, which had been buried with him: now Numa was prior to Alexander by above three hundred years. Guilandinus, in effect, maintains, with great erudition, that the name and uſe of the papyrus were known to the Greeks long before Alexander conquered Egypt; and that the words βιϐλος, and βιϐλιον occur in their received ſignification in authors prior to, or at leaſt older than, Alexander: particularly Anacreon, Alcæus, Plato the comedian, Ariſtomenes, Cartinus, Antiphanes, Plato the philoſopher, Æſchylus, and Ariſtotle. And whereas ſome ſpeak of a kind of unknown pſeudo-biblos, in uſe before the diſcovery of the true ſort, he argues, on the contrary, that the biblos mentioned by thoſe authors, prior to the conqueſt of Alexander, appears from Herodotus, Theophraſtus, and others, to be the very ſame plant with the biblus, or papyrus, of which paper was afterwards made: even Homer and Heſiod, the moſt ancient Greek poets, and who by Herodotus's teſtimony lived about four hundred years before himſelf, appear to have been no ſtrangers to the papyrus, ſince they both make expreſs mention of it. Vide Plin. lib. xiii. cap. 13. Guiland. Papyr. Membr. 2. Reim. Idea Syſt. Antiq. Liter. p. 285, ſeq. Kirchman Diſſ. de Papyr. art. 11. ſect. 2.

To this it may be anſwered, that ſuppoſing the plant papyrus known in Greece long before Alexander's conqueſt of Egypt; it no more follows, that they had then the uſe of paper; than it follows, that men had wine immediately on the diſcovery of the vine

In reality, Guilandinus produces teſtimonies, from Anacreon and Alcæus, in which the papyrus is employed for binding, and not for paper; add, that he ill tranſlates τυ φρεαλυχνον, *ellychnium;* ſince λυχνον here is the torch itſelf. Nor does the poet ſay it was made of papyrus, but tied up with it. Vide Scalig. lib. cit. Reimm. ubi ſupra, p. 305. ſeq.

Some have even doubted whether the art of manufacturing the papyrus was ſo ancient as Alexander's time; chiefly on this ground, that, for two hundred years after Alexander, men wrote on ſkins, and on the barks of trees: but this is nowiſe concluſive The ſcarcity of the new manufacture may account for it: for ſome ages afterwards, even as low as Tiberius, we read of ſuch a ſcarcity of paper, that its uſe, even in contracts, was diſpenſed with by a decree of the ſenate, and the opinion of the judges. The ſame conſideration may be carried farther: paper might have been known in Egypt, Judæa, Syria, and Aſia on this ſide Taurus, long before the birth of Alexander, though not in common uſe; but it might be later before the Europeans received it; and probably it was by means of Alexander's conqueſt that it firſt became publicly known there.

When the manufacture of the Egyptian paper ceaſed, is another queſtion; for, at preſent, the *papyrotechnia Ægyptiaca* may be reckoned among thoſe arts that are loſt. Euſtathius, the learned commentator on Homer, teſtifies, that even in his time, *viz.* in 1170, it was diſuſed: Mabillon, indeed, maintains, that it continued till the eleventh century after Chriſt; and cites one Fridegod, a monkiſh poet of the tenth century, as ſpeaking of it as ſubſiſting in the age before his, that is in the ninth; and that it continued longer, the ſame Mabillon endeavours to evince, from ſeveral papal bulls wrote on it as low as the eleventh century. Vide Euſtath. ad Homer. Odyſſ. φ. Voſſ. de Art. Gram. lib. i. c. 37. Vide Mabill. De Re Diplomat. lib. i. cap. viii. ſect. 6. ſeq. Reim. Idea Syſt. Antiq. Liter. p. 311.

Maffei, on the other hand, maintains, with more probability, that the papyrus was generally diſuſed before the fifth century; for that we find no authentic records, written on it, dated ſince that time; thoſe bulls of popes, cited by Mabillon, appearing rather to be written on cotton paper. But this, we may obſerve, relates only to the general and legal uſe of the papyrus. For that it ſhould have continued to be made by particular perſons ſeveral hundred years after it firſt began to give way, is not to be wondered at. Vide Maffei Iſtor. Diplomat. loc. cit. Bibl. Ital. tom. ii. p. 251.

In reality, a more commodious ſort of paper, made of cotton, having been invented ſome ages before in the Eaſt, and coming to be introduced into Europe, ſeems to have brought the papyrus into diſuſe. To which the continual wars with the Saracens, by which the traffic to Alexandria was rendered precarious, might poſſibly not a little contribute.

Yet ſeveral books, written on leaves of the papyrus, have even continued to our days: Mabillon ſays, he had one of them; and adds, that there was another in the Petavian library, being a volume in ſmall folio, containing ſeveral ſermons of St. Auguſtine; he alſo mentions a third, containing that father's epiſtles, formerly belonging to the church of Narbonne, and afterwards in the cuſtody of madame De Phirmacon; beſides the homilies of Avitus, biſhop of Vienne, and divers diplomas or charters, all written on the papyrus, which appear not to be leſs than eleven hundred years old. But the deciſions of this learned father concerning MSS., notwithſtanding all his diplomatic ſkill ſo highly boaſted of, are not always infallible; witneſs his taking the MS. of St. Mark's Goſpel, at Venice, to be written on the Egyptian papyrus; and that of Joſephus, at Milan, not to be ſo. Maffei ſhews, on the contrary, that the former is cotton paper; and that the latter appears, at firſt ſight, to be Egyptian; not but the Venetian MS. is very old; but it has been ſo much uſed, that its leaves are, as it were, transformed into the original paſte from whence they are made. Vide Mabill. Suppl. ad Libr. de Re Diplomat. Journ. des Sçav. tom. xxxii. p. ii. p. 992. Maffei, lib. cit. Bibl. tom. ii. p. 252. And Montfaucon. Paleog. Græc. p. 14.

Paper, *Manner of making the Egyptian.* They began with lopping off the two extremes of the papyrus, *viz.* the head and root, as of no uſe in this manufacture; the remaining ſtem they ſlit lengthwiſe into two equal parts, and from each of theſe they ſtripped the thin ſcaly coats or pellicles, of which it was compoſed, with the point of a penknife. The innermoſt of thoſe pellicles were looked on as the beſt, and thoſe neareſt the rind or bark the worſt; they were kept apart accordingly, and conſtituted different ſorts of paper.

Theſe pellicles are called, in Pliny, by twelve different names; *viz. philura, ramentum, ſcheda, cutis, plagula, corium, tænia, ſubtegmen, ſtatumen, pagina, tabula,* and *papyrus.*

The generality of critics, in lieu of a pen-knife, employ a needle to ſeparate the pellicles; in which they are warranted by the common text of Pliny, "Præparantur ex eo chartæ, diviſo acu in prætenues, ſed quam latiſſimas philuras." But Guilandinus makes a correction here: he had found, by experiment, that the pellicles of papyrus cannot be ſeparated by a needle; but that a very ſharp knife is required; for which reaſon, inſtead of *diviſo acu,* he reads *diviſo ſcapo.* In which he is followed by Maffei, though Hardouin, Voſſius, Pitiſcus, and others, retain the ancient reading. Vide Guiland. Papyr. Membr. 10. ſect. 3. and 5. Maffei Iſtor. Diplom. ap. Bibl. Ital. tom. ii. p. 247, ſeq. Voſſ De Art. Grammat. lib. i. cap. 37. Pitiſc. L. Ant. tom. i. p. 413. voc. Charta. Hardou. ad Plin. lib. xiii. cap. 12.

As the pellicles were taken off, they extended them on a table; then two or more of them were laid over each other tranſverſely, ſo as that their fibres made right angles: in this ſtate they were glued together by the muddy waters of the Nile. Theſe, being afterwards preſſed to get out the water, then dried and laſtly flatted and ſmoothed by beating them with a mallet, conſtituted paper: which they ſometimes poliſhed farther by rubbing it with an hemiſphere of glaſs or the like.

In other countries where the waters of the Nile were not to be had, the pellicles were faſtened together with a paſte made of the fineſt wheat-flour, mixed with hot water, and a ſprinkling of vinegar.

The ingenious and learned count de Caylus, in his account of the papyrus, informs us, that the intermediate part of the ſtalk was cut and ſeparated into different laminæ, which were ſet apart, and dried in the ſun for the manufacture. Theſe laminæ were joined together horizontally or tranſverſely, in ſheets or leaves, upon a ſmooth board: then moiſtened with water, which diſſolved a kind of viſcous glue in the pores of the plant, ſerving to cement and render the whole uniform. The ſheet, being thus formed, was put into a preſs, and afterwards dried for uſe. Such, he ſays, was the proceſs of making paper in Egypt; but as the ſheets were coarſe, brown, unequal, and imperfect, the Romans invented methods to bring the fabric to perfection. They contrived a glue or gum, by means of which they could occaſionally enlarge the ſize and volume. They bleached it to a ſurpriſing degree of whiteneſs; they beat it with hammers, ſo as to render it more thin and leſs porous; they ſmoothed and poliſhed it with ivory; and by a ſort of calender gave it a ſhining gloſs, like that of the Chineſe paper. According to the different degrees of delicacy, whiteneſs, and ſize, it acquired different appellations either from the names of particular manufactures, from the great perſonages who uſed it, or from the particular uſes to which it was applied; ſuch as the Fannian, the Livian, the Claudian, the Imperial, the Hieratic and the Amphitheatric.

There were paper manufactures in divers cities of Egypt; but the greateſt and moſt celebrated was that at Alexandria, where, according to Varro's account, paper was firſt made. It is certain at leaſt it was from hence that Greece and Italy was furniſhed, on account of the convenient ſituation of that port; and it is more than probable it was this that gave the Romans occaſion to conclude the art had been invented there. It was not till late, when Egypt was reduced into a Roman province, that they had much intercourſe, or even knowledge of the inland cities of Egypt, where paper was alſo made. The trade and conſumption of this commodity were in reality incredible. Vopiſcus relates, that the tyrant Firmus, who rebelled in Egypt, publicly declared he would maintain an army only with paper and glue, "papyro & glutine." This, Caſaubon underſtands as ſpoken of the produce and revenue of paper; though Salmaſius takes it to be meant of the papyrus itſelf, which could ſupply moſt of the neceſſaries of life. Vide Montfauc. Palæogr. Græc. lib. i. cap. 2. p. 14.

We find divers ſpecies of Egyptian paper mentioned in ancient writers: ſome denominated from the places where they were manufactured; as 1. The *Amphitheatrica*, ſuppoſed to have been made in ſome building belonging to an amphitheatre at Alexandria; though Guilandinus, with more probability, reads it *Arthribitica*, from Arthribus, a city in the middle of the Delta, which was the place of its manufacture. What countenances this correction, is, that we find mention of this paper before there was ſo much as an amphitheatre at Rome, much leſs at Alexandria. 2. *Saitica*, made in the city Sais. 3. *Tæniotica*, or, according to others, *Taitica*, whoſe place authors are not agreed on. There were alſo other ſorts denominated from the makers; as 1. The *Fanniana*, from the grammarian Rhem. Fannius Palæmon, who kept a paper work. This kind was ſmall, but finer than the Amphitheatrical paper; being firſt wrought at Alexandria, and afterwards finiſhed at Rome. 2. *Claudia*, firſt made by order of the emperor Claudius. This was reputed the beſt of all, in that, beſides the two pellicles, in common with the reſt, it had a third. Others were denominated from the uſes they were intended for; as, 1. *Hieratica*, the firſt or oldeſt ſort, which was appropriated to religious uſes; this was afterwards denominated *Auguſta* and *Liviana*, in compliment to the emperor of that name, and his wife; who, according to ſome, improved and made it whiter than before. 2. *Emporetica*, or *Emporica*, a ſmall and coarſe ſort, ſerving for ſhopkeepers uſes, to tie up goods, &c. The qualities for which the ancient papers were prized, were their thinneſs, cloſeneſs, whiteneſs, and ſmoothneſs; though their breadth alſo conſiderably enhanced their value. That ſort called *charta Claudia* was thirteen inches wide; the *Hieratica*, eleven; the *Fanniana*, ten; and the *Amphitheatrica*, nine; as to the *Saitica*, it exceeded not the diameter of the mallet it was beaten with.

See farther concerning the ancient paper, in Nigriſoli Diſſ. de Charta, ejuſque Uſu apud Antiquos. Ext. in Galer. de Minerv. tom. iii. p. 249, ſeq. Other authors are enumerated in Fabric. Bibl. Antiq. cap. xxi. ſect. 9. p. 609. Pitſc. L. Ant. loc. cit.

Paper, *Bark*, if it may be ſo called, was only the *liber*, or inner whitiſh rind encloſed between the outer bark and the wood of divers trees, as the maple, plane, beech, and elm, but eſpecially the *tilia*, φιλυρα, or *linden-tree*, which was that moſtly uſed for this purpoſe. On this, ſtripped off, flatted, and dried, the ancients wrote books; ſeveral of which are ſaid to be ſtill extant. Vide Plin. Hiſt. Nat. lib. xiii. cap. 11. Hardou. Not. ad eund. Suid. Lex. in voc. φιλυρα. Iſid. Orig. lib. vi. cap. 13. Alexand. ab. Alexand. lib. ii. cap. 30. Salmuth. ad Pancirol. lib. ii. tit. 13. p. 252, ſeq.

Mabillon and Montfaucon ſpeak frequently of manuſcripts and diplomas on bark, and are very expreſs in diſtinguiſhing between the papyrus uſed by the Egyptians, and the liber or bark in uſe in other countries. The two are alleged to differ in this, that the bark paper was thicker and more brittle than the papyrus, as well as more apt to cleave or ſhiver, by which the writing was ſometimes loſt; as is the caſe in a bark manuſcript in the abbey of St. Germain's, where the bottom of the paper remains, but the outer ſurface, on which the letters had been drawn, is in many places peeled off. Vide Montfauc. Palæogr. Gr. lib. i. cap. 2. p. 15. Mabill. de Re Diplom. lib. i. cap. 8. Reimm. Idea Syſt. Antiq. Liter. p. 311.

But Maffei, it muſt not be forgot, combats the whole ſyſtem of bark manuſcripts and charters as a popular error; and maintains, that the ancients never wrote diplomas on bark; that the diſtinction between the papers made of papyrus and of cortex, is without foundation; that the only uſe of the tilia, or linden, was for making thin boards or tablets for diptycha or pocket-books, wherein they wrote on both ſides, as is done among us: an advantage which they could not have in the Egyptian paper, by reaſon of its thinneſs.

A late French writer on the rules of criticiſm wanders ſtill farther out of the way, when he ſpeaks of a ſort of paper, in Egypt, made of the pith of the cyprus: he deſcribes the manner of preparation, which was by reducing this pith to a pulp, and then ſpreading it out in leaves. Vide Hon. St. Marie Reflex. ſur les Regl. de la Crit. tom. ii. diſſ. 77. This we ſuſpect for a chimera hatched only in the critic's brain.

Not but there occur divers anomalous ſorts of paper, which antiquaries are not a little puzzled what ſpecies to refer them to; ſuch is that of two bulls in the archives of the church of Gironne, iſſued by the anti-popes Romanus and Formoſus, between the years 891 and 895. They are two ells long and one broad; and conſiſt of two leaves or pellicles glued together tranſverſely, and are ſtill legible in moſt places. The conjectures of the French literati, in regard to theſe, are numerous; the abbot Hiraut de Belmont has a diſcourſe expreſs on the occaſion. Some will have them made of the leaves of the *alga*, or ſea-wreck; others of the leaves of a ruſh, called *la boga*, growing in the marſhes of Rouſillon; others of papyrus; others of cotton; and others of bark. So little certainty does there really appear to be in theſe things, on which the critics nevertheleſs often lay a great ſtreſs. Vide Mem. de Trev. Sept. 1711. p. 1559, ſeq.

Paper, *Cotton*, *charta bombycina*, βομβυκινη (thus called from βομβυξ, a word which anciently ſignified *ſilk*, though in after-times βομβυξ and βαμβυξ came to denote *cotton*), is a ſort of paper which has been in uſe upwards of ſeven hundred years ago, as is ſhewn by Montfaucon from ſeveral authorities; what is more, cotton paper appears to have been very common at the beginning of that time, and conſequently muſt have been invented long before, probably about the cloſe of the ninth, or the beginning of the tenth century.

In the French king's library are MSS. on this paper, which, by the character, and other circumſtances, appear to be of the tenth century. Be this as it will, from the twelfth century, cotton MSS. were more frequent than parchment ones. Vide Montfauc. Palægr. Græc. lib. i. cap. 2. p. 17, ſeq item, lib. iv. cap. 6. p. 209. Maffei, lib. cit. Bibl. Ital. tom. ii. p. 252.

Paper, *Incombuſtible*, is made of the lapis aſbeſtos, or linum vivum, which will bear burning without being injured.

Dr. Bruckman, profeſſor at Brunſwick, has publiſhed a natural hiſtory of the aſbeſtine, or incombuſtible paper; and, what is moſt remarkable, has printed four copies of his book on this paper: they are depoſited in the library of Wolfembuttel. Vide Bibl. Germ. tom. xiv. p. 190.

The manner of making this extraordinary paper is deſcribed by Mr. Lloyd, from an eſſay made by himſelf. He pounded a quantity of the aſbeſtos in a ſtone mortar, till it became a downy ſubſtance; then ſifted it in a fine ſearce, and by this means purged it indifferently well from its terrene parts; becauſe the earth or ſtones he could not pick out of it before, or at the pounding, being reduced to a powder, came through the ſearce, the linum remaining. This done, he brought it to the paper-mill; and putting it in water, in a veſſel juſt big enough to make a ſheet with ſuch a quantity, he ſtirred it pretty much, and deſired the workmen to proceed with it in the uſual method, with their writing-paper mou'd; only to ſtir it about always before they put their mould in; conſidering it as a far more ponderous ſubſtance than what they uſed; and that conſequently, if not immediately taken up after it was agitated, it would ſubſide.

The paper made of it proved but coarſe, and was very apt to tear; but this being the firſt trial, there is reaſon to believe it might be much improved; nor did the workmen doubt, but in caſe it were pounded in one of their mortars, for twenty hours ſpace, it would make good writing-paper. Vide Phil. Tranſ. N° 166. p. 824. See Asbestos.

Paper, *Linen* or *European*, is chiefly made of linen rags beaten to a pulp with great hammers, and the ſoil carried off by a continual ſupply of freſh water, conveyed among the pulp in little troughs, till it be rendered perfectly white.

Beſides the chief uſe of this paper, which is for writing and printing, there is a great conſumption of it in packing up goods, and on other occaſions.

The manufacture of paper has got footing in moſt countries; though France, Holland, and Genoa, are the places where it has ſucceeded beſt. In the general it depends much on the quality of the linen worn in the country where it is made; where that is coarſe and brown, &c. the rags, and conſequently the paper made of them, muſt be ſo too. Hence the whiteneſs of the Dutch and Flemiſh papers, beyond the Italian and French, and much more the German papers. The Engliſh manufacture was a long while in no great reputation; but it is every day improving; inſomuch that we now import little of the ordinary ſorts, which were formerly all brought from abroad. Yet paper-mills are of ſome ſtanding among us. We find one erected at Dartford as early as the year 1588, which we believe was the firſt, and which is celebrated by a noted poet of that age, Tho. Churchyard, in a work in verſe, intitled "A Deſcription and Diſcourſe of Paper, and the Benefits it brings; with the ſetting forth of a Paper-mill, built near Dartford, by a High-German, called Mr. Spilman, Jeweller to the Queen, Lond. 1588. 4to."

In reality, the deficiency of the Engliſh paper manufacture did not ſeem owing ſo much to the quality of our rags, as to the want of ſkill and attention in the makers; but the manufacture of paper has been very conſiderably encouraged in our country, and has already arrived to a great degree of perfection.

Anderſon, in his Hiſt. of Com. vol. ii. p. 197. ſays, that till about the year 1690, there was ſcarcely any other kind of paper made in England, but the coarſe brown ſort. But the war with France occaſioning high duties on foreign paper, the French Proteſtant refugees ſettled in England chiefly, and alſo our own paper-makers now began to make white writing and printing paper, which, he adds, in length of time, has been brought to ſo great perfection, both for beauty and ſubſtance, that in our own time we import only certain kinds of Genoa and Dutch paper, which bears but a very ſmall proportion to all the paper uſed in the Britiſh dominions. This has produced, it is ſaid, a ſaving to Britain of 100,000*l.* which was paid annually to France for paper only.

Another writer ſays, that the Engliſh manufactures now provide above ſeven-eighths of the whole quantity of paper conſumed in Great Britain.

When and by whom linen paper was invented is a ſecret, which Polydore Virgil owns he could never trace. Scaliger will have it to have been found out by the Germans. Maffei affirms it certain, that the invention is owing to the Italians Others aſcribe it to ſome refugee Greeks at Baſil, who took the hint from the manner of making cotton paper in their own country. Conringius takes the Arabs to have firſt brought it among us. Perhaps the Chineſe have the beſt title to the invention; who for many ages have made paper much after the ſame manner; and even, in ſome provinces, of the ſame materials, *viz.* hemp, &c. Vide Polyd. Virg. de Inventor. Rer. lib. ii. cap. 8. Secund. Scaliger. p. 7. Fabric. Bibl. Antiq. cap. 9. ſect. 21. Iſtor. Diplom. lib. ii. Bibl. Ital. tom. ii. p. 253. Phil. Tranſ. N 288. p. 1515. Conring. Epiſt. ap. Act. Erud. Lipſ. an. 1720. p. 94. Savar. D. Comm. tom. ii. p. 963. Du Hald. Deſcr. Chin. tom. i. p. 363.

Linen paper appears to have been firſt introduced among us towards the beginning of the fourteenth century.—The learned Conringius denies, that there are many manuſcripts of this paper above four hundred years old; with whom agrees the count Maffei, who finds no marks of its uſe before the year 1300. Vide Conring. Epiſt. ap. Act. Erud. Lipſ. an. 1720. p. 94. Maffei Iſtor. Diplom. lib. ii. Bibl. Ital. tom. ii. p. 253.

Some indeed go much farther back; and take the *libri lintei* mentioned by Livy, and other Roman writers, to have been written on linen paper; but Guilandinus, and after him Allatius, and others, have ſufficiently refuted this notion; and ſhewn, that the *libri lintei* were written on actual pieces of linen cloth, or canvas, prepared for this purpoſe, ſuch as painters ſtill uſe; and not on paper made of linen rags. Vide Liv. Dec. 1. lib. iv. Plin. Hiſt. Nat. lib. xiii. cap. 11. Piſc. L. Ant. tom. ii. p. 85. Guiland. Papyr. Memb. 25. Salmuth. ad Pancirol. lib. ii. tit. 13. p. 253.

Others run into the contrary extreme, and make paper the invention of a very late date. The Jesuit Inchofer dates its origin about three hundred years ago; with whom agrees Milius, in his "Hortus Philoſophicus," who maintains, that the art of making paper was not invented till about the year 1470. Of the ſame opinion ſeems Ray, who tells us the art of making this paper was not known in Guernſey till the year 1470, and when two perſons, named Anthony and Michael, firſt brought it to Baſil, out of Galicia in Spain. In effect, if the invention be owing to the refugee Greeks at Baſil, who fled thither after the ſacking of Conſtantinople, it muſt at leaſt be poſterior to the year 1452, when that city was taken. Some add a farther argument for the novelty of paper, drawn from the novelty of hempen cloth, which Rabelais, who died in 1553, mentions as firſt found out about a hundred years before him; and which was ſo ſcarce in the time of Charles VII. of France, who died in 1461, that the queen, his wife, was the only woman in France that had a couple of ſhifts of it. Vide Mabill. de Re Diplom. lib. i. cap. 8. Reimm. Idea Syſt. Antiq. Liter. p. 313, ſeq. Balbin. Miſcell. Hiſt. Bohem. cap. 22. Act. Erud. Lipſ. 1682. p. 243. Ray Hiſt. Plant. lib. xxii. Phil. Tranſ. N° 288. p. 1515. Naudæan. p. 82. Nouv. Rep. Let. tom. xxvi. p. 571.

But theſe ſuggeſtions are refuted by Mabillon, from the teſtimonies of writers prior to the time here ſpoken of, and from many manuſcripts of about four hundred years old, which are written on linen-paper. The Jeſuit Balbinus produces divers inſtances of paper manuſcripts, written before the year 1340. An ingenious writer of our own country aſſures us, he had a piece of paper which agreed well with the charter dated in 1358, in the thirty-ſecond year of Edward III. He adds, that in the archives of the library belonging to the dean and chapter of Canterbury, is an inventory of the goods of Henry, prior of Chriſt-church, who died in 1340, written on paper; and that in the Cotton Library there are ſeveral writings on our paper, in the times of moſt of our kings and queens, as high as the fifteenth of Edw. III. which coincides with the year 1335. And Dr. Prideaux aſſures us he has ſeen a regiſtration of ſome acts of John Cranden, prior of Ely, made on paper, which bears date in the fourteenth year of king Edward II. that is, anno Domini, 1320. Mabill. loc. cit. Balbin. lib. cit. Phil Tranſ. N° 288. p. 1515. Prid. Connect. p. 1. l. 7. p. 710.

Add, that the invention of paper may appear more modern than it is, becauſe records were not uſed to be written on it, but it was a conſiderable time confined to letters, and other fugacious compoſitions; which is ſo true, that, to this day, few inſtruments of any conſequence are written on it, though it have been ſo long in uſe. It is even alleged, that Peter, the venerable abbot of Cluny, who died in 1157, has a paſſage in his book againſt the Jews, which plainly indicates paper books to have been then known; on the authority of which Valeſius, in his notes on the panegyric of Berengarius Auguſtus, ſcruples not to make paper upwards of 500 years old.

Father Hardouin aſſures us, he had ſeen records or diplomas on it prior to the 13th century. But this will hardly be credited. Count Maffei aſſures us, that in all his reſearches he could never meet with one more ancient than the year 1367. It is highly probable the learned Jeſuit miſtook a cotton manuſcript for a linen one: a miſtake eaſily made, as the chief difference between the two conſiſts in the greater thinneſs of the linen paper. But it is known we have linen papers of very different degrees of thickneſs; and the like may be ſaid of thoſe of cotton. Vide Maffei Iſtor. Diplom. lib. ii. Bibl. Ital. tom. ii. p. 253, ſeq.

The invention, according to Prideaux, ſeems to have been brought from the Eaſt; becauſe moſt of the old manuſcripts, in Arabic, and other Oriental languages, are written on this ſort of paper; ſome of which are certainly much older than any of the dates above-mentioned. This author thinks it moſt probable, that the Saracens of Spain firſt brought it out of the Eaſt into that country; from whence it was propagated through the reſt of Europe.

Paper-*Making*. Nature preſents us, as we have already obſerved, with a variety of ſubſtances from which paper may be made, as linen or hempen rags, the ſtalks of nettles, ſtraw, hay, and the down of thiſtles. It may be alſo made of cotton, or white woollen rags, though ſuch paper would not ſerve for writing, becauſe of its hairineſs. Of all theſe ſubſtances, linen or hempen rags alone are employed by the manufacturers, except a ſmall quantity of cotton rags, which are ſometimes mixed with the linen for inferior purpoſes.

The chief proceſs of making paper conſiſts in ſeparating the fibres of the rags, by grinding, into exceedingly fine and ſhort filaments; which being mixed with water, till they make a fine pulp, may be taken up in a very thin and even layer upon a mould of wire cloth. Now by the draining away of the water through the wire, the filaments are left, interwoven or felted ſo completely among each other, that they will not ſeparate without breaking, and when dry will make a ſheet of paper; the ſtrength and quality of which depend very much upon the materials it is made from, and the equality of length and ſize to which the filaments are reduced by the grinding, which equality alone can cauſe them to float equally in the water of the pulp, and thus diſtribute themſelves fairly and equally over the wire mould when taken up by it. For writing paper, a fine white colour is neceſſary, and this is obtained either by uſing the whiteſt rags by themſelves, or by a chemical proceſs of bleaching.

The incalculable advantages which the moderns have derived from the art of printing, would have been only imperfectly known, but for the invention of linen rag paper. A more plentiful and economical ſubſtance could not be conceived than the tattered remnants of our cloths, linen worn out, and otherwiſe incapable of being applied to the leaſt uſe, and of which the quantity every day increaſes: nor could a more ready operation be imagined, than a few hours trituation in a mill. It has been obſerved by a French writer, that the diſpatch of the proceſſes of paper making is ſo great, that five workmen in a mill may furniſh ſufficient paper for the continual labour of 3000 tranſcribers.

The art of printing would have been comparatively of little importance, without having the means of procuring a proper material to receive the impreſſions. Whilſt the Egyptian papyrus was the only kind of paper, it would have been impoſſible to have procured it in ſufficient quantities to have made large editions of books. The cotton paper, though in a progreſſive ſtage of improvement, was but a rude and periſhable article, unfit for any of the nice purpoſes to which paper is now applied.

The perfection of the art of paper-making depended upon finding a material which could be procured in ſufficient quantities, and which would be eaſy of preparation. Such is the paper now in uſe, of which we ſhall endeavour to deſcribe the manufacture.

The operation of paper making admits of three diviſions, *viz.* the preparation of the rags, the forming of the ſheets, and the finiſhing of the paper. The ſucceſſion of the ſeveral proceſſes is as follows: 1. The rags are waſhed, or duſted, if they are dirty; then ſorted into many qualities proper for different purpoſes. 2. The rags are bleached, to render them white; but this operation is ſometimes deferred to the next ſtage of the proceſs. 3. The waſhing engine of the paper mill is employed to grind the rags, in water, till they are reduced to a coarſe or imperfect pulp, called *half ſtuff*, or *firſt ſtuff*, in which ſtate the bleaching is ſometimes performed; or at other times it is bleached in the waſhing engine during the grinding. 4. The *half ſtuff* is again ground in the beating engine, and water added in ſufficient quantity to make a fine pulp, which being conveyed to the vat, the preparation of the rags is completed, and the pulp or ſtuff is ready for making the ſheets. 5. This is done by a workman who takes up a quantity of pulp upon a mould of fine wire cloth, through which the water drains away, and the pulp coagulates into a ſheet of paper. 6. Another workman takes the ſheet of paper off from the wire mould, and receives it upon a felt; he then covers it over with a ſecond felt, evenly ſpread out; and continues this operation, which is called *couching*, till he has made a pile of ſheets called a *poſt*, containing ſix quires. 7. The poſt of paper, with the felts, is placed in the *vat-preſs*, and the whole is ſubjected to a ſtrong preſſure, to preſs out the ſuperfluous water, and give the paper a ſolidity and firmneſs it would not otherwiſe have. 8. The pile of paper is removed from the vat-preſs, the felts taken out from between the ſheets, and they are preſſed again by themſelves, for a certain time, in a ſcrew preſs. 9. The ſheets are taken from the preſs, and hung up, five or ſix together, on lines in the drying loft, till dry. The paper is now made, and only requires to be finiſhed; but it ſhould be obſerved, that the greater number of the proceſſes of finiſhing are only performed upon fine writing paper, common printing paper being ready for packing up when dried. 10. The paper, in five or ſix ſheets together, is dipped into a tub of fine ſize, and afterwards preſſed to force out the ſuperfluity; it is then dried again in the drying loft: but in printing papers this proceſs is rendered unneceſſary, by ſizing the ſtuff whilſt in the engine, and adding certain ingredients. 11. An examination of each individual ſheet of the paper is made, all knots and burrs are removed, and the bad ſheets taken out. 12. A very large pile of paper is made, and preſſed with a moſt immenſe force, to render the ſheets flat and ſmooth. 13. The pile is taken down, ſheet by ſheet, and another made, without turning the ſheets over: by this means new ſurfaces of the ſheets are brought in contact with each other, and the pile being again ſubjected to the preſs, the ſurface of the paper is improved. This operation is called *parting*, and is repeated two or three times for the beſt papers. The paper is now counted into quires, folded and packed up into reams for market.

The ſtrength and tenacity of paper depend upon the ſtaple or fibre of the materials from which it is made. Rags of new cloth, and cordage, compoſe a tougher and ſtronger paper than old rags, which make a ſoft and pliable paper. The firſt of theſe materials preſents a great variety, on account of the quality of the hemp or flax of which it is fabricated. Rags of fine new cloth, whether raw or bleached, ſtand in the firſt rank, after which old rags, cordage, &c. may be claſſed.

The ſorting of the rags is of no ſmall importance in the art of making paper; for unleſs the rags, which are ground at the ſame time in the engine, are all of the ſame quality, both as to ſubſtance and condition, the fineſt and beſt parts will be ground away in the mill, and carried off by the water before the coarſer are ſufficiently reduced to make a fine pulp. For this reaſon, in the ſorting of the rags which are intended to make fine paper, the hems and ſeams ſhould be kept apart, and the coarſeneſs of the cloth ſhould be conſidered. That cloth which is made of tow, ſhould be ſeparated from that which is made from the longer fibres; cloth of hemp from cloth of flax; and laſtly, the degree of wearing in the cloth ſhould be attended to. For if rags, almoſt new, are mixed with thoſe which are much worn, the one will not be completely reduced to a pulp, whilſt the other will be ſo attenuated as to be carried off by the water, and paſs through the hair ſtrainers of the engine; hence there muſt be a conſiderable waſte in the operation, a real loſs to the manufacturer, and even to the beauty of the paper; for the particles firſt carried off by the current of the water, are perhaps thoſe which give it that ſmooth velvet ſoftneſs which is ſo great a recommendation. When the ſorting is imperfectly performed, the pulp or ſtuff is found to have cloudy parts floating in it, owing to ſome maſſes being leſs reduced than others. This produces thoſe cloudy papers wherein are ſeen by intervals parts more or leſs clear, and more or leſs weak, occaſioned by flakes aſſembled on the wire of the mould, which are not ſufficiently tempered and diluted to incorporate with more fluid parts.

But as it is neceſſary, in many caſes, to mix the different qualities of rags together, to produce various kinds of paper, this ſhould be done by reducing the different ſorts of rags ſeparately in the mill, as alſo the hems and threads of the ſtitching, becauſe the ſewing thread, being never ſo much worn as that of the cloth, and not ſo eaſy to be reduced, forms filaments in the paper. When the rags, unequally diſpoſed for trituration, have been ground apart, the different pulps may be mixed together without inconvenience, and will be found homogeneous or alike, each having been ground during the time that was neceſſary for the ſtate of the rag.

Without this precaution the fineſt particles will be always loſt, and of courſe the beautiful quality of the paper will be altered by the coarſeſt. Therefore this care in ſorting the rags produces a great beauty of the paper, without hurting its goodneſs. It will, beſides, be attended with the advantage of mixing a pulp, which will form the ſtrength of the paper, with another which will give it ſoftneſs and luſtre; and thus two qualities may be united which otherwiſe exiſted ſeparately.

There are people in London, who, by dealing very extenſively in rags, have it in their power to obſerve theſe precautions in ſorting, and to ſell ſeparately all the different qualities to the paper makers. The ſame may be ſaid of thoſe great manufacturers who have the perfections of their work at heart. As to ſmall country mills, it is ſcarcely poſſible for them to make ſo great a choice. They are often obliged to lay up for fine many rags which are properly middling, and their middling may with better reaſon be reſerved for making the coarſer ſort of paper.

The people who go about the ſtreets to buy up rags and old garments, ſell them to the great dealers, who for the London market employ women to ſort them into five ſorts, which are denominated Nos. 1, 2, 3, 4, and 5, according to their reſpective qualities. No. 1 being ſuperfine, and wholly linen, is uſed for the fineſt writing papers. The other ſorts have different degrees of fineneſs down to No. 5, which is completely canvas, but is proper for making inferior printing papers, when it has been bleached to a good colour. There is alſo rag bagging, which is the materials of the ſtrong canvas ſacks the rags are ſewed up in for carriage; and coloured rags, which conſiſt of cotton, and are of all colours promiſcuouſly mixed; but the blue are generally ſorted out, for the purpoſe of making blue paper. The rag bagging and cotton rags are only fit for common papers. The rags are firſt put into a machine, called a *duſter*, made in the form of a cylinder, four feet in diameter and five feet in length. It is all through covered with a wire net, and put in motion on pivots at its ends by a connection with ſome part of the machinery. The whole is incloſed in a tight cloſe box to keep in the duſt. A convenient quantity of rags, before the ſorting, is incloſed in the cylinder of the duſter, and the rapidity of its motion ſeparates the duſt from them, and it paſſes through the wires into the box. It is of conſiderable advantage to uſe the duſter before ſorting, as it makes that operation leſs pernicious to the people.

The ſorting is performed by women and children, who are ſeated on benches, in a large room full of old linen, before a cheſt or box, which is divided into ſix caſes, to receive as many different ſorts of rags. Each woman has a piece of paſteboard, hung from her girdle, and extended on her knees, upon which, with a long ſharp knife, ſhe unrips ſeams and ſtitches, and ſcrapes off all filth.

Whatever can be uſed, after being well examined, is diſtributed into one of the ſix caſes, according to the degree of fineneſs, and the women throw the reſt at their feet. The ſix caſes are for the ſix different ſorts of rags: the ſuperfine; the fine; and ſtitches of the fine; the middling; the ſeams, and ſtitches of the middling; and the coarſe; without including the very coarſe parts, which are totally rejected, at leaſt for the making of white paper, but may ſerve for white-brown paper; but even for this purpoſe they ſhould be mixed up with a large parcel of coarſe linen. Old paper may alſo ſerve for the ſame uſe, but the waſte is conſiderable; it is therefore reſerved for paſteboard, in the manufacture of which, the ſtuff being worked leſs time in the engine, and with leſs force, though with the ſame water, it will loſe much leſs than if worked ſufficiently to make paper. Beſides, paper that has been once ſized ſtill gives the pulp a viſcidity, which ought to be guarded againſt, as it prevents the fibres floating ſo completely detached in the water as is neceſſary to make them diſtribute themſelves ſufficiently equal and regular upon the wire mould, to make a true and even ſheet of paper.

Paper intended for bills of exchange, or other commercial and legal inſtruments, ought to be tough, in order that it may not be eaſily torn, when made as thin as it is neceſſary to be, for the eaſe of conveyance by poſt. For this, paper materials of the beſt quality muſt be entirely, or in large proportion, employed; and the price which the conſumers are diſpoſed to pay for the article is ſufficient to allow the beſt materials, and ſtill indemnify the manufacturer for his care and induſtry.

Common papers alſo require to be more or leſs tough, according to their thickneſs, and the uſe to which they are applied; but a clear white colour is ſought in paper of every deſcription, whether for writing or printing. The manufacturers of paper were formerly obliged to attend to the colour of the rags in the ſorting, as well as to their qualities; but of this care they are now in a great meaſure relieved, by the introduction of bleaching, which enables them to produce the fineſt paper, in point of colour, from any kind of rags. They have only therefore to find ſuch materials as will make paper of a ſtrong texture, and a fine even ſurface, knowing they can produce colour at pleaſure. To bleach the rags by the oxymuriatic acid gas, they are firſt waſhed in hot water, by a fulling mill, ſuch as is uſed for ſcouring cloth: this removes the dirt, and they are put into a receiver or chamber, made of wood, in a cubical form, and the joints air tight. It is provided with ſeveral ſtone retorts, which being filled with a mixture of manganeſe, with two-thirds its quantity of ſea-ſalt, and a quantity of ſulphuric acid equal to the ſalt, will, when moderately heated by a ſmall ſand-bath furnace, throw into the receiver a gas which quickly diſcharges any colour the rags may contain. This proceſs, which is very ſimilar to that uſed for bleaching cotton thread, was invented by Mr. Campbell, who had a patent for it in 1792. In his ſpecification, he directs that the rags ſhould, before they are put into the receiver to be bleached, contain about their own weight of fair water, the ſuper-abundant water being preſſed out. The rags ſhould firſt be opened by a machine, called by the cotton manufacturers a *devil*, or ſome machine, of that nature, and they are to be diſtributed in the receivers, in layers ſpread on frames, ſo that they will not come in contact with each other, or they may be placed in the body of the receiver, and have ſtirrers or agitators, provided to expoſe every part of them to the action of the bleaching gas.

After the proceſs, which muſt be concluded as ſoon as ever the rags are ſufficiently bleached, leſt the gas ſhould act upon and injure their quality, they are to be waſhed in water, and will be ready for the mill. Some manufacturers think that this mode of bleaching the rags makes them rotten, and injures the quality of the paper, which it certainly does if carried too far, though there is no doubt of the advantages of the proceſs if well conducted.

The bleaching proceſs has given riſe to great complaints from the printers, as many printing papers are now made from cotton rags. The oxygenated muriatic acid being applied for the purpoſe of obtaining diſpatch and delicacy of colour, produces a paper of a good appearance from inferior ſtaple. Nothing can be more perplexing to a printer, nor more detrimental to his labours, than this kind of bleached paper; for although it may be thick, and ſeem ſtrong in the ream, no ſooner does the water penetrate through it, than it loſes its adheſive quality, and becomes ſo looſe and ſoft as ſcarcely to bear handling, and in working under the preſs ſinks down into the cavities of the letters, leaving a part of its ſubſtance behind, after every impreſſion, until it ſo clogs the type, that the work is rendered ſcarcely legible. Nor is it leſs exceptionable in point of durability, as it muſt moulder away in a little time, with the common uſe that popular books generally undergo. Notwithſtanding this it muſt be allowed, that if by bleaching the paper makers can produce a bad article from ſuch materials as were otherwiſe of no uſe, they are alſo able to improve their manufacture when they uſe the ſame materials as formerly. It is found moſt advantageous to bleach the rags in the ſtate of half ſtuff, that is, when they have been once worked by the mill, as the fibres being by that means ſeparated, the gas has greater acceſs to the interior parts, and they are bleached quicker, ſo as to have leſs danger of injury to particular parts, by too long an action of the gas. Another method of bleaching is by muriat of lime put into the waſhing engine, which for printing papers is the beſt mode of any. We ſhall deſcribe it in the proceſs of waſhing.

The engines now uſed in the paper mills are conſtructed on ſuch a powerful principle, that they are capable of reducing the ſtrongeſt and tougheſt rags to pulp in a moderate time; whereas the old machines were not able to work the rags without *fermenting* them, as a previous proceſs. The following extracts from a French work, on the art of making paper, will ſhew the manner in which it was conducted 60 years ago.

"The rags, being ſorted, are put into a large ſtone vat, ſixteen feet long, ten broad, and three deep; water is poured upon them to the top during ten days, and eight or ten times every day without ſtirring them. They are afterwards left to reſt the ſame number of days, and ſometimes more or leſs, without pouring water upon them. Then being turned over, the centre is brought to the ſurface, to facilitate the fermentation; and after being turned again, they are ſtill left fifteen or twenty days in fermentation, ſo that the rotting may laſt five or ſix weeks; the term is not fixed, but when the heat becomes ſo great, that the hand, thruſt in, cannot endure it above ſome ſeconds, it is judged that it is time to ſtop it.

“ In mills, which have but few rags to work upon, they are left to rot longer, becauſe the heaps being ſmaller, heat leſs, and with more difficulty; ſo that nothing can be juſtly determined of the time proper for the rotting part. It depends alſo on the quality of the rags; the fineſt linen does not rot ſo ſoon as the coarſe; and linen that has been worn with more difficulty than new, becauſe the internal humidity, that diſpoſes the fibres to fermentation, is more conſiderable in new or coarſe, than in fine or worn linen. Such as are more or leſs ſtrong, more or leſs worn, reſiſt the action of rotting in different degrees, ſome being ſpoiled, when others have not gone through the firſt fermentation: ſo that the rags, which have been ſorted with great care, ought to be left to rot together, to avoid the riſk of altering the whole parcel, by the mixture of a portion of rags quite different from the reſt. When champignons grow on the heaps of rags, it is reckoned to be a ſign of their being well rotted.

“ Beſides this, there is another method for diſpoſing of the rags in the place for rotting and fermenting them. Having been wetted with water, a heap is made of them in a corner of the vaulted room, which is deſtined for that purpoſe. They are watered from time to time, and when ſufficiently heated, are tranſported into another angle of the ſame room, ſo that what was at the top of the firſt heap, is now laid under the ſecond, and care is taken to throw water upon them from time to time. When this heap takes heat again, it is tranſported to the third corner, where, having fermented again, it is carried into the fourth angle; obſerving always to lay thoſe rags under the heap that were at the top of the foregoing, and to water them often, for a reddiſh water will come from them, which it is very neceſſary to clear the rags of. When the heap in the firſt corner is brought away, another is formed in the ſame corner, which paſſes in its turn to the ſeveral corners of the room.

“ Some, to accelerate the operation of rotting and fermenting, throw lime upon the rags. Perhaps a very ſmall quantity of lime may be uſed: but if too much is laid on, the corroded rags will be too ſoon reduced into a pulp, and will paſs through the ſtrainer with the water, which ought to carry off only their filth, and will occaſion a conſiderable waſte. The uſe of lime, for the purpoſe of rotting rags, is abſolutely prohibited in France.

“ Fermentation, or rotting, makes the paper even, curdled as it were, ſoft, and gives it weight; if ſtopped too ſoon, the paper becomes crude, hard, light, ſtiff, requires more time to be worked, and the fecula, or pulp, does not ſo eaſily form a coagulation on the wire of the mould. It is ſometimes obſerved, in regard to good rags that have not rotted, that the fecula is, as it were, enveloped in a viſcid ſubſtance, which prevents its uniform precipitation; and this proves that rotting helps to clear off the unctuous matter in rags. If, on the contrary, the rags were left to ferment too long, a conſiderable waſte would be occaſioned, and more matter required for the ſame quantity of paper, becauſe the parts attenuated by fermentation, would be too readily carried off by the waſhing. And laſtly, if they were left to heat too long, they would be reduced to duſt, and burn into ſmoke and aſhes.”

The action of rotting was, at that period, thought neceſſary for abridging the labour of making paper, and facilitating the operation of the mill; but ſeveral advantages are procured by diſpenſing with it, now we are able to deſtroy the texture of the cloth and reduce it to pulp, without previouſly corrupting its ſubſtance by rotting it; the paper is much ſtouter, is leſs liable to break, and is alſo whiter, for the fermentation gave a yellowiſh hue to the ſurface of the rags, which the mill could not take out without difficulties, and never could entirely, if the rags were too rotten.

We now come to deſcribe the ſtructure of paper mills. In England they now work with cylinders, or engines, an invention which was brought from Holland many years ago, and found to be ſo great an improvement, that it has been univerſally adopted. The old mills, which are ſtill in uſe in ſome parts of the continent, actuate a number of ſtampers, or peſtles, which pound the rags in wooden mortars till they are reduced to a pulp. Theſe mortars are cut out in a block of heart of oak, well ſeaſoned, the cavity being of an oval figure, about eighteen inches broad, thirty inches long, and eighteen or twenty in depth; the bottom concave, and lined with an iron plate an inch thick, eight inches broad, and thirty long, ſhaped inwards like a mould for a ſalmon, with the head and tail rounded. In the middle of the mortar is a cavity beneath the plate, and four or five grooves are cut, forming channels which lead to a hole cut from the bottom of the cavity quite through the block: it is covered by a piece of hair ſieve faſtened on the inſide. This plate is grooved to make teeth, on which the teeth of the hammers act, to cut the rags in pieces. The uſe of the hair ſieve is to prevent any thing from going out except the foul water. Two hammers or peſtles work ſide by ſide in each mortar, and are lifted alternately by the mill: they are ſometimes made in the ſame manner as the ſtampers of an oil mill, to lift perpendicularly. In other mills they are large hammers moving on a centre like a fulling mill, and lifted by cogs upon the mill ſhaft in the ſame manner. The mortars are kept conſtantly ſupplied with fair water, by little troughs, leading from a ciſtern, which is kept full by ſmall buckets affixed to the floats of the water-wheel; theſe, when they have raiſed the water to the top, pour it out into the ciſtern, in the ſame manner as the Perſian wheel.

This rude and imperfect machine operated very ſlowly, and ſuffered a great part of the rags to eſcape being reduced, whilſt other parts were beaten too much. It is not now to be met with in England, the Dutch *engines* having taken their place, to the great improvement of the paper trade; theſe are turned by water mills, as they require a very great power to actuate them, though their performance is far greater, with the ſame power, than the mortars.

The conſtruction of the mills is varied in different ſituations; but to explain the beſt kind, we have in *Plate* I. *Paper Mill*, given a drawing of one made with iron wheels, *fig*. 1. being an elevation, and *fig*. 2. a plan: the ſame letters of reference are uſed in both. The water-wheel which gives the motion cannot be ſeen, as it is ſituated beneath the floor, but its dimenſions are marked by four dotted lines AAAA: in the plan it is encloſed between the three walls of the houſe P P R, and a fourth wall Q, which is built up acroſs the houſe, to ſupport the floors N and O, on which the engines ſtand: the wall R has arches in it to admit the water of the ſtream to the wheel, a proper gate being fixed to regulate its quantity: the axis of the water wheel, which is of caſt iron, comes through the wall Q, and has a large cog-wheel B upon it, which is the full ſize of the water wheel, and by the paper makers is termed the *maſter-wheel;* the extreme end of the ſhaft is ſuſtained in a bearing, which lays on a beam G G, ſupported on a wall of maſonary. The pinion C, called the *wallower*, is turned by the maſter-wheel B, and on its axis is fixed the large ſpur-wheel D, called the *fly-wheel*, giving motion to the two pinions E, F, of the engines K and L: the ſhaft of the wheel D and pinion C are ſupported at one end in a frame H H I, and the other, in a bearing fixed in the wall Q. The engines K and L are placed on the floors N and O upon different levels, as ſhewn by *fig.* 1, the bottom of L being higher than the top of K, ſo that the contents of L may be let down through a plug-hole in the bottom. The upper engine L is called the *waſher*, where the rags are firſt worked coarſely, with a ſtream of water running through them to waſh and open their fibres; after which waſhing they are called *half ſtuff*, and are then let down into the beating engine K, to be ground, and reduced to a finiſhed pulp, proper for moulding into ſheets of paper.

By the arrangement of the wheels of the mill, the cylinders, *k* and *l*, of the two engines are contrived to make about from 120 to 150 revolutions *per* minute, when the water-wheel moves with its proper velocity; though the beating engine revolves much quicker than the waſher, its pinion, F, having only 24 teeth, while the waſher, F, has 28. The great wheel, B, has 196 teeth, and the pinion, C, 38 teeth; therefore it makes about 5½ turns, for one of the water-wheel. The wheel D has likewiſe 196 teeth, and turns the waſher, F, of 28 teeth about 36 times, for once of the water-wheel; and the beater, E, about 42 times. M is a cog-wheel, put in motion by the teeth of the great wheel B: on the extremity of its ſpindle is a crank *a*, which, by a connecting rod, gives a reciprocating motion to a lever *c d*, for the purpoſe of working two pumps, *e*, *f*, which raiſe water into a ciſtern *h*, drawing it from the water of the mill-dam by a ſuction-pipe *g*. Theſe pumps raiſe up a conſtant ſtream of fair water, which is neceſſary to be kept running through the rags in the waſhing-engine, to carry away the dirt ſeparated from them by the operation.

The engines are ſhewn at K and L, in the plan: each conſiſts of a wooden vat or ciſtern, divided by a partition in the middle; and in one of theſe diviſions, their cylinders, *k* and *l*, are ſeen. Theſe are provided with teeth or cutters, which act againſt ſimilar teeth fixed in blocks, ſituated beneath the cylinders, to cut the rags between them, when they revolve. The ſtructure of an engine is more minutely explained by *figs.* 1, 2, 3, 4, &c. of *Plate* II.; *fig.* 1 being a ſection through the length of the engine, and *fig.* 2, a horizontal plan. The large vat or ciſtern, A A, is of an oblong figure on the outſide, the angles being cut off; but the inſide, which is lined with lead, has ſtraight ſides and circular ends. It is divided by a partition B B, alſo covered with lead. The cylinder, C, is fixed faſt upon the ſpindle D, which extends acroſs the engine, and is put in motion, as before deſcribed, by the pinion E, placed on the extremity of it. The cylinder is made of wood, and furniſhed with a number of teeth, or cutters, fixed faſt on its circumference, parallel to the axis, and projecting about an inch, as is ſhewn on a larger ſcale at *fig.* 5. Immediately beneath the cylinder, a block of wood, H, is placed, and provided with ſimilar cutters to thoſe of the cylinder, which, when they revolve, paſs very near the teeth of the block, but do not touch; the diſtance between them being capable of regulation, by elevating or depreſſing the bearings on which the necks, D, D, of the ſpindle are ſupported. Theſe bearings are made on two levers, F, F, which have tenons at their ends, fitted into upright mortiſes, made in ſhort beams, G, G, bolted to the ſides of the engine. (See alſo *fig.* 3.) The levers, F, F, are moveable at one end of each, the other ends being fitted to riſe and fall on bolts, in the beams G, as centres. The front one of theſe levers, or that neareſt to the cylinder C, is capable of being elevated or depreſſed, by turning the handle of the ſcrew *b*, which, as ſhewn in *fig.* 3, acts in a nut *a*, fixed to the tenon of F, and comes up through the top of the beam G, upon which the head of the ſcrew takes its bearing. Two braſſes are let into the middle of the levers, F, F, and form the bearings for the ſpindle of the engine to turn upon. The ſcrew, *b*, is uſed to raiſe or lower the cylinder, and cauſe it to cut finer or coarſer, by enlarging or diminiſhing the ſpace between the cutters in the block and thoſe of the cylinder.

Near K, *figs.* 1 and 2, is a circular breaſting made of boards, and covered with ſheet-lead: it is curved to fit the cylinder very truly, and leaves but very little ſpace between the teeth and breaſting. An inclined plane, K, leads regularly from the bottom of the engine-vat to the top of this breaſting; and at the bottom of it the block, H, is fixed. The engine is ſupplied with water by a pipe, Q, bringing it from the pump: this pipe delivers it into a ſmall ciſtern, M, adjoining, and communicating with the engine. The pipe has a cock, P, to ſtop the entrance of the water, when required, or to regulate the quantity of its diſcharge. The ſmall ciſtern has a grating fixed acroſs it, covered with a hair-ſtrainer, to catch any extraneous matter, which may come in with the water; or a flannel bag is ſometimes tied over the orifice of the cock P, through which all the water muſt be filtered. When the engine is filled with water, and a quantity of rags put in, they are, by the revolution of the cylinder, drawn between its cutters and the teeth of the block H. This cuts them in pieces; then, by the rapid motion of the cylinder, the rags and water are thrown over the top of the breaſting, upon the inclined plane: in a ſhort time, this raiſes more rags and water into that part of the engine-vat; and the tendency to reſtore the equilibrium puts the whole contents of the vat in ſlow motion, down the inclined plane K, and round the partition B B, by which they come to the cylinder again in about the ſpace of 20 minutes; ſo that the rags are repeatedly cut and chopt in every direction, till they are reduced to a pulp.

This circulation is of advantage, in turning the rags over in the engine, and cauſes them to preſent themſelves to the cutters in a different direction every time; for as the cylinder cuts or clips in ſtraight lines, in the ſame manner as a pair of ſhears, it is requiſite to cut the rags acroſs in different directions, to reduce them to a pulp. The manner of the cutting is this: the teeth of the block are placed rather inclined to the axis of the cylinder, as ſhewn by *fig.* 4, but the teeth of the cylinder are parallel to its axis; therefore, the cutting edges, when they meet, are at a ſmall angle, and come in contact firſt at one end, and then ſucceſſively the contacts proceed along to the other end, ſo that any rags interſperſed between them are cut in the ſame manner as they would be between the blades of a pair of ſhears. Sometimes the plates or cutters, *k*, in the block are bent to an angle in the middle, inſtead of being ſtraight, and inclined to the cylinder: in this caſe, they are called elbow plates, and of courſe the two ends are both inclined to the axis of the cylinder in oppoſite directions. In either caſe, the edges of the plate of the block cannot be ſtraight lines, but muſt be curved, to adapt themſelves to the curve which a line traced on the cylinder will of courſe have. The plates or cutters of the block are united, by ſcrewing them altogether, and fitting them into a cavity cut out in the wooden block H; their edges are bevelled away on one ſide only, as ſhewn at *k* in the ſection, *fig.* 4. The block is fixed in its place by being made dovetailed, and truly fitted into the bottom of the ciſtern, ſo that the water will not leak by it. The end of it comes through the wood-work of the cheſt, and projects a ſmall diſtance on the outſide of it, being kept up to its place by a wedge, ſo that by withdrawing this wedge, the block becomes looſe, and can be removed, to ſharpen the cutters, as occaſion requires. This is done on a grindſtone, the plates being firſt ſeparated from each other.

The cutters of the cylinder are fixed into grooves, cut in the wood of the cylinder, at equal diſtances from each other round its circumference, in a direction parallel to its axis: the number of theſe grooves is twenty; and for the waſher, each groove has two cutters or bars put into it; then a fillet of wood is driven faſt in between them, to hold them firm; and the fillets are kept faſt by ſpikes driven into the ſolid wood of the cylinder. The beater is made in the ſame manner, except that each groove contains three bars, and two fillets, as ſhewn in *fig.* 5.

In the operation of the cylinder, it is neceſſary that it ſhould be incloſed in a caſe, or its great velocity would throw all the water and rags out of the engine. This caſe is a wooden box L L, incloſed on all ſides except the bottom: one ſide of it reſts upon the edge of the vat, and the other upon the edge of the partition B B. The lines, *c*, *c*, repreſent the edges of wooden frames, which are covered with hair or wire-cloth; and immediately behind theſe, the box is made with a bottom, and a ledge towards the cylinder, which makes a complete trough. The dark ſpaces, *e*, *e*, in *fig.* 1, ſhew the ſituation of two openings, or ſpouts, through the ſide of the caſe, which lead to flat lead-pipes, *h*, *h*, *fig.* 2, which are placed by the ſide of the vat; the beam, F, being cut away for them. There are waſte pipes, to convey away the foul water from the engine; for the cylinder, as it turns, throws a great quantity of water and rags up againſt the ſieves: the water goes through them, and runs down into the trough at *e e*, and from thence into the ends of the leaden pipes, *h*, *h*, *fig.* 2, by which it is conveyed away: *d*, *d*, *fig.* 1, are grooves for two boards, which, when put down in their places, cover the hair-ſieves, and ſtop the water from going through them, if it is required to retain the water in the engine. This is always the caſe in the beating-engines, and therefore they are ſeldom provided with theſe waſte-pipes, or at moſt on one ſide only; the other ſide of the cover being curved, to conform to the cylinder. Except this, the only difference between the waſhing-engine and the beater is that the teeth of the latter are finer, having 60 inſtead of 40 bars on its circumference; and it revolves quicker than the waſher, ſo that it will cut and divide thoſe particles which paſs through the teeth of the waſher.

In ſmall mills, where the ſupply of water is limited, they frequently have but one engine, and uſe it both for waſhing and beating, by ſetting the ſcrew ſo as to let the cylinder down and make its teeth cut finer; but the ſyſtem of all conſiderable works is to have two engines, or four, if the ſupply of water is ſufficiently great. We have ſeen a very capital paper mill containing five engines, where three of them are beaters and two workers; becauſe the beating takes ſo much more time, that when the numbers are equal, the waſhers will often do too much for them, and they will have to ſtand ſtill. A mill to drive four engines is generally made double, that is, it has two water-wheels, and all the machinery ſhewn in the plan; and if either of theſe give motion to three engines, they are arranged rather differently: thus the two beaters are placed on the ſame level with each other, and this removes them to a greater diſtance aſunder than ſhewn in *fig.* 1, *Plate* I.; ſo that the ends of the two engines, when placed on the ſame floor or platform, will juſt touch each other. The waſher is then placed on the oppoſite ſide of the wheel D, *viz.* where the word *plan*, *fig.* 2, is written, its pinion being upon the ſummit of the wheel, which raiſes it to the proper level: the vat of the waſher has a valve or cock in each end, to let out its contents into either of the beaters at pleaſure.

The mills with ſpur-wheels, ſuch as is given in our drawing, are not very common, though they work much better than the ordinary arrangement of the wheels for a paper mill: in this the ſhaft of the water-wheel has a large face, or crown-wheel, fixed upon it, which actuates a wooden trundle fixed upon a vertical ſhaft, proceeding upwards through the floor of the mill, and there it carries two large horizontal crown or face-wheels, giving motion to the pinions of the engines, which are ſituated on oppoſite ſides of the upright ſhafts. It is neceſſary to have two horizontal wheels, becauſe of the different levels at which the engines muſt be placed. Theſe mills are generally made in wood, in a very rude and coarſe manner, with crown-wheels and large cogs, ſo that the friction is very great. Their only recommendation to the paper-maker is their cheapneſs of erection; but this is only on account of their inferior workmanſhip, for to make a mill in iron with a vertical ſhaft and bevelled wheels, as they ſhould be to work properly, would be far more expenſive than the conſtruction ſhewn in *fig.* 1, which is therefore adopted by thoſe manufacturers who chooſe to have their mills made in a complete and durable manner.

The quantity of water which a paper mill can command to turn its engines, generally limits the extent of its trade; and hence the manufacturers ſhould attend to every improvement of the machinery which can increaſe their effect. Where the ſupply of water is conſtant, they work the engines day and night, though the making the paper, as it requires many workmen, is of courſe carried on in the day time only. This ſyſtem neceſſarily requires a large vat to be provided, which is called the *ſtuff-cheſt*, and is a general receptacle for the pulp, where it is kept till wanted to be made into paper; at the ſame time this mixes the pulp of different day's work together, and produces an uniformity in the quality and colour of the paper, which is a great recommendation for printing large editions of books.

A very large and capital paper mill, at Maidſtone in Kent, which is the principal ſeat of the paper trade in England, is worked by ſteam-engines, and is found to anſwer very well. The machinery and building of a paper mill ſhould be well made, and firmly put together, otherwiſe its great velocity, and power, produces a tremor, which in time ſhakes every thing to pieces. The noiſe and vibration of a waſhing-engine is moſt tremendous; for when it revolves 120 times *per* minute, and has 40 teeth, each of which paſſes by 12 or 14 teeth in the block at every revolution, it will make near 60,000 outs *per* minute, and each of them ſufficiently loud to produce the moſt horrible growling ſound which can be conceived. The beater revolving quicker, having 60 teeth, and 20 or 24 cutters in the block, will make 180,000 cuts *per* minute, which is ſo rapid, as to produce a coarſe muſical note or humming, which may be heard at a great diſtance from the mill. This great number of cuts will account for an engine being able, in the courſe of four or five hours' working, to reduce a quantity of rags to thoſe exceedingly minute filaments, of which paper is compoſed.

The operation of grinding the rags in the engines requires ſome management to produce the beſt effect: the operation of the waſhing-engine is to open the rags, and to ſeparate their fibres from each other, rather than to cut them, and at the ſame time, by the ſtream of water which runs through, to carry off all dirt. At firſt putting into the waſhing-engine, they ſhould be worked gently, not to cut, but only to rub the rags violently, that the water may have the beſt effect in carrying off the impurities: this is done by raiſing up the cylinder, ſo that its teeth do not touch the teeth of the block, for if the waſher cut and divided the rags too much in the firſt inſtance, the water would carry away a conſiderable portion of the fineſt parts. The cock is at this time opened to admit a great ſtream of water. When this has continued 20 or 30 minutes, the bearing of the cylinder is let down ſo low, that its weight reſts upon the teeth of the cutter, and it now begins to cut the rags in pieces, the ſupply of water is diminiſhed, and the operation is at firſt very violent, the rags frequently cauſing the cylinder to leap up a conſiderable height. After working about three or four hours, the engine will get to work very ſteadily, becauſe the rags, though not reduced to a pulp, are cut very ſmall, and make leſs reſiſtance to its motion: at this period the waſhing is uſually concluded, and the contents of the engine, called *half ſtuff*, diſcharged into a large baſket, which allows the water to draw away. For ſome kind of paper it is thought adviſable to let the half ſtuff remain four or five days to *mellow*, or indeed ferment; and if fermentation is at all proper, this muſt certainly be the beſt ſtage for it, when all the maſs of rags is brought to an equal ſtate of diviſion of the fibres. The bleaching is, as before-mentioned, ſometimes performed upon the half ſtuff, inſtead of bleaching the rags previouſly; but more commonly it is done in the waſhing-engine, and this is the moſt convenient method of all, as it requires no apparatus, and takes very little time, puts the manufacturer to no other expence than the bleaching ſalt (muriate of lime) by which it is performed, and the effect, if well managed, is equal to that of bleaching by the oxymuriatic acid gas, as at firſt deſcribed. After the rags have been waſhed for four hours, as above-mentioned, if it is required to bleach the ſtuff in the engine, they ſtop the water from running in at the cock, and throw into the engine a quantity of bleaching ſalt, or muriate of lime. For fine rags, one or two pounds, more or leſs, are uſed, according to the quantity of rags the engine contains, which is uſually one hundred weight: the two ſliders, *d, d, fig.* 1, *Plate* II., are put down in the cover of the cylinder, to prevent the water getting away. In this ſtate the engine is worked about an hour for the bleaching to take place, and during this time the rags loſe their colour; but this does not colour the water, though it is rendered rather white and milky by the ſalt. The very beſt rags, when firſt put into the engine, are of a very yellow and dirty colour; but they become, by the bleaching, a very perfect ſnow white: the cylinder is uſually raiſed up a very little during the bleaching, which being concluded, the water-cock is opened again, the boards, *c, c*, are removed, and the waſhing continued about an hour to waſh the ſalt away, which muſt be done very perfectly, or it will continue to act upon, and injure the quality of, the materials.

The half ſtuff is next put into the beating-engine, and worked till it becomes a fine pulp, which will generally take four or five hours, water being let into it at proper times, to dilute the pulp to its proper conſiſtence, but no water is let out of the beating-engine as in the waſher. The quantity of water requires great judgment, as it has an influence on the quality of the paper; and the kind of water the manufacturer is obliged to employ muſt be conſidered. The faireſt water is the beſt for paper-making, on account of the clean and white quality ſo deſirable in the manufacture. The water that diſſolves ſoap beſt, is alſo the fitteſt for taking the greaſe out of rags. Paper-makers ſay that the water which is moſt beaten, and that which comes from afar, makes a better curdled paper, ſtouter, and of ſtronger conſiſtence, as to matter: if this is the caſe, it is probably becauſe this water has had more time for depoſiting the ſlime, and other heterogeneous parts, and that, being more expoſed to the air by motion, it is thereby in a better condition for diſſolving greaſe and ſoap. Water, ſubject to be mudded by rain, and that which runs through marſhy grounds, ought to be avoided. In like manner, a paper mill ought not to be placed below other manufactories or machinery, which, by uſing the ſame water, might communicate to it a bad quality. The water of ponds, and rain water, are very good for diſſolving ſoap, and may therefore be uſed for paper, if in a pure ſtate. Water, impregnated with lime, by having run off from chalky ſoils, is generally very pure and clear to the eye, and is, therefore, much uſed for paper-making, but it is apt to depoſit a ſlight incruſtation upon the braſs wire of the moulds, which they remove by occaſionally waſhing them with vinegar.

For printing papers, the ſizing is done in the beating-engine, towards the end of its operation, as we ſhall deſcribe: the ſize is neceſſary to prevent the ink from ſinking into the paper like blotting-paper; but printing-ink not being ſo fluid as writing-ink, the paper can be ſufficiently ſized in ſubſtance, without ſubjecting the ſheets to a ſeparate operation after they are made. The ſize for the engine is compoſed of alum pounded very fine, and mixed up with a quantity of oil: about a pint and a half of this mixture, thrown into the engine at intervals, during the laſt half hour of the beating, is ſufficient. In order to give that bloom, or blue caſt to the paper, which ſome kinds have, a quantity of powder blue is frequently put into the engine at the ſame time. The pulp is now run off into the *ſtuff-cheſt* where the different kinds are mixed, and it is taken out as it is wanted, in the vats where the dippers, &c. work to form the ſheets.

The moulding of the paper ſhould be carried on in a lofty room, well ventilated, and with a ſmooth and even ceiling, that the ſteam ariſing from the ſeveral vats of pulp may not be condenſed upon it, and fall in drops, for a ſingle drop falling upon a ſheet of paper, whilſt it is moulding, will beat a hole through it, or at leaſt ſpoil it. The people in this apartment work at the *vats*, with *moulds*, *deckles*, *felts*, *vat preſs*, and *wet preſs*. The *vat* uſed to contain the pulp is a tub, generally about five feet in diameter, and two and a half in depth. It is provided, on the upper part, with planks encloſed inwards, and even railed in with wood, to prevent any of the ſtuff from running over in the operation: a plank, pierced with holes at one of the extremities, is placed acroſs the vat, and reſting on the planks which ſurround the vat, forms a ſupport to reſt the mould upon, when a ſheet of paper has been made, and it remains here a ſhort time to drain off the ſuperfluous water. The ſtuff in the vat is kept at a proper temperature, by means of a grate introduced at a hole in the ſide, and ſurrounded on the inſide of the vat with a caſe of copper. For fuel to this grate charcoal or wood is uſed, and frequently, to prevent ſmoke, the wall of the building comes in contact with one part of the vat, ſo that the fire has no communication with the room where they make the paper. The paper is made into ſheets upon the *mould* and *deckle*. The *mould* is a ſquare frame, or ſhallow box, made of well-ſeaſoned mahogany, and covered at the top with wire-cloth; its dimenſions are an inch or an inch and a half larger than the ſheet of paper intended to be made upon it. The wire-cloth of the mould is varied in proportion to the fineneſs of the paper and the nature of the ſtuff. It conſiſts of a number of parallel wires ſtretched acroſs the frame, very near together, and tied faſt through holes in the ſides; alſo a few other ſtronger wires, extending acroſs in a direction at right angles to the former, and a conſiderable diſtance aſunder, the ſmall wires being bound down to them by fine wire at the interſections. This may be readily underſtood, from the examination of a ſheet of ſome kind of paper on which the marks of the wires remain, becauſe the paper is thinner in thoſe places where the wire touched it.

By a modern improvement, theſe marks, called water-marks, are avoided, and the paper has a ſmooth even ſurface. For this the wire is wove in a loom, exactly like cloth, and ſtretched over the frame of the mould. The wire-cloth is in this caſe made larger than the intended ſheet of paper, and turned down over the ſides of the frame, being ſewed faſt to it by fine wire, ſo that the cloth is ſtrained tight over the frame. The wove paper, as it is called, when made on theſe moulds, is a very ſuperior article to the old paper, particularly for books, but a prejudice ſtill prevails in favour of the old paper with lines, which obliges manufacturers ſtill to make it, though by no means ſo fine or good as the wove.

The *deckle* is a ſquare frame of mahogany, bound with braſs at the angles; it is made very thin, and its outſide correſponds with the ſides of the mould, while the inſide is the ſize of the ſheet. This frame is neceſſary to retain the ſtuff of which the paper is made on the cloth, and it muſt be exactly flat, that it may fit upon the wire-cloth of the mould, otherwiſe the edges of the paper will be ragged and badly finiſhed. The deckle, when placed upon the wire of the mould, forms a ſhallow ſieve or mould, in which a quantity of the pulp is taken up, and by the draining through of the water, the pulp is left in a ſheet upon the wire. There is no faſtening for the deckle, as it is moveable, and only held upon the mould, by the workman graſping the mould and deckle together in both hands at the oppoſite ſides. This admits of the deckle being removed, that the ſheet of paper may be taken up from the wire, by applying the mould upon a piece of felt. The *felts* are pieces of woollen cloth, ſpread over every ſheet of paper, and upon which the ſheets are *laid*, to detach them from the wire of the mould; they alſo prevent them from adhering together, and imbibing part of the water with which the paper is charged, tranſmit the whole of it when placed under the action of the *vat preſs*. The moulding of the paper is performed by three workmen, the *dipper*, the *coucher*, and the *lifter*. The firſt of theſe having filled the vat with pulp, muſt be attentive to mix it up well; for this purpoſe, he employs two implements, one of which is a ſimple pole, and the other a pole armed with a piece of board, rounded and full of holes. This operation is repeated as often as the ſtuff falls to the bottom. In the principal mills they uſe for this purpoſe what is called a hog, which is a machine within the vat, that, by means of a ſmall wheel on the outſide, is made to turn conſtantly round, and keep the ſtuff in perpetual motion.

When the ſtuff and water are perfectly mixed, it is eaſy to perceive whether the previous operations have been complete. If the ſtuff floats cloſe, and in regular flakes, it is a proof that it has been well ground, and the parts of the rags, which have eſcaped the cylinder of the engine, alſo appear. The dipper ſtands in a nitch, or hollow part of that kind of ledge or table which goes round the circumference of the vat; he holds a mould in both hands, by the two extremities, with the deckle applied exactly over the mould, as if only one piece; then inclining it a little towards him, he dips it into the vat, and brings it up again into a horizontal poſition. The ſuperfluous part of the pulp flows over on all ſides, and the quantity thought ſufficient is ſhaken gently, from the right to the left, and up and down horizontally, until it is equally extended over the whole ſurface of the mould. Theſe two motions are alſo accompanied by a ſlight ſhake, that ſerves to fix and ſtop the ſheet. As the water drains through the wire, the fibrous parts of the ſtuff arrange themſelves regularly on the wire-cloth of the mould, not only in proportion as the water eſcapes, but alſo as the workman favours this effect, by gently ſhaking the mould. This done, the mould is immediately laid on the edge of the vat, the deckle taken off, and the mould made to ſlide along the board which is laid acroſs the vat, to the part where the ſheet is to be laid or taken off. The board, which is but two inches in breadth where the ſheet is laid, is nothing more than a deal board, which runs along the length of the vat, and is pierced with ſeveral holes at the extremity, for letting the mould drain into the vat. The dipper taking the deckle off the firſt mould, places it immediately on a ſecond, which is given him for dipping in its turn; and the ſecond workman, called the coucher, taking the mould off the board that runs acroſs the vat with the left hand, raiſes it gently, and lays it in an inclined poſition againſt one or two ſmall pins, which are driven into the board on the edge of the vat. In this condition the mould remains two or three ſeconds of time for draining into the vat, whilſt the coucher extends a felt, on which he applies the mould to take off the ſheet, which being done he returns the mould to the dipper.

They proceed in this manner, laying alternately a ſheet and a felt, till they have made ſix quires of paper, which is called a poſt, and this they do with ſuch ſwiftneſs, that in many ſorts of paper two men make upwards of twenty poſts in a day.

When the laſt ſheet of the poſt is covered with the laſt felt, all the workmen about the vat unite together, and ſubmit the heap to the action of the vat preſs. They begin at firſt to preſs it with a middling lever, and afterwards with a lever about fifteen feet in length.

The dipper ſhould be attentive, in diſtributing the matter on the mould, to reinforce the corner the coucher is to take hold of, in raiſing and extending the ſheets; for without this precaution he would break a great many. Alſo, if he takes up too much matter with his mould, if he does not equally extend it, or if he ſtrikes his mould againſt the drainer. In all theſe caſes the matter is accumulated in certain parts of the mould, producing ſomething like ridges in the paper, or if he lets the matter reſt on the mould, and does not diſtribute it immediately, there will be parts of unequal thickneſs. When the vat is too hot, the ſtretching out of the ſheet will be ill performed, becauſe the water evaporates too ſoon from the mould. Add to this, that in letting the matter run towards one of the edges, by not giving his arm a regular motion, he may form a feather-edged paper, which may likewiſe happen if he does not extend his ſtuff ſufficiently; or if the vat be too hot, or the fecula of the pulp is too crude, and does not run well; if his arms are too ſtiff, and if he gives a bad ſhake, or if the mould be ill made.

In order to avoid drops of water, which, if they fall upon the paper, will make diſagreeable ſpots, the mould ſhould be raiſed readily; and as often as the coucher returns his mould to the drainers, he ought to be careful to ſhake his hands behind him; for without this precaution, his fingers, which are wet, would drop upon the ſheet already laid, whilſt he is covering it with the felt. If he is alſo too quick in laying, the air detained and compreſſed under the ſheet occaſions a bloating, and makes ſome parts more clear than others.

In conſequence of the conſtruction of the mould, it is eaſy to perceive that the ſheets of paper will take, and preſerve, the impreſſion of all the wires which compoſe it, and of the empty ſpaces between them. This is ſeen in examining a ſheet of paper before the light, a greater opacity being found on both ſides of each braſs wire, than towards the midſt of the ſpace. This thickneſs is occaſioned by the pulp, which the motion of the mould could not diſtribute, being ſtopped by the ſmall wires, and ſtill more by the large croſs wires. This defect is completely remedied by the improvement of weaving the wire of the mould like cloth. The traces of the old wires are moſt evidently perceived on the ſide of the ſheet which was attached to the mould, and on the other ſide they form an aſſemblage of rounded riſings. In the paper which is moſt highly finiſhed, the regularity of theſe impreſſions is ſtill viſible; therefore it is evident, that all the operations to which it is ſubmitted, have chiefly in view to ſoften theſe impreſſions without deſtroying them; it is neceſſary, therefore, to attend to the combination of labour which operates on theſe impreſſions. The coucher, in turning the mould on the felt, flattens a little the rounded eminences, which are in relievo on one of the ſurfaces, and occaſions, at the ſame time, the hollow places made by the wire-cloth to be partly filled up; meanwhile the effort which is made in detaching the paper, produces an indefinite number of ſmall hairs on every protuberant part of the ſheet. Under the action of the preſs, firſt with the felts, and then without them, the perfecting of the grain of paper ſtill goes on. The veſtiges of the protuberances made by the wires of the mould are altogether flattened, and in conſequence the hollows oppoſite them diſappear alſo, but the traces formed by the interſtices of the wire, in conſequence of their thickneſs, appear on both ſides, and are rounded by the preſs.

The grain of the paper is often disfigured by the felts when they are too much uſed, or when the wool does not cover the thread. In this caſe, when the paper is ſubmitted to the preſs, it takes the additional traces of the warp and the woof, and compoſes a ſurface extremely irregular.

The two ſides of the felt are differently raiſed, and that on which the hair is longeſt, is applied to the ſheets which are laid down, and any alteration of this diſpoſition would produce a change in the texture of the paper. The ſtuff of which the felts are made ſhould be ſufficiently ſtrong, in order that it may be ſtretched exactly on the ſheets, without falling into folds, and at the ſame time ſufficiently pliant to yield in any direction, without injury to the wet paper. As the felts have to reſiſt the reiterated efforts of the preſs, it appears neceſſary that the warp be made ſtrong, of combed wool, and well twiſted. On the other hand, as they have to imbibe a certain quantity of water, and to retain it, it is neceſſary that the woof be of carded wool, and drawn out into a ſlack thread.

The paper remains in the vat preſs during the time that the next poſt of paper is preparing, and when it is removed to make room for that, the buſineſs of the third workman, called the lifter, begins; it is to take the ſheets off the felt, (for they are cauſed to adhere to them by the action of the preſs,) and then making the ſheets up into a ſecond pile; but if the coucher works too faſt, and the lifter finds himſelf hard preſſed, he cannot ſtretch out his ſheets exactly upon one another, ſo as to make a neat and compact pile, which is very neceſſary to make paper of a regular and equal thickneſs, when put under a ſecond or wet preſs, which is done as ſoon as ſeveral of the piles are completed, and can be collected together. This ſecond preſſure being made with all the ſheets in contact with each other, expreſſes a great quantity of water from the paper, and gives the ſheet a very conſiderable ſtrength; it alſo tends to take out thoſe freckles on the ſurface of the ſheets, which were occaſioned by the impreſſion of the felt, though it is neceſſary to have felts in the firſt preſſure, becauſe the paper is then ſo ſoft and pulpy, that it would be preſſed into a ſolid maſs if the ſheets touched each other. The paper remains in the ſecond preſs as long as it can, until another pile is made ready by the lifter. When the paper has undergone theſe operations, it is not only ſoftened in the ſurface, but better felted, and rendered more pliant in the interior parts of the ſtuff. In ſhort, a great part of the water which it had imbibed in the operation of the vat is diſſipated. By the felting of paper is underſtood the approximation of the fibres of the ſtuff, and their interlacing ſo as to adhere cloſe together. The paper is felted in proportion as the water eſcapes, and this effect is produced by the management and reiterated action of the preſs: without this action the paper would be porous, and compoſed only of filaments without adheſion. When the ſheets are very thin, and it is found, after the ſecond preſſure, that they are formed by a fecula, which is ſtill ſo ſaturated with a great deal of water, that they have little conſiſtence, it is probable that the ſecond preſs will join them to one another, and it is difficult to ſeparate them; indeed they cannot well be taken off ſingly without tearing a great number. This is a proof that the buſineſs of the preſs has been badly conducted. To avoid this inconvenience, it is neceſſary to bring down the preſs at firſt gently, and by degrees with greater force, and to raiſe it as ſuddenly as poſſible. By this means the water, which is impelled to the ſides of the heaps which has not yet eſcaped, returns to the centre, the ſheets are equally dried, and the operation is executed without difficulty. The ſeparation, ſheet by ſheet, is not neceſſary for drying, ſo that ſeven or eight may be taken together, which is called forming the pages; ſometimes alſo a leſs number may do, when the paper is of a large ſize, but never leſs than three ſheets are hung up together. It is of more importance than we are aware of, that the ſheets ſhould thus remain, as it were, paſted ſeveral of them together: if they were ſingle, they could not reſiſt the moiſture of the ſize, yet this moiſture is ſufficient to facilitate their ſeparation; but to prevent their ſeparating when they are hung up to dry, they ſhould be ſo placed that the pages may receive the wind in the ſurface, and not in the ſides and edges. When the paper is removed from the ſecond preſs, it is taken to the drying lofts, which are very extenſive apartments, uſually the upper parts of all the buildings of the mill: the ſides are formed by luffer boards, which are a kind of lattice or boarding which can be opened or ſhut, to admit more or leſs air, at pleaſure. The ſheets are taken up upon a piece of wood like a T, and hung upon hair lines, ſtretched acroſs large horizontal wooden frames, called *tribbles*, and theſe, as they are filled, are lifted up between upright poſts to the top of the room, and retained by pegs put in the poſts; then another frame being filled, is put up in its turn, and ſo on till the loft is filled from top to bottom.

The principal care in drying the paper, conſiſts in gradually admitting the external air, and in preventing the cords from imbibing moiſture; for this reaſon the lattices or luffer boards ſhould be conſtructed with great exactneſs, and the cords may be prevented from imbibing the water by covering them with wax. In uſing ſuch cords, the moiſture does not continue in the line of contact between the paper and the cord, which prevents the ſheet from ſtretching in that particular place by its weight, and from the folds which the moiſture in the ſubſequent operations might occaſion. The cords are of conſiderable thickneſs, by which means they diminiſh the point of contact, and give a better and more equal circulation to the air. By theſe precautions, the Dutch paper is dried equally, and is extremely ſupple before the ſizing. The time neceſſary for drying the paper depends ſo much upon the ſtate of the atmoſphere, and the thickneſs of the ſheets, that it cannot be ſtated with any degree of accuracy; but being dried, is taken down, and ſleeked, dreſſed, and ſhaken, to make the duſt fall out, and to ſeparate the pages from one another. It is then laid in heaps in the warehouſe, and from thence brought out in order to be ſized. The ſize for paper is made of the ſhreds and parings got from tanners, curriers, and parchment makers. All the putrified parts, and the lime, are carefully ſeparated from them, and they are incloſed in a kind of baſket, and let down by a rope and pulley into the cauldron. This is a late invention, and ſerves two valuable purpoſes; it makes it eaſy to draw out the pieces of leather when the ſize is extracted from them by boiling, and eaſy to return them into the boiler, if the operation is not complete. When the glutinous ſubſtance is ſufficiently extracted, it is allowed to ſettle for ſome time, and it is twice filtered before it is put into the veſſel in which they dip the paper. Immediately before the operation, a certain quantity of alum is added to the ſize. The workman takes a handful of the ſheets, ſmoothed and rendered as ſupple as poſſible, in his left hand, dips them into the veſſel, and holds them ſeparate with his right hand, that they may equally imbibe the ſize. After holding them above the veſſel for a ſpace of time, he ſeizes on the other ſide with his right hand, and again dips them into the veſſel. When he has finiſhed ten or a dozen of theſe handfuls, they are ſubmitted to the action of the preſs. The ſuperfluous ſize is carried back to the veſſel by means of a ſmall pipe. The veſſel in which the paper is ſized is made of copper, and furniſhed with a grate, to give the ſize, when neceſſary, a due temperature, and a piece of thin board or felt is placed between every handful of ſheets, as they are laid on the table of the preſs. The Dutch are very careful in ſizing their paper, to have every ſheet in the ſame handful of equal dryneſs, becauſe it is found that the dry ſheets imbibe the ſize more ſlowly than thoſe which retain ſome degree of moiſture.

They begin by ſelecting the pages in the drying houſe, and after having made them ſupple, and having deſtroyed the adherence between the ſheets, they ſeparate them into handfuls, in proportion to the dryneſs, each of them containing that number which they can conveniently dip at one time. Beſides this precaution, they take care to apply two ſheets of brown paper, of an equal ſize, to every handful: this brown paper, being firm, ſolid, and already ſized, is of uſe to ſupport the ſheets.

It is the practice at ſome paper mills, to carry the paper immediately it is ſized to the drying houſe, and hang it up before it cools, ſheet by ſheet, on the cords; but particular attention muſt be paid to the lattices of the drying houſe, or it is apt to dry too faſt, whereby a great part of the ſize goes off in evaporation, or if too ſlow it falls to the ground. The paper, being ſufficiently dried for the laſt time, is carried to the building where it is examined, finiſhed, and preſſed: this is called the *Saul*. Women are here employed to remove all damaged and imperfect ſheets: it is then put into the dry preſs, ſhewn at *figs.* 6, 7, and 8, of *Plate* II., and ſqueezed with a moſt immenſe force, to render the paper flat, and give it a good ſurface. The lever of this preſs is fifteen or eighteen feet long, and ten or twenty people are employed at the laſt to work it, though they ſometimes uſe *Sampſon*, that is, a windlaſs, like a crane, with which they purchaſe the lever of the ſcrew; but this exceſſive labour is altogether avoided, and a much greater preſſure given, by uſing Mr. Bramah's ingenious hydroſtatic preſs, inſtead of the ſcrew preſſes, which conſume a great portion of the power in friction. For a deſcription of this, ſee Press, *Hydroſtatic*. The dry preſs is generally large enough to hold two packs of ordinary paper, at once placed one at the other's ſide. When the compreſſion is judged ſufficient, the heaps of paper are carried back to the table, and parted, that is, the whole turned, ſheet by ſheet, in ſuch a manner, that the ſurface of every ſheet is expoſed to a new one, and in this ſituation they are again brought under the preſs. It is in extending theſe two operations, ſometimes to four or five times, or as often as the nature of the paper requires, that the perfection of the paper conſiſts. If the ſtuff is fine, or the paper ſlender, the parting is leſs frequently repeated. In this operation it is neceſſary to alter the ſituation of the heaps with regard to one another every time they are put under the preſs; and alſo, as the heaps are higheſt towards the middle, to place ſmall pieces of felt at the extremities, in order to bring every part of them under an equal preſſure. A ſingle man, with four or five preſſes, may part all the paper produced by two vats, provided the previous preſſing is well performed. The work of the parting generally laſts about two days, on a given quantity of paper. The paper is now ſorted into different lots, according to its quality and faults, after which it is made up into quires. The perſon who does this muſt poſſeſs great ſkill, and be capable of attention, becauſe he acts as a check on thoſe who ſeparate the paper into different lots. He takes the ſheets with the right hand, folds them, examines them, lays them over his left arm till he has the number requiſite for a quire, then brings the ſides parallel to one another, and places them in heaps under the table. An expert workman, if proper care has been taken in aſſorting the lots, will finiſh in this manner 6000 quires in a day. The paper is afterwards collected into reams of 20 quires each, and for the laſt time put under the preſs, where it is continued for 10 or 12 hours, or as long as the demand of the paper mill permits.

The operation of moulding the ſheets of paper has, for ſome years paſt, been performed by a machine which produces it an endleſs and continued ſheet, inſtead of moulding them ſeparately one by one; and this it does with ſuch accuracy and diſpatch, that many paper-makers have procured machines, notwithſtanding their great expence of erection, and the premium which they are obliged to pay the patentees for working them. The firſt idea of this curious machine was brought from France, but it has been wholly perfected here; and we think it one of the moſt important inventions, as applied to the manufactory of paper, which has been produced ſince the fourteenth century, when the method of making paper from linen rags was firſt diſcovered. In general, the progreſs of invention is ſlow and gradual; and with regard to the fabrication of paper, there have been very few ſtriking improvements in relation to machinery for nearly a century, except the preſent. The proceſſes for improving the general texture and appearance of the paper, by the more ſkilful uſe and application of ſizing and hot-preſſing, have certainly made important advances, even in the courſe of the laſt twenty years; while, for a much longer period, the modification in the machinery uſed for the converſion of rags into pulp, and of pulp into paper, have been very ſlight, and, for the moſt part, very unimportant.

Meſſrs. Henry, and Sealy, Fourdrinier and John Gamble, are the proprietors of this invention, for which they have obtained ſeveral patents during its progreſſive ſtages of improvement; but an act of parliament was paſſed in 1807, to extend the uſual term of all theſe patents to fifteen years from that period, and they then enrolled a ſpecification in the records of Chancery, detailing the machine, in its moſt improved ſtate, and from this we have taken the following deſcription; though it is ſcarcely poſſible to deſcribe ſuch a very complicated machine without figures. The pulp having been prepared, in the uſual manner, to due conſiſtence, by the admixture of water, kept in motion in the vat by means of what are denominated hogs, is let out through ſeveral circular apertures in front of the vat, which can be narrowed or widened at pleaſure, by means of a ſliding plate. Theſe apertures admit the pulp into a trough, which has a low ſide, or lip, and over the edge of this it flows, in a continued caſcade, or even ſheet: this trough of the vat is placed at one end of the machine, ſo that the ſtream of pulp falls upon a wire-cloth, or web, of many yards in length, the ends of which being united together, it is extended horizontally, in the manner of a jack towel, over two rollers, one of them placed cloſe under the lip, or mouth of the vat, ſo that the ſtream of pulp deſcends as little as poſſible. The wire is kept ſupported by ſeveral other parallel rollers, that it may not hang down or bag, but be kept as level as poſſible, and by a very ingenious contrivance is kept extended in breadth to a proper tenſion; it therefore repreſents a table of ſeveral yards in length, which, by the revolution of the rollers, is kept in continual motion from the vat towards the end of the machine. The pulp is kept within bounds upon this table, according to the width intended to be given to the paper, by two pieces or rulers of wood, exactly parallel with each other, and alſo with the line of motion of the wire. Between the wire itſelf and theſe rulers are placed two endleſs ſtraps of leather, as wide as the rulers, and revolving with the ſame velocity as the wire, but over different rollers. Similar rulers, and endleſs ſtraps, are alſo placed in contact with the lower ſurface of the wire, ſo that the wire is confined between them on each ſide, and the liquid pulp thus prevented from running off on the ſides, and they act as deckles to the mould. As they move together, they occaſion no friction to deſtroy the wire. Near that part of the wire upon which the pulp falls from the lip in the vat, there is placed a flap of oiled ſilk, or other material, to prevent the pulp from running back towards the vat over the roller of the wire.

As the wire revolves upon its rollers, and carries the pulp along upon its ſurface from the vat to the other extremity, it is conducted between two rollers, fitted up in the manner of a rolling mill, which cauſe a preſſure upon the pulp and paper to force out the water, and are therefore called the wet-preſs. In order to guard the pulp, which before paſſing between the rollers is in a ſoft ſtate, from being diſlodged, or otherwiſe injured by the upper roller coming immediately in contact with it; a revolving endleſs web of felt is applied. This is made of the ſame width as the endleſs wire, but not ſo long, and it is extended, like that, upon rollers ſituated above the wires; it is likewiſe brought between the rollers of the wet-preſs, ſo that its under ſurface falls upon the ſurface of the pulp, or paper, and defends it from the action of the upper cylinder: the wire and the felt are thus brought into contact with the paper between them, and the required preſſure is given by means of ſcrews, which increaſe or diminiſh the diſtance of the large compreſſing rollers, and theſe being covered with flannel cloth, or felting, are prevented from injuring the wire webbing, as well as producing a better effect upon the paper than naked cylinders would do.

To prevent the water thus preſſed out of the pulp from running back upon the paper, the wire is not only made to deſcend before it paſſes the wet-preſs, but there is alſo placed a ſmall roller reſting upon the wire, as near the preſs as poſſible, and ſome part of the water is previouſly got rid of, by both the wire and felt, with the pulp between them, paſſing through a ſmall pair of rollers, to the axis of the upper one of which rollers are hung weights, in order to give a ſlight preſſure. The water that drains from the pulp is collected into a trough, and returned to the vat by means of a ſcoop-wheel inſtead of a pump, which might form the paper ſtuff into lumps or rolls, by the mutual friction or rubbing of any parts of the apparatus againſt each other, and the reaſon for returning the water into the vat is to prevent the loſs of a conſiderable portion of the paper, ſtuff, blue, ſize, &c. which would otherwiſe be ſuſtained by its running to waſte.

It is evident then, that if motion is given in the proper direction to the wet-preſs cylinders, having both the web and wire thus compreſſed between them, they will be drawn along by them, and cauſed to revolve upon their reſpective rollers; and that, as long as theſe webs continue ſo to revolve, and the pulp continues ſupplied and running upon the ſurface of the under web, ſo long will the machine continue making a ſheet of paper, of continually increaſing length. But as the paper, even after having paſſed between the rollers of the wet-preſs, is not of that conſiſtency and ſtrength as would allow of its being removed from the machine and cut in ſheets, the new-made paper is cauſed to detach itſelf from the wire, at the moment it comes to the extreme roller, over which the wire revolves, and is immediately received upon a ſecond web of felt, which is, like the former, ſtretched by two principal rollers and other ſubordinate ones. By the revolution of this web, which muſt have the ſame velocity as the former, the paper is brought between two rollers of braſs or other hard metal, which are turned perfectly ſmooth, and placed ſome diſtance from the wet-preſs cylinders, but exactly parallel to them, and after paſſing through them the paper is received and wound upon a reel, or roller, which is from time to time removed, and others applied in their room as they are filled with paper.

This is the general action of the machine, but there are a number of very ingenious movements, which we have not mentioned. The ſhaking movement of the mould, which is ſo neceſſary to make the pulp coagulate into paper, is, in this machine, given to the wire thus: the frame of the roller on which the wire is extended at the end near the vat, is ſo placed on the top of upright legs, which are moveable on centres, as to admit the roller and wire with the deckle ſtraps to move ſideways a ſmall quantity, and to return, in the manner of vibration, by the action of a crank. The number of theſe vibrations, or ſhakes, neceſſary in a given time, and the ſpace paſſed through by the wire in each, will vary according to the quality and preparation of the pulp. The number, however, ſeems, by obſervation, to be limited to one or two hundred *per* minute, and the ſpace between a quarter of an inch, and an inch. To enable the paper-maker readily to give a proper velocity to the crank according to his judgment, the ſame is turned by a ſmall independent water-wheel, the velocity of which, and conſequent number of vibrations, are regulated, at pleaſure, by the quantity of water admitted upon the wheel. The ſliding plate in the vat, which admits the pulp to flow out as firſt mentioned, is regulated by a ſcrew, by which the circular aperture may be opened or ſhut in any intermediate degree, ſo that the quantity of pulp required to run from the vat to the wire, may by this be regulated, and ſo adjuſted to the velocity of the wire, as to produce a ſheet of paper of any required thickneſs. The whole machine is turned by a water-wheel, which is preferable to any other power, as by it is obtained the moſt regular and uniform motion, and ſuch as is beſt adapted for this purpoſe, though other firſt movers might be uſed.

As the paper is drawn off the endleſs wire by the motion of the revolving web of felt, it is neceſſary to have the riggers, or band-wheels, which communicate the motion from the rollers of the dry-preſs to thoſe of the wet-preſs, made upon an adjuſtable principle, or capable of having their diameters increaſed or diminiſhed, as occaſion requires, whilſt the machine is at work. By this adjuſtment, an exact correſpondence is obtained between the velocity of the revolving wire and that of the revolving felting, for ſhould one exceed the other in the ſmalleſt poſſible degree, the paper would either be torn aſunder, or carried round upon the under ſide of the web, and be ſpoiled. It is effected by a very ingenious application of an expanding *rigger;* which ſee. The machine will make paper of any required width, by diminiſhing the diſtance between the deckles upon the wire; and for this purpoſe, the rollers over which the deckle ſtraps are conducted, are adjuſtable upon their ſpindles. The long ſheet of paper, thus obtained, is unrolled from the reel upon a cutting table, having grooves, with ſteel edges, placed at a proper diſtance; and thus the ſheets, of the uſual ſizes, are cut off, by means of ſteel cutting wheels running into the grooves of the table, and preſſed down by a loaded carriage. The reel of paper is placed parallel to theſe grooves, which are ſo much longer than the utmoſt width of the ſheet, as is ſufficient to let the carriage be retained on either ſide while a ſheet is taken off the table, and freſh paper drawn on; in doing which, care is taken to keep the edges of the ſheet at right angles to the grooves, for which purpoſe, direction lines are drawn upon the table. We have been informed by thoſe who have ſeen theſe machines at work, that this method of cutting has been abandoned; and they are now worked with reels made adjuſtable to the required width of the ſheet, and when a ſufficient quantity is wound on it, is cut off by a knife, which, by cutting through the folds, divides the paper into ſeparate ſheets, which are ready for the operation of the ſecond preſs. The machines are conſtructed with a cloth, ſo wide, that the continual ſheet is cut up into two, and ſometimes three in width, by which means it produces an immenſe number of ſheets in a ſhort time; but the greateſt advantage is in making very large ſheets, which it will do to almoſt any extent in length, and as much as two yards in width.

This machine is only adapted for making wove paper; but a patent has lately been taken out for carrying this invention farther, and making the paper with lines in it; but this is done with ſeparate moulds, ſimilar to thoſe at preſent uſed, though worked by machinery, which in ſome meaſure reſembles the other, the moulds being attached to an endleſs chain in lieu of the endleſs wire.

Chineſe paper is of various kinds; ſome is made of the rinds or barks of trees, eſpecially the mulberry tree and elm, but chiefly of the bamboo, and cotton tree. In fact, almoſt each province has its ſeveral papers. The preparation of paper made of the barks of trees, may be inſtanced in that of the bamboo, which is a tree of the cane or reed kind. The ſecond ſkin of the bark, which is ſoft and white, is ordinarily made uſe of for paper: this is beat in fair water to a pulp, which they take up in large moulds, ſo that ſome ſheets are above twelve feet in length: they are completed by dipping them ſheet by ſheet in alum water, which ſerves inſtead of the ſize among us, and not only hinders the paper from imbibing the ink, but makes it look as if varniſhed over. This paper is white, ſoft, and cloſe, without the leaſt roughneſs, though it cracks more eaſily than European paper, is very ſubject to be eaten by the worm, and its thinneſs makes it liable to be ſoon worn out.

The celebrated Dr. Franklin has, in the American Philoſophical Tranſactions, given the following account of the method uſed by the Chineſe for making theſe extremely large ſheets of paper; ſuppoſe of four and half ells long, and half an ell wide. They have two large vats, each five ells long, and two ells wide, made of brick and lined with plaſter, that holds water; in theſe the ſtuff is mixed ready to work. Between theſe vats is built a kiln, or ſtove, with two inclining ſides, each ſide ſomething larger than the ſheet of paper; they are covered with fine ſtucco, that takes a poliſh, and are ſo contrived, as to be well heated by a ſmall fire circulating in the walls. The mould is made with thin, but deep ſides, that it may be both light and ſtiff. It is ſuſpended at each end with cords, that paſs over pullies faſtened to the ceiling, their ends connected with a counterpoiſe, nearly equal to the weight of the mould.

Two workmen, one at each end of the mould, lift it out of the water by the help of the counterpoiſe, turn it up, and apply it, with the ſtuff for the ſheet, to the ſmooth ſurface of the ſtove, againſt which they preſs it, to force out a great part of the water through the wires. The heat of the wall ſoon evaporates the reſt, and a boy takes off the dried ſheet by rolling it up. The ſide next the ſtove receives the even poliſh of the ſtuds, and is thereby better fitted to receive the impreſſion of fine colours. If a degree of ſizing is required, a decoction of rice is mixed with the ſtuff in the vat. Thus, the great ſheet is obtained ſmooth and ſized, and a number of the European operations, of uniting the edges of ſeveral ſmall ſheets together, are ſaved. If the ſtove has two poliſhed ſides, and there are two vats, the ſame operation is, at the ſame time, performed by two other men at the other vat, and one fire ſerves both.

We conclude with juſt hinting the importance, in the preſent ſtate of our political relations, and the extreme difficulty of obtaining rags, of directing the attention of manufacturers to other ſubſtances, from which paper may be fabricated. Silk, it is well known, has been uſed in the Eaſt as long ago as the ſeventh century, but the article is too expenſive for general adoption. Cotton, when treated in a manner ſimilar to that practiſed with linen rags, affords an excellent paper, which at preſent forms a very extenſive branch of the Levant trade.

The Japaneſe paper is, according to Kæmpfer, made of the bark of the *morus papyrifera ſativa*, or true paper tree. (See *Japan* PAPER.) Other ſubſtances are the pith of thiſtles, the bark of the ſallow (*ſalix capreata*), hemp, ſhaws of hemp, ſhaws of flax, hop bines, ſtalks of cabbage, of mallow, of common broom, of the ſun-flower (*helianthus annuus*), of mugwort, of clematis, &c. the down of the cat's-tail, the catkins of the white poplar, the huſks of maize, ſtraw, &c. Trials of ſome of theſe, and eſpecially of ſtraw, have been made in England as far back as the year 1799; but much remains to be done; and as the occaſion is important, eſpecially as it relates to commerce, and to the promulgation of arts and ſciences, we ſhould be happy to find, that ſome public-ſpirited individual, of enterprize and talent, would turn his attention to an extenſive ſeries of experiments; for the purpoſe of aſcertaining the merits of theſe or other ſubſtitutes for linen rags, in the fabrication of paper for writing and printing.

The exciſe duties on paper are ſubject, like other impoſitions of the ſame kind, to ſucceſſive variation, both in their amount and rate; and ſo are likewiſe the bounties and drawbacks. And as, in the courſe of a few years, the enumeration of them would not only be uſeleſs, but erroneous, we ſhall content ourſelves with obſerving, in general, that the principal act by which duties of exciſe are now collected, is the 43 Geo. III. c. 69; that by the 43 Geo. III. c. 81. more duties were added to thoſe impoſed by the former act, and by other ſubſequent ſtatutes other duties increaſe the whole amount; and the particulars may be found in the ſchedules annexed to the ſeveral acts. We ſhall here ſubjoin ſome more permanent regulations.

Paper which hath paid the duty may be exported, and alſo books; and drawbacks are to be allowed ſubject to the regulations preſcribed in ſeveral acts. (26 Geo. III. c. 78. 34 Geo. III. c. 20. 43 Geo. III. c. 69. ſched. G.) The officer attending the packing of paper for exportation, ſhall take off the ſtamps from each ream or bundle, and any perſon obſtructing him in this ſervice ſhall incur a forfeiture of 50*l.* (26 Geo. III. c. 77.) By 49 Geo. III. c. 98. certain duties of cuſtoms are alſo payable upon papers; but old rags, old ropes or junks, or old fiſhing nets, may be imported duty free. (11 Geo. I. c. 7.) By 32 Geo. III. c. 54. Officers of the cuſtoms ſhall cauſe any printed, painted, or ſtained paper that is imported to be marked; and counterfeiting or forging the mark or number, ſubjects to a forfeiture of 100*l.*; and counterfeiting or forging any ſtamp or ſeal for making the impreſſion, incurs a forfeiture of 500*l.*; and any perſon who ſhall ſell paper with ſuch counterfeit ſtamp, knowing the ſame, ſhall forfeit 50*l.* By 34 Geo. III. c. 20. the importation of books for ſale, firſt printed in this kingdom, and reprinted in any other, incurs forfeiture of the ſame, and alſo 10*l.*, and double the value of ſuch book; provided this ſhall not extend to any book that has not been printed or reprinted in this kingdom, within twenty years before the ſame ſhall be imported, &c.

Every maker of paper or paſteboard, and every paper-ſtainer, ſhall take out a licenſe from the office of exciſe, annually, for which he ſhall pay 2*l.*, on pain of forfeiting 20*l.* (24 Geo. III. c. 41. 43 Geo. III. c. 69. ſched. A.) All brown paper, made of old ropes, or cordage only, without ſeparating or extracting the pitch or tar from them, and without any mixture of other materials, ſhall be deemed paper of the ſecond claſs or denomination, and be chargeable with the duty accordingly; and all other paper whatever (glazed paper for clothiers and hot-preſſers excepted) ſhall be deemed to be of the firſt claſs or denomination. (42 Geo. III. c. 94.) No paper ſhall be painted or ſtained for hangings, except that for which the duty on paper of the firſt claſs hath been charged, duly ſtamped, &c. (41 Geo. III. c. 8.) Nor is the maker to diminiſh any paper before it be charged, under the penalty of 50*l.* and alſo ſuch paper. Paſteboard is to be made of paper charged, and unuſed for any other purpoſe, on pain of 100*l.*, together with forfeiture of the ſame, and utenſils, &c. employed in making it. (42 Geo. III. c. 94.) By the ſame act, the maker of paſteboard ſhall produce to the officers all ſuch paper as he intends to uſe for paſteboard, duly wrapped and ſtamped, after 24 hours' previous notice, on pain of 100*l.*: nor ſhall any maker of paſteboard be a paper-maker, nor manufacture within a quarter of a mile of a paper manufactory, on pain of 100*l.* Places of making or keeping paper, paſteboard, mill-board, ſcale-board, or glazed paper, all utenſils and materials employed, ſhall be entered, on pain of forfeiture, and alſo of 50*l.* (34 Geo. III. c. 20.) All paper ſhall be made up into quires, each quire conſiſting of 24 ſheets, and ſuch quires ſhall be made up into reams of 20 quires each; and all paſteboard, &c. ſhall be made up in parcels, each parcel containing even dozens of ſheets, of one and the ſame denomination, and of equal dimenſions, and not leſs than 24, nor more than 72 ſuch ſheets in every parcel; tied up, &c. in wrappers, and marked with the claſs of paper to which it belongs, the number of the reams made by the maker during the current quarter, &c. &c. on penalty of 200*l.* and forfeiture. (42 Geo. III. c. 94.) Every maker may make his paper into quires without folding, provided that ſuch quires, when made up into reams, be ſeparated by a ſlip of coloured paper placed between each quire, and viſible on the outſide of the ream, and that the outſide quires of each ream conſiſt of not leſs than 20, nor more than 24 ſheets, at the option of the maker. Every maker, whoſe mill or workhouſe is ſituated in any city or market-town, who ſhall have any paper, paſte-board, &c. to be weighed, and charged with the duty, ſhall give 24 hours (elſewhere 48 hours) previous notice, in writing, to the officer of exciſe, who ſhall attend, and ſuch maker, or his ſervant, ſhall produce to the officer all ſuch paper, paſteboard, &c. duly tied up, that the duty may be charged previous to removal; ſtamps ſhall be provided by the commiſſioners of exciſe; and if any perſon ſhall counterfeit ſuch ſtamps, and ſell with ſuch counterfeits, knowingly, he ſhall forfeit 500*l.* (34 Geo. III. c. 20.), but this penalty is repealed, and the perſon committing the offence is adjudged guilty of felony, and ſubjected to tranſportation, as a felon, for ſeven years. 47 Geo. III. ſeſſ. 2. c. 30.

Paper-makers are enjoined to give notice to the proper officers of their names, places of abode, ſtore-houſes, &c. and to make regular entries, on oath, every ſix weeks, of all paper, &c. made by them, on penalty of 50*l.* and the duty ſhall be paid in ſix weeks after entry, on pain of double duty. 34 Geo. III. c. 20.

Paper-makers are forbid to remove or to conceal their paper, &c. till the officer has taken account thereof, on penalty of 50*l.*, and forfeiture of the paper, &c. (24 Geo. III. c. 18. 34 Geo. III. c. 20. 42 Geo. III. c. 94.) Nor ſhall paper, &c. be removed in leſs than 24 hours, under the ſame penalty; nevertheleſs it may be removed from one mill to another, upon giving 48 hours' notice, in writing, to the officer. Paper that has been ſtamped and charged, is to be kept ſeparate from other paper, and alſo paper of one claſs from that of another, on pain of 50*l.*

Perſons moleſting officers in the execution of this act (34 Geo. III. c. 20.) incur a penalty of 100*l.* and the penalties and forfeitures ſhall be appropriated, one moiety to the king, and the other moiety to the informer.

There is a drawback of the duties on paper exported; and alſo for books printed at Oxford or Cambridge, in the Latin, Greek, Oriental or Northern languages, and alſo for bibles, teſtaments, pſalm-books, or books of common prayer, printed either in thoſe univerſities, or by the king's printer, under certain conditions. 43 Geo. III. c. 69. ſched. C.

Paſteboard, made of paper that hath paid the duty, ſhall not be charged with farther duty. (34 Geo. III. c. 20. 42 Geo. III. c. 94.) Allowance ſhall be made on paper damaged, for which the duty hath been paid; upon ſeven days' notice: and allowance ſhall be made to clothiers and hot-preſſers; on certain conditions. 42 Geo. III. c. 94. 43 Geo. III. c. 69.

Stained paper (beſides the duty paid for the paper before ſtaining) is ſubject, by the former acts, to a duty of $1\frac{3}{4}$*d.* a yard ſquare. 43 Geo. III. c. 69.

Papers are of various kinds. With regard to colours, they may be divided into *white*, *brown*, *blue*, &c. With regard to quality, into *fine*, *ſecond*, *baſtard*, *ſuperfine*, &c. With regard to uſe, into *writing*, *printing*, *preſſing*, *cap*, *cartridge*, *copy*, *chancery*, *poſt*, &c. With regard to dimenſions, into *demy*, *medium*, *fool's-cap*, *pot*, *royal*, *ſuper-royal*, *imperial*, *elephant*, *atlas*, &c. With regard to country, into *German*, *Lombard*, *Rochelle*, *Genoa*, *Holland*, &c.

French paper is divided into *large*, *middle*, and *ſmall*. To the ſmall belong thoſe called *petit Romaine*, *petit Raiſin*, or *Bâton royal*, *petit nom de Jeſus*, and *petit à la main*, all thus denominated from the marks impreſſed on them in making. Alſo the *cartier*, for the backs of playing cards; *pot* for the figure ſide; *couronne*, which has commonly the arms of the comptroller-general of the finances; *telliere*, with the arms of the late chancellor Tellier, and a double T; and *champy*, or *à chaſſis la ſerpente*, ſo called from its mark, the ſerpent; which being extremely fine and thin, is uſed by fan-makers.

To the middling ſort belong the *grand raiſin ſimple*, *carré ſimple*, *cavalier*, and *lombart*, the three laſt of which are for printing; *l'ecu*, or *de compte ſimple*, *carré double*, *l'ecu double*, *grand raiſin double*, and *couronne double*, which three laſt are denominated *double* on account of their ſtrength and thickneſs. Add to theſe the *pantalon*, or paper with the Dutch arms; and grand *cornet*, ſo denominated from the impreſſion on it.

To the larger belong the *grand Jeſus*, *petit et grand fleur-de-lis*, *chapelet*, *colombier*, *grand aigle*, *dauphin*, *ſoleil*, and *l'étoile*, which are thus called from the figures they bear, being all proper for printing either at the letter-preſs or rolling-preſs; alſo for merchants books, and for drawing on. The *grand monde* is the largeſt of all. Vide Savar. D. de Comm. tom. ii. p. 965, ſeq.

We have alſo *printed paper*, for hanging rooms. (See PAPER-*hangings*.) *Stamped paper*, to write obligations, deeds, and contracts upon. (See STAMP.) *Ruled paper*, for books of accounts, &c. To which may be added *cut-paper*, and *gilt paper*, for letters, &c. See GILDING *of Paper*.

PAPER, *Blue*, is a ſort uſed by tradeſmen to wrap up goods; as ſugar-loaves, pieces of linen, &c.

PAPER, *Blotting*, is paper not ſized, and in which therefore ink readily ſinks or ſpreads. It is uſed in books of account, &c. in lieu of ſand, to prevent blotting and disfiguring the oppoſite pages. The ſame kind is likewiſe uſed by apothecaries in filtrating juices, and other matters, for which the *manica Hippocratis* is not ſo proper.

PAPER, *Teint*, or *demi-teint*, for deſigning on, is either *brown*, *blue*, or *biſterd*.

PAPER, *Biſterd*, is white paper waſhed over with a ſponge dipped in ſoot-water. Its uſe is to ſave the labour of the crayon, in places which are to be ſhadowed the ſame depth with the teint of this paper. For light places, they are made thereon with white chalk. Vide Corneil. Elem. de la Peint. Prat. cap. 15. p. 35. ſeq.

PAPER, *Marbled*, is a ſort of paper variouſly ſtained, or painted as it were with divers colours; made by applying a ſheet on the ſurface of a liquor wherein colours diluted with oil or ox's gall are ſuſpended.

The manner of making it is thus: a trough is provided of the ſhape and dimenſions of a ſheet of the paper to be marbled, and about four fingers deep: this is made of lead or wood well joined, and pitched or primed to contain the liquor. For the liquor, a quarter of a pound of gum tragacanth is macerated four or five days in fair water; this they ſtir from time to time, and add to it daily freſh water, till it be of a conſiſtency ſomewhat thinner than oil; then they ſtrain it into the trough.

The colours to be applied thereon, for blue, are indigo ground up with white lead, or Pruſſian blue and verditer may be uſed: for green, indigo and orpiment, the one ground and the other tempered, mixed and boiled together with common water; or verdigris, a mixture of Dutch pink and Pruſſian blue, or verditer, in different proportions: for yellow, orpiment bruiſed and tempered; or Dutch pink and yellow ochre: for red, the fineſt lake, ground with raſpings of Braſil wood, which has been prepared by boiling half a day; or carmine, roſe pink, vermilion, and red-lead; the two latter of which ſhould be mixed with roſe pink or lake, to bring them to a ſofter caſt: for orange, orange lake, or a mixture of vermilion, or red-lead, with Dutch pink: for purple, roſe pink and Pruſſian blue. Into all theſe colours, properly ground with ſpirit of wine, they put a little ox or fiſh gall, which is two or three days old; and if the colours dilate not of themſelves ſufficiently, they add more gall: on the contrary, if they ſpread too much, the gall is over-doſed, and muſt be corrected by adding more of the colour without gall.

For the operation of marbling, when the gum is well ſettled in the trough, they extend a ſheet of paper, and plunge it very ſhallow into the liquor, ſuddenly lifting it out again, in order to ſtir up, and raiſe the ſubſiding gum towards the ſurface, and for the more univerſal impregnating of the liquor.

This done, and all the colours ranged in gallipots on the table, where alſo the trough is placed, they begin by dipping a bruſh of hog's hair into any colour, commonly the blue firſt, and ſprinkle it on the ſurface of the liquor: if the colour has been rightly prepared, it will dilate itſelf duly therein. This done, the red is applied in the like manner, but with another pencil: after this the yellow: laſtly the green. For white, it is made by only ſprinkling fair water, mixed with ox's gall, over the liquor.

When all the colours are thus floating on the liquor, to give them that agreeable cambletting, which we admire in marble paper, they uſe a pointed ſtick; which being applied by drawing it from one ſide of the trough to the other, with addreſs, ſtirs up the liquor and fluctuating colours; then with a comb, made of wood, about five inches long, with braſs teeth, about two inches in length, and a quarter of an inch diſtant from each other, taken by the head with both hands, they comb the ſurface of the liquor in the trough, from one extreme to another, permitting only the teeth to enter: this being performed with a gentle and uniform motion, makes thoſe clouds and undulations on which the beauty of the paper depends.

If it be farther deſired to have the colours lie in any other fantaſtical poſture, repreſenting ſerpents, or the like, it is effected with the pointed ſtick above-mentioned, by drawing it over what has been already combed; but this muſt be done with a dextrous hand, and with a ſhallow dip into the liquor, circling, as if you would draw ſome flouriſh, or figured letter.

Laſtly, the colours being in this poſture, the operator diſplays and applies on them a ſheet of white moiſtened paper; to do which, artiſt-like, requires a ſleight only to be obtained by practice; becauſe the ſurfaces of the liquor and the paper are to meet equally in all parts; which done, before the colours have time to ſoak through, which, unleſs the paper be very thick, will be in the ſpace of two or three pulſes, he lifts up the paper nimbly, and with an even hand; and then, after ſpreading it a while on a board, hangs it on a line to dry; which, when ſufficiently done, they firſt rub it with a little ſoap, and then poliſh it with a marble ſtone, ivory knob, or glaſs poliſhers; or with a burniſher of jaſper or agate.

It muſt be obſerved, that the ſprinkling of the colours is to be renewed, and all the other ceremonies performed with the ſtick and comb, at every application of freſh paper, by reaſon that every paper takes off all the colour from the liquor. Vide Kirch. de Luce & Umbra, lib. x. par. 2. cap. 4. Merr. Obſerv. on Neri de Art. Vitr. cap. 42. p. 312. Hought. Collect. tom. ii. p. 419, ſeq.

Some attempts have been made to enrich the marbling, by mixing gold and ſilver with the colours; which ſucceeded well in many attempts in the French king's library, though the expence has hindered the practice from obtaining. Savar. ubi ſupra.

Mr. Boyle tells us, that paper, beſides its common uſes, may be made into frames for pictures, fine emboſſed work, and other parts of furniture. For this purpoſe, a convenient quantity of the beſt white ſort may be ſteeped for two or three days in water, till it becomes very ſoft; then reducing it by the mortar and hot water into a thin pulp, it is laid on a ſieve to draw off its ſuperfluous moiſture; then putting it into warm water, wherein a conſiderable quantity of freſh glue, or common ſize, has been diſſolved, it may afterwards be put into moulds to acquire the deſigned figure; and when taken out may be ſtrengthened, as occaſion requires, with plaſter, or moiſtened chalk, and when dry painted or overlaid.

This hint is ſince improved into a regular manufacture, under the name of *papier machée*.

Another uſe of paper is to ſtop up cracks or fiſſures in wooden veſſels to hold water; for, in this caſe, it will forcibly dilate, and fill the place in which it is to lodge.

Paper, *Chineſe*, is of various ſorts; ſome is made of the rinds or barks of trees, eſpecially thoſe abounding in ſap, as the mulberry-tree and elm, but chiefly of the bamboo and cotton-tree; but, in reality, almoſt each province has its peculiar paper; that of Se-tchuen is made of hemp; that of Fo-kiang, of ſoft bamboo; that uſed in the northern provinces, of the bark of the mulberry-tree; that of the province of Che-kiang, of wheat or rice-ſtraw; that of the province of Kiang-nang, of the ſkin found in the ſilk-worms balls; in fine, in the province of Hu-quang, the tre-chu, or ko-chu, furniſhes the principal material for paper.

As to Papers *made of the barks of trees;* the manner of their preparation may be exemplified in the inſtance of that of the bamboo, a tree of the cane or reed kind, being hollow, and divided into joints; but much larger, ſmoother, harder, and ſtronger, than any other ſort of reed.

For this paper, they ordinarily only uſe the ſecond coat or ſkin of the bark, which is ſoft and white; this they beat in fair water to a pulp, which they take up in very large moulds or frames, ſo that they have ſheets ten or twelve feet long, and ſometimes more. They are completed by dipping them ſheet by ſheet in alum-water, which ſerves inſtead of the ſize uſed among us; and not only hinders the paper from too freely imbibing the ink, but gives it that luſtre which at firſt ſight makes it look ſilvered, or at leaſt varniſhed over.

The paper thus made is white, ſoft, and cloſe, without the leaſt roughneſs to ſtop the motion of the pen, or occaſion the riſing of any of its fibres; though being made of the bark of a tree, it cracks more eaſily than the European paper: add that it is more apt to take moiſture, that the duſt ſticks to it; and that the worms ſoon get into it; to prevent which laſt inconveniency, they are obliged often to beat their books and expoſe them to the ſun. Add, that its thinneſs making it liable to be ſoon worn out, the Chineſe are under a frequent neceſſity of renewing their books, by freſh impreſſions taken from their blocks. Vide Le Compt. Nouv. Mem. ſur Chin. lett. 7. Kuſt. Bibl. Nov. Libr. an. 1697, p. 67, ſeq. Lett. Edif. & Cur. tom. xix. p. 479.

But the paper of the bamboo, it is to be obſerved, is neither the beſt, nor the moſt uſed, in China. In the former of theſe reſpects, it yields the priority to the paper made of the cotton-ſhrub, which is the whiteſt and fineſt, and at the ſame time leaſt ſubject to the inconveniencies above-mentioned; becauſe it keeps as well, and is as durable, as the European paper.

Dr. Grew thinks we may have plants in England, which contain a down that in all probability would make as fine a paper as that made by the Chineſe, from their cotton-ſhrub. By which it appears he miſtakenly imagined that the Chineſe paper was made not from the rind of the cotton-ſhrub, but from the down or cotton itſelf. Vide Grew Muſ. Reg. Soc. par. ii. ſect. i. cap. 5. p. 215.

But the paper in moſt common uſe in China, is that made of the tree called *chu-ku*, or *ku-chu*, which Du Halde compares, firſt, to a mulberry-tree, then to a fig-tree, then to a ſycamore tree, and laſtly, to increaſe the embarraſſment, to a ſtrawberry-tree. By all which, we know no more of it than if he had ſaid nothing about it.

The method of preparing it for paper, is by firſt ſcraping off lightly the thin outſide of the tree, which is greeniſh: then they take off the inner rind in long thin ſlips, which they blanch in water, and in the ſun; and afterwards prepare them in the ſame manner as the bamboo. It muſt not be forgot, that in the other trees it is only the inward bark that ſerves for making paper; but the bamboo, as well as the cotton-ſhrub, have this peculiarity, that not only their bark, but their whole ſubſtance, may be employed, by means of the following preparations.

Out of a wood of the largeſt bamboos, they ſelect ſhoots of a year's growth, which are about the thickneſs of the calf of a man's leg: theſe they ſtrip of their firſt green rind, and ſplit them into ſtraight pieces of ſix or ſeven feet long: the pieces thus cleft, they ſteep in a pond of muddy water, till they rot and grow ſoft by the maceration. In a fortnight they take them out, waſh them in clean water, ſpread them in a large dry ditch, and cover them with lime for a few days; then they take them out again, and having waſhed them a ſecond time, they ſlip them into ſmall filaments, which they expoſe in the ſun to dry and whiten: they throw them into large coppers, where they are thoroughly boiled: and laſtly, reduce them by the ſtrokes of large hammers to a thin paſte or pulp.

After this, they take ſome ſhoots of a plant called *ko-teng*; they ſoak them four or five days in water, till there come out an unctuous ſizy ſort of juice; this they mix with the pulp of which the paper is to be made, ſomewhat in the ſame manner as painters temper their colours; care being taken not to put in too much, nor too little of it; on which the goodneſs of the paper much depends.

When they have mixed the juice of ko-teng with the cleft bamboo, and beaten the whole till it reſembles a thick clammy water, they pour it into a large deep reſervoir, conſiſting of four walls, raiſed breaſt high, and having the ſides and bottom ſo cemented, that the liquor cannot run out, nor ſoak in.

This being done, and the workmen placed at the ſides of the reſervoir, they dip in their moulds, and take up the ſurface of the liquor, which almoſt inſtantly becomes paper; the mucilaginous and gluey juice of the ko-teng binding the parts, and rendering the paper compact, ſoft, and gloſſy, qualities which the European paper never has when firſt made.

To harden the ſheets, and make them bear ink, they dip them into alum water: this operation is called *faning*, from the Chineſe word *fan*, which ſignifies *alum*. The manner is this: ſix ounces of fiſh glue, cut very ſmall, are put in divers porringers of water, which they afterwards boil up, ſtirring it all the time to prevent lumps: when the whole is reduced to a liquid ſubſtance, they throw into it three quarters of a pound of calcined alum, which they melt and incorporate with it.

This mixture is next poured into a wide baſon, acroſs which is laid a ſmall round ſtick; then they ſhut the edge of each ſheet in another cleft from end to end, and in this manner dip the ſheet, gently drawing it out as ſoon as it is wetted, by ſliding it over the round ſtick. When the whole ſheet has been paſſed nimbly through this liquor, which makes it whiter, and more compact, the long ſtick that holds the ſheet by the edge is ſtuck into a hole in the wall, and the ſheet hung up to dry.

As to the mould, with which they take up the ſheet, its frame is ſo contrived, that it may be raiſed or lowered at pleaſure; and its bottom is not made with wire as ours, but with little ſlender ſlips of bamboo, drawn ſeveral times through holes made in a ſteel plate, whereby they are rendered as fine as wire: they are then boiled in oil till thoroughly ſoaked, that the mould may enter lightly into the water, and not ſink deeper than is requiſite to take up matter enough for a ſheet.

To make ſheets of any extraordinary ſize, care is taken to have a reſervoir and mould large in proportion. This mould is ſuſtained by ſtrings which paſs over the pulley; and the moment theſe pull up the frame, the workmen, placed aſide the reſervoir, aſſiſt to take the ſheet off; working together in a regular manner. See Paper *ſupra*.

For drying the ſheets when taken off, they have a hollow wall, whoſe ſides are well whitened: at one end of it is an aperture, through which, by means of a pipe, they convey the heat of a neighbouring furnace: and at the oppoſite end is a ſmall vent to let out the ſmoke. By help of this ſort of ſtove, they dry the paper almoſt as faſt as it is made.

Silvering of paper, as it is called, is another ſecret among the Chineſe, practiſed at a very ſmall charge, and without uſing any ſilver. In order to this, they take two ſcruples of glue, made of neats-leather, one ſcruple of alum, and half a pint of clean water: theſe they ſimmer over a ſlow fire, till the water is conſumed, that is, till no more ſteam ariſes; then on a ſmooth table they ſpread ſome ſheets of paper, and on this, with a pencil, they apply two or three layers of the glue: then they take a powder made of talc boiled, and mixed with one-third the quantity of alum; the two are ground together, ſifted, and the powder boiled again in water, then dried in the ſun, and laſtly pounded again. This powder they ſift through a fine ſieve, ſpreading it uniformly on the ſheets prepared as above: after which they hang them in the ſhade to dry; and this effected, they lay them again on the table, and rub them gently with clean cotton to take off the ſuperfluous talc, which ſerves a ſecond time for the ſame purpoſe. With this powder, diluted in water, mixed with glue and alum, they draw any figures at fancy on the paper. Vide Du Halde, Deſcrip. Chin. tom. i. p. 368.

The era of the invention of paper, among the Chineſe, was, according to Martini, about 160 years before Chriſt.

Paper, *Japan*. Paper is made in Japan of the bark of the *morus papyrifera ſativa*, or *true paper-tree*, after the following manner: every year, when the leaves are fallen off, or in the tenth Japaneſe month, which commonly anſwers to our December, the young ſhoots, which are very ſucculent, are cut off into ſticks about three feet long, or ſomething leſs, and put together in bundles to be afterwards boiled with water and aſhes. If they ſhould grow dry before they can be boiled, they muſt be firſt ſoaked in common water, for about twenty-four hours, and then boiled. Theſe bundles, or faggots, are tied cloſe together, and put upright into a large kettle, which muſt be very well covered, and then they are boiled till the bark ſhrinks ſo far as to let about half an inch of the wood appear naked at the top. When the ſticks have all been ſufficiently boiled, they are taken out of the water, and expoſed to the air till they grow cold, then they are ſlit open lengthways, for the bark to be taken off, which being done, the wood is thrown away as uſeleſs, but the bark dried and carefully preſerved, as being the ſubſtance out of which they are in time to take their paper, by letting it undergo a farther preparation, conſiſting in cleanſing it a-new, and afterwards picking out the better from the worſe. In order to this, it is ſoaked in water three or four hours, and being grown ſoft, the blackiſh ſkin which covers it is ſcraped off, together with the green ſurface, of what remains, which is done with a knife, which they call *kaadſi kuſaggi*, that is, *a kaadſi razor*; at the ſame time alſo the ſtronger bark, which is a full year's growth, is ſeparated from the thinner, which covered the younger branches, the former yielding the beſt and whiteſt paper, the latter only a dark and indifferent ſort. If there is any bark of more than a year's growth, mixed with the reſt, it is likewiſe picked out, and laid aſide as yielding a coarſer and worſe ſort of paper; all groſs knotty particles, and whatever elſe looks in the leaſt faulty and diſcoloured, is picked out at the ſame time, to be kept with the laſt coarſe matter.

After the bark has been ſufficiently cleanſed, and prepared and ſorted according to its different degrees of goodneſs, it muſt be boiled in clear ley. From the time it begins to boil, they keep perpetually ſtirring it with a ſtrong reed, pouring from time to time ſo much freſh ley in as is neceſſary to condenſe the evaporation, and to ſupply what hath been already loſt by it; this boiling muſt be continued till the matter is grown ſo tender, that being but ſlightly touched with the finger it will diſſolve and ſeparate into flocks and fibres. Their ley is made of any ſort of aſhes, in the following manner: two pieces of wood are laid acroſs over a tub and covered with ſtraw, on which they lay wet aſhes, and then pour boiling hot water upon it, which, as it runs through the ſtraw into the tub underneath, is imbued with the ſaline particles of the aſhes, and makes what they call ley.

After boiling the bark as above deſcribed, follows the waſhing of it, which is of no ſmall conſequence in paper-making, and muſt be managed with great judgment and attention; if it hath not been waſhed long enough, the paper will be ſtrong, indeed, and of a good body, but coarſe and of little value; and if, on the contrary, the waſhing has been too long continued, it will afford a whiter paper, but ſuch as will not bear ink. This part of paper-making, therefore, muſt be managed with the greateſt care and judgment, ſo as to keep to a middle degree, and avoid either extreme. They waſh it in a river, putting the bark into a ſort of ſieve, which will let the water run through, and ſtirring it continually with the hands and arms, till it comes to be diluted into a delicate ſoft pulp, or mucilage. For the finer ſort of paper the waſhing muſt be repeated; but the bark muſt be put into a piece of linen, inſtead of a ſieve, becauſe the longer the waſhing is continued the more the bark is divided, and would come at laſt to be ſo thin and minute, that it would run out at the holes of the ſieve and be loſt, and at the ſame time alſo, what hard knots or flocks, and other heterogeneous uſeleſs particles remain, muſt be carefully picked out, and put up with a coarſer ſort of bark for worſe paper. The bark having been ſufficiently waſhed, is put upon a thick, ſmooth, wooden table, in order to its being beaten with ſticks of the hard *kuſnoki* wood, which is commonly done by two or three people, until it is wrought fine enough, and becomes withal ſo thin, as to reſemble a pulp of ſoaked paper, which being put into water will diſſolve and diſperſe like meal.

The bark, being thus prepared, is put into a narrow tub, with the fat ſlimy infuſion of rice, and the infuſion of the *oreni* root, which likewiſe is very ſlimy and mucilaginous. Theſe three things being put together muſt be ſtirred with a thin clean reed, till they are thoroughly mixed and wrought into an uniform liquid ſubſtance, of a good conſiſtence; this ſucceeds beſt in a narrow tub, but afterwards the mixture is put into a larger one, which is not unlike thoſe made uſe of in our paper-mills; out of this tub the leaves are taken off one by one, on proper patterns made of bulruſhes, inſtead of braſs wire, called *mys*. Nothing remains now but a proper management in drying them; in order to this they are laid up in heaps, upon a table covered with a double matt, and a ſmall piece of reed is put between every leaf, which ſtanding out a little way, ſerves, in time, to lift them up conveniently, and take them off ſingly. Every heap is covered with a ſmall plank or board, of the ſame ſhape and ſize with the paper, on which are laid weights, firſt, indeed, ſmall ones, leſt the leaves, being then wet and tender, ſhould be preſſed together into one lump, but, by degrees, more and heavier, to preſs and ſqueeze out all the water. The next day the weights are taken off, the leaves are lifted up one by one, by the help of the ſmall ſtick above mentioned, and with the palm of the hand, clapped to long rough planks made for this purpoſe, which they will eaſily ſtick to, becauſe of the little humidity ſtill remaining. After this manner they are expoſed to the ſun, and when quite dry, taken off, laid up in heaps, pared round, and ſo kept for uſe or ſale.

It has been obſerved, that the infuſion of rice, with a gentle friction, is neceſſary for this operation, becauſe of its white colour, and a certain clammy fatneſs, which at once gives the paper a good conſiſtence, and pleaſing whiteneſs. The ſimple infuſion of rice-flour will not do it, becauſe it wants that clammineſs, which, however, is a very neceſſary quality. The infuſion ſpoken of is made in an unglazed earthen pot, wherein the rice grains are ſoaked in water, and the pot afterwards ſhaken, gently at firſt, but ſtronger by degrees; at laſt, freſh cold water is poured upon it, and the whole percolated through a piece of linen. The remainder muſt go under the ſame operation again, freſh water being put to it, and this is repeated ſo long as there is any clammineſs remaining in the rice. The Japaneſe rice is by much the beſt for this purpoſe, as being the whiteſt and fatteſt ſort growing in Aſia.

The infuſion of the oreni root is made after the following manner: the root pounded, or cut ſmall, is put into freſh water, which in one night's time turns mucilaginous, and becomes fit for uſe, after it has been ſtrained through a piece of linen. The different ſeaſons of the year require a different quantity of water to be mixed with the root. They ſay the whole art depends entirely upon this. In the ſummer, when the heat of the air diſſolves the jelly, and makes it more fluid, a greater quantity is required, and leſs in proportion in the winter, and in cold weather; too much of this infuſion mixed with the other ingredients will make the paper thinner in proportion; too little, on the contrary, will make it too thick, therefore a middle quantity is required to make a good paper, and of an equal thickneſs; however, upon taking out a few leaves, they can eaſily ſee whether they have put too much or too little of it. Inſtead of the oreni root, which ſometimes, at the beginning of the ſummer, grows very ſcarce, the paper-makers make uſe of a creeping ſhrub, called *ſane kadſura*, the leaves of which yield a mucilage in great plenty, though not altogether ſo good for this purpoſe, as the mucilage of the above mentioned oreni root. They alſo uſe the *juncus ſativus*, which is cultivated in Japan with great care and induſtry. It grows tall, thin, and ſtrong; the Japaneſe make ſails of it, and very fine matts to cover their floors.

It hath been obſerved above, that when the leaves are freſh taken off from the patterns, they are laid up in heaps, on a table covered with two matts. Theſe two matts muſt be of a different fabric, one, which lies lowermoſt, is coarſer, but the other, which lies uppermoſt, is thinner, made of thin, ſlender bullruſhes, which muſt not be twiſted too cloſe one to another, but ſo as to let the water run through with eaſe, and very thin, not to leave any impreſſion upon the paper.

A coarſer ſort of paper, proper to wrap up goods, and for ſeveral other uſes, is made of the bark of the *kadſe kadſura* ſhrub, after the method above deſcribed. The Japaneſe paper is very tight and ſtrong, and will bear being twiſted into ropes.

A thick ſtrong ſort of paper is ſold at Siriga (one of the greateſt towns in Japan, and the capital of the province of that name), which is very neatly painted and folded up, ſo much in a piece as is wanted for a ſuit; it looks ſo like ſilken or woollen ſtuff, that it might be miſtaken eaſily for them. A thin neat ſort of paper, which hath a yellowiſh caſt, is made in China and Tonquin, of cotton and bamboos: at Siam, the Siamites make their paper of the bark of the *pliok-kloi* tree, of which they have two ſorts, one black and the other white, both very coarſe, rude and ſimple, as they themſelves are. They fold it up into books, much after the ſame manner fans are folded, and write on both ſides, not, indeed, with a pencil, in imitation of thoſe more polite nations who live farther eaſt, but with a rude ſtylus made of clay.

Thus far we have given a deſcription of the way of making paper in the Eaſt, which the late learned Becmannus was ſo deſirous to know, and ſo earneſtly intreated travellers to enquire into, being, however, miſtaken, in ſuppoſing that it was made of cotton, whereas it evidently appears by this account, that all the nations beyong the Ganges make it of the bark of trees and ſhrubs. The other Aſiatic nations on this ſide the Ganges, the black inhabitants of the moſt ſouthernmoſt parts excepted, make their paper of old rags of cotton ſtuff, and their method differs nothing from ours in Europe, except that it is more ſimple, and the inſtruments they make uſe of are groſſer. See Son.

Paper, *Flock*, is a kind of paper-hanging, lately invented, which is emboſſed by means of chopt cloth. The paper deſigned for receiving the flock is generally firſt prepared with a varniſh ground, of a proper colour; and it is not uncommon to print ſome moſaic, or other ſmall running figure, in colours, on the ground, before the flock is laid on: this may be done with any pigment of the colour deſired, tempered in varniſh, and laid on by a print cut for the purpoſe.

The manner of laying on the flock is either by means of a print, or by a ſtencil. But as the ſtencil can execute nothing but detached parts, and conſequently is unfit for all deſigns where running work, ſcrolls, or other more complicated ornaments are introduced; it is extremely confined, with reſpect to the nature of the deſigns for which it can be employed; and the print is therefore moſt generally preferred. The method of laying on the flock by means of a print is this: a wooden print being cut (ſee PAPER-*hangings*) in ſuch manner, that the part of the deſign, which is intended for the flock, may project beyond the reſt of the ſurface, the varniſh is put on a block covered with leather, or oil-cloth, and the print is then uſed to lay the varniſh on all the parts where the flock is to be fixed. The ſheet, thus prepared by the varniſhed impreſſion, is now to be removed to another block or table; and to be ſtrewed over with flock: which is afterwards to be gently compreſſed by a board, or ſome other flat body, to make the varniſh take the better hold of it. Then the ſheet is to be hung on a frame till the varniſh be perfectly dry; at which time the ſuperfluous part of the flock is to be bruſhed off by a ſoft camel's-hair bruſh, and the proper flock will be found to adhere in a very ſtrong manner. When the ſtencil is uſed, the ſame method is to be purſued: the varniſh for holding the flock being laid on by that inſtead of a print; and the flock afterwards ſtrewed upon it, as in the other caſe.

The uſual method of preparing the flock is, by cutting woollen rags, or pieces of cloth, with the hand, by means of a large bill or chopping-knife. But it is much more eaſily and better done by a machine; which may be worked by a horſe-mill, at the ſame time ſuch mill is employed for cutting diamonds, or any other ſimilar purpoſe. In ſuch caſe, the conſtruction of that part of the machine, which is made for the cutting the flock, is this.

A box is made for containing the rags or cloth to be cut; which is open at the top; and of ſuch ſize, as may beſt ſuit the quantity of rags that the force employed can cut. A blade is alſo to be made, the length of which is to be equal to the breadth of the box; and it ſhould be ſtrong; and muſt be charged with as great a weight as the force employed can be made to raiſe with a quick motion. The box being filled with the rags or cloth to be cut, is placed under the blade, and made to move by hitches, after the ſtroke of the blade is given, juſt ſo far as where it is proper the blade ſhould again cut the cloth or rags; while, at the ſame time, the blade is lifted up, and let fall on the cloth, which it cuts through, till by ſucceſſive ſtrokes, and the progreſſive motion of the box under it, the whole quantity of cloth or rags in the box has been cut. The box muſt then be turned, ſo that one of the ſides may become the front; and the operation muſt be repeated; by which means the cloth or rags, having been cut both ways, will be reduced to the ſtate in which the matter is called flock; and fit to be employed for the purpoſe of paper-hangings. The work neceſſary for conveying from the principal mover in the mill, the motion for thruſting forward the box, and raiſing the blade, may be eaſily ſupplied by any ingenious wheelwright, and need not therefore be particularly deſcribed here.

There is a kind of counterfeit flock-paper, which, when well managed, has very much the ſame effect to the eye as the real: though done with leſs expence. The manner of making this ſort is, by laying a ground of varniſh on the paper; and having afterwards printed the deſign of the flock in varniſh, in the ſame manner as for true; inſtead of the flock, ſome pigment, or dry colour, of the ſame hue with the flock required by the deſign, but ſomewhat of a darker ſhade, being well powdered, is ſtrewed upon the printed varniſh, and produces greatly the ſame appearance. Handmaid to the Arts, vol. ii. p. 458, &c.

PAPER-*hangings* are of ſeveral kinds; ſome of which are made in the repreſentation of ſtucco-work, for covering ceilings, or the ſides of halls, ſtair-caſes, paſſages, &c. and others in imitation of velvet, damaſk, brocades, chintzes, or ſuch ſilks and ſtuffs as are employed for hanging rooms.

The principal difference in the manufacture lies in the grounds; ſome of which are laid in varniſh, and others in the common vehicles for water colours.

The kind of paper employed for this uſe is a ſort of cartoon, manufactured for the purpoſe, which muſt be ſtamped before it be painted. 1 Geo. ſtat. 2. c. 36.

The colours proper to be uſed for painting paper-hangings are all thoſe that can be uſed in water and varniſh. But for common deſigns done with water only, the following are moſt proper.

For red, lake, vermilion, roſe-pink, and red-ochre: for blue, Pruſſian blue, verditer, and indigo: for yellow, the yellow-berry waſh, Dutch pink, and yellow ochre: for green, verdigris, or a mixture of the blue colours with the yellow colours, particularly with the yellow-berry waſh: for orange, vermilion, or red lead, with Dutch pink: for purple, a waſh made of logwood, or a mixture of the lake, or roſe-pink, with deep coloured Pruſſian blue, or with indigo: for black, ivory black, and in ſome nicer caſes lamp-black: for white, whiting: and for the heightnings, white-lead.

Where great brightneſs is required, the lake ſhould be uſed for the crimſon red, and Pruſſian blue for the blue; but for many purpoſes, roſe-pink uſed alone for the crimſon red, and indigo mixt with whiting for the blue, will anſwer the purpoſe with greatly leſs expence. The lake, roſe-pink, Pruſſian blue, and Dutch pink, intended for this uſe, ſhould be procured in a moiſt ſtate.

The colours uſed in varniſh may be the ſame as thoſe uſed in water; but for this purpoſe, thoſe juſt mentioned ſhould be obtained dry.

As for the vehicles of the colours; when water is uſed, it muſt be inſpiſſated with ſize and gum Arabic or Senegal. When burniſh is uſed, it muſt be formed of oil of turpentine, and the reſins and gums which will diſſolve in that menſtruum. With reſpect to the grounds for paper hanging, thoſe that are laid in water are made by mixing whiting with the ſize above mentioned, and laying it on the paper, with a proper bruſh, in the moſt even manner. Nothing more is neceſſary, when the ground is to be left white; and the paper being hung on a proper frame, till it be dry, is fit to be painted. When coloured grounds are wanted, the ſame method muſt be purſued; and the ground of whiting firſt laid; except that, in paler colours, a ſecond coating may ſometimes be ſpared, by mixing ſome ſtrong colour with the whiting. But where a greater force of colour is wanted, the pigment or colouring ſubſtance muſt be tempered with the proper vehicle, and then ſpread over the white coat. The varniſh grounds are made much in the ſame manner, by mixing the proper colour with the varniſh, and ſpreading it on the paper.

There are three methods by which paper-hangings are painted: the firſt by printing on the colours; the ſecond by uſing the ſtencil; and the third by laying them on with a pencil, as in other kinds of painting.

When the colours are laid on by printing, the impreſſion is made by wooden prints; which are cut in ſuch manner, that the figure to be expreſſed is made to project from the ſurface, by cutting away all the other part. This, being charged with the colours tempered with their proper vehicle, by letting the print gently down on a block, on which the colour is previouſly ſpread, conveys it from thence to the ground of the paper, on which it is made to fall more forcibly by means of its weight, and the effort of the arm of the perſon who uſes the print. The manner of doing this, when more particularly explained, is thus.

The paper being properly prepared by a ground of whiting, colour, or varniſh, is laid on a proper block, on which a piece of leather is ſtrained. The colour, mixed with its proper vehicle, is ſpread on another piece of leather, or oil cloth, laid on a flat block, ſomewhat larger than the print; which is done by a boy or man who attends for that purpoſe; and having the colour by him, in a pot, ſpreads it with a bruſh on the block betwixt every ſtroke and impreſſion the printer makes. The print is previouſly cut in ſuch manner, correſpondently to the deſign of the painting, that there ſhall be a projection on the ſurface anſwering to every part, where that colour intended to be conveyed by this print is neceſſary. The printer then takes the print either in his right hand, or, when too heavy to be ſo managed, in both, and drops it gently on the block, juſt charged with colour; from whence he again immediately raiſes it in the moſt perpendicular direction, and lets it fall in the ſtrongeſt, though moſt even manner, he can, on the paper; increaſing the force by all the additional velocity he can give the print. When this is done, the ſheet printed is immediately taken off the block, and hung up to dry; and another being put in its place, the ſame operation is repeated, till the whole quantity of paper be printed. It is eaſy to conclude, that there muſt be as many ſeparate prints, as there are colours to be printed; and they are to be uſed ſucceſſively in the ſame manner as the firſt. But where there are more than one, great care muſt be taken, after the firſt, to let the print fall exactly in the ſame part of the paper, as that which went before: otherwiſe the figure of the deſign would be brought into irregularity and confuſion. In common paper of low price, it is uſual, therefore, to print only the outlines, and lay on the reſt of the colours by ſtencilling; which both ſaves the expence of cutting more prints; and can be practiſed by common workmen, not requiring the great care and dexterity neceſſary to the uſing of prints.

The manner of ſtencilling the colours is this. The figure, which all the parts of any particular colour make in the deſign to be painted, is to be cut out, in a piece of thin leather, or oil cloth. Theſe pieces of leather, or oil cloth, are called ſtencils; and being laid flat on the ſheets of paper to be printed, ſpread on a table or floor, are to be rubbed over with the colour, properly tempered, by means of a large bruſh. The colour paſſing over the whole is conſequently ſpread on thoſe parts of the paper where the cloth or leather is cut away, and give the ſame effect as if laid on by a print. This is neverthleſs only practicable, without great care, in parts where there are only detached maſſes, or ſpots of colours: for where there are ſmall continued lines, or parts that run one into another, it is difficult to preſerve the connection or continuity of the parts of the cloth, or to keep the ſmaller corners cloſe down to the paper; and therefore, in ſuch caſes, prints are preferable. Stencilling is indeed a cheaper method of ridding coarſe work than printing; but without ſuch extraordinary attention and trouble, as render it equally difficult with printing, it is far leſs beautiful and exact in the effect. For the outline of the ſpots of colour want that ſharpneſs and regularity that are given by prints; beſides the frequent extralineations, or deviations from the juſt figure, which happen by the original miſplacing of the ſtencils, or the ſhifting the place of them during the operation.

Pencilling is only uſed in the caſe of nicer work, ſuch as the better imitations of the India paper. It is performed in the ſame manner as other paintings in water, or varniſh.

It is ſometimes uſed only to fill the outlines already formed by printing; where the price of the colour, or the exactneſs of the manner in which it is required to be laid on, render the ſtencilling or printing it leſs proper: at other times it is uſed for forming or delineating ſome parts of the deſign, where a ſpirit of freedom and variety, not to be had in printed outlines, are deſired to be had in the work.

The manner of proceeding with theſe ſeveral methods is, in common work, to ſtencil firſt all parts of the colour in the deſign, and to give an outline to the whole at laſt, by printing with brown or black: but where there is any running part of the deſigns, ſuch as ſcrolls, or the ſtems or ſtalks of creeping plants, or flowers, which are to be printed in any other colour than brown or black, a print muſt be uſed for them; though, if they require only brown or black, they may be done by the ſame print which makes the outlines.

In the finer paper, where ſeveral colours are laid on with the prints, the principal colour is begun with; and the reſt taken ſucceſſively; the print for the outline being laid on laſt. In caſes where the pencil is to be uſed, the outline is nevertheleſs to be made before the colours are laid on by the pencil, if ſuch outline is to be made at all; becauſe that is the guide to the perſon who lays on the colour; and confines them to a correctneſs.

In paper printed with deſigns in chiaro-ſcuro, ſuch as the imitation of ſtucco work, and bas relievos, the order of printing muſt be, to lay on the ground colour firſt; afterwards the ſhades; and laſtly the lights: and the ſame rule of ſucceſſion muſt be obſerved where the colours are pencilled. Handmaid to the Arts, vol. ii. p. 445, &c.

Paper-hangings may be ſpangled with that kind of talc called iſinglaſs, which being reduced to a groſs flaky powder, has a great reſemblance to thin ſilver ſcales or powder. It is laid on by ſtrewing over the varniſh, which forms the ground, before it begins to dry. When it is laid on in a figure, for the repreſentation of embroidery, the figure muſt be printed in varniſh, and the talc ſtrewed upon it, and treated like flock. Smalt may alſo be uſed in the ſame manner as flock or ſpangles. But hangings of this kind are now little uſed.

Paper, ruled for the reception of muſical characters. Rouſſeau was the firſt, we believe, who made this a lexicographical article. Five parallel lines form what muſicians call the *ſtaff;* upon which lines in the ſpaces are diſpoſed all the notes of the time-table and their places in the general ſcale, regulated by clefs at the beginning of each ſtaff.

All our muſic for keyed inſtruments, till the latter end of the ſeventeenth century, was written on ſtaves of ſix lines, of which the loweſt in the treble clef, and higheſt in the baſe, was the middle C of the general ſcale. See Staff.

Almoſt all the muſic paper in Italy is ten-ſtaved, for the convenience of ſcoring ſongs with four inſtrumental parts: as the violino primo, violino ſecondo, alto viola, voice part, and baſe. Theſe being linked together by braces, are eaſily found, not only by the fingers, but by the inſtrumental performers, by whom they may be accompanied from the ſcore.

The Engliſh have paper ruled of all forms and number of ſtaves. In general, for violins, of 12 ſtaves, and for the piano forte, and vocal parts, long quarto, as it is more on a level with the eyes, and conceals the viſage of the performers leſs from the audience.

Paper, among *Bankers*, and other negociants, is alſo uſed for bills of exchange, bank and promiſſory notes, &c.

Subſtituting paper for money, and giving the paper an arbitrary value, was the way of paying debts introduced in France by Mr. Law. A royal bank was eſtabliſhed, to which people were to carry their money, and receive the value of it in bills, which were to paſs current in trade as ſo much money. (Vide Chevign. Scienc. des Perſ. de la Cour, tom. ii. p. 292.) It was made confiſcation of goods, and the gallies, for any man to keep above forty livres by him of any but paper money. When the regent was told what a rage was ſpirited up againſt him about the arrets of making paper current, and how openly the people threatened him, he anſwered coolly, the French were like watch-dogs, they would bark, but not bite: "Les François reſemblent aux chiens a garde, ils aboyent, mais ne mordent pas." Miſt. Miſc. Lett. tom. iv. p. 16.

Paper-*Books*, in *Law*, are the iſſues in law, &c. upon ſpecial pleadings, made up by the clerk of the papers who is an officer for that purpoſe.

Upon an iſſue in law, it is termed the "Demurrer-book." The clerks of the papers of the court of king's bench, in all copies of pleas and paper-books made up by them, ſhall ſubſcribe to ſuch paper-books the names of the counſel who have ſigned ſuch pleas, as well on behalf of the plaintiff as defendant: and in all paper-books delivered to the judges of the court, the names of the council who ſigned theſe pleas are to be ſubſcribed to the books, by the clerks or attornies who deliver the ſame. R. Paſch. Car. 2. 2 Lill. Abr. 268.

Paper-*Frames*, in *Gardening*, are ſuch as are formed with oiled paper, upon a ſlight frame-work of thin ſlips of wood. Theſe frames are uſeful for ſeveral purpoſes in the early ſpring and ſummer ſeaſon; ſuch as in defending late hot-beds, and ſometimes in particular natural ground beds of curious tender plants, ſeeds, cuttings, &c.

When formed as above, they are made, either in a ridge manner, with two ſloping ſides, longways, or arch-faſhion, in dimenſions from five to ten feet in length, and three to four in width, and two to three feet in perpendicular height; the wood-work is covered with large ſheets of ſtrong white paper, paſted on ſecurely, and, when dry, bruſhed over regularly with linſeed oil, to reſiſt and ſhoot off the falling wet of rains and dews, and to render them more pellucid, ſo as to admit the rays of light, and the heat of the ſun, in a proper degree. When thus prepared, and perfectly dry, they are ready for placing over the beds for the purpoſes required; in which the paper continues durable generally only one ſeaſon; but the frame-work will laſt ſeveral years, by being freſh papered.

Theſe kinds of temporary frames are alſo uſeful in ſome of the hand-glaſs crops of melons, and occaſionally in thoſe of cucumbers, but more generally in the former; which after having advanced in growth, to fill and extend beyond the compaſs of the hand-glaſſes, they ſhould be removed, and the paper-frames placed over the bed, covering it wholly in width and length, the runners of the plants being trained out regularly along the ſurface; continuing them conſtantly over the plants, which are thereby protected from external injuries, and inclement weather, either cold or exceſſive rains, winds, &c. likewiſe from the too powerful heat of the ſun. See Cucumis *Melo*.

They may alſo be uſed for late hot-bed cucumbers, when in want of garden-frames or hand-glaſſes for the purpoſe, being placed over the bed, at once finally to remain: and with proper care in giving occaſional air, water, and covering over the frames with mats in cold nights, and very hard rains, &c. cucumbers may be raiſed in a tolerable manner.

They may likewiſe be employed occaſionally, in default of others, in the raiſing moſt of the leſs hardy or tenderer annuals, both in ſowing them into hot-beds, and warm borders of natural earth.

Paper-frames may likewiſe be uſed advantageouſly in pricking out many ſorts of ſmall tender ſeedling plants in the hot ſummer months, to defend them from caſual unfavourable night air, heavy rains, &c. and afford a fine growing ſhade from the hot rays of the mid-day ſun. The ſame kind of frames may ſtill further be beneficial in raiſing many ſorts of tender exotics, from ſmall cuttings and ſlips in ſummer, both of the woody, herbaceous, and ſucculent kinds, either planted in hot-beds, or in the natural earth, as the different kinds may require: which being covered cloſe with them, they exclude the outward air, admit the light and influence of the ſun in a proper degree, and at the ſame time afford a peculiar kindly ſhade.

Theſe frames are chiefly made in the forms mentioned above, in an open manner, having the ribs or ſpars twelve inches aſunder, firſt forming a bottom frame, rather ſtronger than the other parts, with a ridge-piece ſupported at a proper height, extending longways in the middle; then narrow ſide rafters, arranged from the bottom to the ridge-rail at top, a foot diſtant, both for the advantage of paſting the paper regularly, and to admit a proper degree of light between them through the paper: but when of great length, it is proper to have one or two pannels on one ſide, eighteen inches or two feet in width, to open outward with hinges, convenient for admitting air, and performing other occaſional culture: the whole being thus formed in the wood-work, it is then proper to extend lines of packthread croſs-ways of the ribs, going round each, level or even with the upper ſurface of the frame, continuing two or three rows a foot aſunder, from the lower part upward, drawing other lines, croſſing and interſecting theſe at the ſame diſtance, regularly between the ribs of the frame-work; which arrangement of the lines is of eſſential ſervice for the more effectual ſupport of the paper when paſted on the frame, and ſtrengthening it againſt the power of winds and heavy rains. The paper for this uſe ſhould be of the larger ſtrong printing or demy kind; which, previouſly to paſting on the frame, ſhould be moderately damped with water, that it may not ſink in hollows after being fixed; and as ſoon as thus prepared, it ſhould be paſted on, ſheet and ſheet, in a regular manner, one large ſheet and a half, or two at moſt, generally ranging from the bottom to top, contriving to have whole ones along the ridge-rails above, extending lengthways and acroſs, placed conveniently to join regularly with the other ſheets below; and if, at the interſections of the packthreads, a ſmall ſquare or round bit of the ſame paper be paſted on the inſide to the main ſheets over that part of the packthread, it will give it additional ſtrength againſt rain and wind. And, when the paper is thus paſted on, and perfectly dry, it muſt be oiled over with linſeed oil, either raw or boiled; the latter is, however, rather apt to harden the paper, and more liable to crack or break; it may be applied by means of a painter's ſoft clean bruſh, dipping lightly, and bruſhing the outſide of the paper all over, equally in every part; then placing the frame in ſome dry covered ſhed, to remain till the whole is thoroughly dry; when it may be uſed.

But though theſe ſorts of frames may be cheap, and anſwer many little purpoſes of the gardener, they are not by any means ſo uſeful as thoſe made with glaſs in the uſual manner.

Paper-*Mills*, (in the court of king's bench) is where the writings belonging to that court are repoſited.

Paper-*Money*, *Currency*, or *Credit*, as they are indifferently called, in *Political Economy*, is a ſubject of great importance and no ſmall difficulty. The different and oppoſite opinions which have been entertained reſpecting its nature, operation, and advantages and diſadvantages, ariſe, partly from a want of regular and clear reference, in diſcuſſing this ſubject, to the undiſputed and fundamental principles of political economy, and partly from not attending to that particular branch of this ſcience to which this ſubject more eſpecially and cloſely belongs.

If we examine what the moſt celebrated and judicious authors have written reſpecting paper money, we ſhall find that ſcarcely any of them have adverted with ſufficient preciſion, and in a ſufficiently decided and diſtinct manner, to the points of difference which exiſt between paper money iſſued by government, and which it is rendered obligatory upon the people to receive, and that ſpecies of paper money which conſiſts in the notes of bankers, payable to the bearer on demand, and which paſs current for the ſums ſpecified in them. Of the former kind were the aſſignats and mandats iſſued by the government of France during the firſt years of the Revolution; the paper money iſſued in America, before and during the war with this country; that which was iſſued by the Dutch during their long and arduous ſtruggle for independence; and, generally ſpeaking, the paper money which moſt of the governments on the continent of Europe have found themſelves compelled to iſſue during the French Revolutionary wars. It will be ſufficiently evident, from the ſlighteſt conſideration of theſe two ſpecies of paper money, that they differ completely and eſſentially in their nature, and that we ſhall be led far aſtray from the truth in our diſcuſſions on paper currency, if we infer, from what has taken place reſpecting the one ſpecies, what will probably, or muſt neceſſarily take place reſpecting the other ſpecies.

In order that in this article we may not be led into any confuſion of theſe two ſpecies, it may be proper, before we proceed, to conſider the nature, effects, and advantages and diſadvantages of bank paper, properly and ſtrictly ſo called, briefly to diſcuſs the ſubject of government paper. In general the paper iſſued by the governments on the continent of Europe, contains no promiſe to pay either on demand, or at the termination of a limited and ſpecific period; it is, in reality, nothing more than paper ſtamped with the amount of the ſum for which it is to paſs current, and with ſuch marks or ſignatures, as may ſerve to diſtinguiſh what is genuine from what is forged. Here, then, we at once perceive an eſſential difference between government paper and bank paper: the former is in fact, ſtrictly ſpeaking, *paper money;* or, in other words, paper iſſued as money inſtead of the precious metals; the latter, as we ſhall ſhew more clearly and fully afterwards, is not, ſtrictly ſpeaking, paper money, though thus denominated in general and popular language, but a written obligation to pay a certain ſum of money on demand. Another ſtriking and eſſential difference between theſe two ſpecies of currency ariſes from the diſtinction juſt pointed out: it is plain, that if the written obligation to pay on demand is given by perſons who are of undiſputed and eſtabliſhed credit, few will be diſpoſed to refuſe ſuch written obligation, and therefore this ſpecies of paper currency will be received without compulſion, and where the credit of the iſſuer or iſſuers is undoubted, equally as metallic money. But the reverſe muſt be the caſe with regard to government paper money: it contains no obligation to pay metallic money, and therefore will never be preferred to the latter, or taken, unleſs in caſes where there is no alternative. With reſpect to bank paper, it is ſought after; the taking of it is a matter of choice: with regard to government paper, it is compulſory on the people; the government which iſſues it, tenders it in payment of the debts which it may have contracted, and it is taken, only becauſe, if it is refuſed, no other payment will be made. It may, however, be remarked, that another cauſe operates, in ſome degree, towards the acceptance and circulation of compulſory government paper; for though this paper contains no obligation or promiſe to pay in metallic currency, yet as all governments neceſſarily receive large ſums from their ſubjects in taxes, the unwillingneſs of the people to receive this compulſory money, is in ſome meaſure removed, by the conviction that part of it will be taken back by government in payment of taxes. It will be no difficult matter to perceive what, in almoſt every caſe, muſt be the conſequence of an iſſue of compulſory government paper: as long as any government confines itſelf to a metallic currency, there is ſome check to the extravagance and careleſſneſs of its expenditure; for if it be extravagant or careleſs, it will experience great difficulty in replacing the money it has thus expended; but, on the other hand, if it ſubſtitute compulſory paper money in the room of a metallic currency, there can be no check to its careleſſneſs or extravagance, except what ariſes from the neceſſary conſequence of an exceſſive iſſue of paper money.

This conſequence it may be proper to conſider ſomewhat at large, ſince, though all authors are agreed, that an over-iſſue, and conſequent depreciation of compulſory government paper may take place, and, in fact, has almoſt uniformly occurred, yet great difference of opinion exiſts, whether, in the caſe of bank paper, an over-iſſue and conſequent depreciation can poſſibly occur. In order to keep quite ſeparate and diſtinct the queſtion of the depreciation of government paper currency, as it ariſes from a diminution of confidence in the ſtability of the government which iſſues it, it will be proper to conſider this point; on the ſuppoſition, that the confidence of the people in the ſtability of their government remains the ſame, during the whole courſe of the increaſing iſſues of its paper currency; and to confine ourſelves ſolely to the inveſtigation of the conſequence produced by an increaſed iſſue, and of the mode in which this conſequence is produced.

Money, of whatever it is compoſed, whether of metal or paper, like every other commodity, depends, for its value, on the proportion between it and the commodities for which it is exchanged: if this proportion is altered or deranged, the value of the money will be altered: if, while the quantity of money remains the ſame, the quantity of the commodities is diminiſhed, the money muſt neceſſarily bear a larger proportion to them than it previouſly did; and conſequently, its power to purchaſe them will be diminiſhed: ſtrictly ſpeaking, however, this cannot, with propriety and preciſion of language, be denominated a depreciation of the currency, as the variation in its value or power of purchaſe, ariſes entirely from a change in the quantity of commodities, and not, in the ſmalleſt degree, from any alteration in the quantity of the currency. But if, while the quantity of commodities continues ſtationary, the amount of the circulating medium is increaſed, the conſequence already pointed out will equally enſue; that is, the power of the currency to purchaſe commodities will be diminiſhed; and the currency, therefore, ſo far as it is conſidered in relation to commodities, will be depreciated. But in all countries where a compulſory government paper is iſſued, the metals, even when coined, ſoon are regarded ſolely as commodities, and are affected, equally with all other commodities, by the increaſed iſſue of the paper currency. As, therefore, there is no check to the iſſue of government paper, and extravagant or careleſs expenditure calls for increaſed iſſue, a depreciation of ſuch paper neceſſarily enſues; and each ſtage in the depreciation occaſions a further iſſue, which in its turn increaſes the depreciation ; for when the government perceives that one thouſand pounds in paper money, for inſtance, will no longer command the ſame quantity of the commodities which it needs, that it would formerly do, but that one thouſand and fifty pounds are requiſite for this purpoſe, it is compelled to increaſe its iſſue of paper money in this proportion, and this increaſed iſſue, again raiſing the price of commodities, requires a ſtill larger iſſue, the next time that the government has occaſion to make a purchaſe.

Hitherto we have conſidered the queſtion of the depreciation of compulſory government paper as ariſing ſolely from the circumſtance of an increaſe in the quantity iſſued : but other cauſes are operating, at the ſame time, and towards the production of the ſame effect ; for no compulſory government paper can poſſeſs the confidence of the people, (and *value* or *confidence* are abſolutely neceſſary to the character and uſes of money,) if that character is to be preſerved inviolate, and thoſe uſes are to be obtained and preſerved in their full and complete effect. On the firſt iſſue of compulſory government paper, it is received with reluctance : metallic money is preferred to it, and where it can be procured, a premium is willingly given for it, or, in other words, the compulſory government paper is at a diſcount. But, if this is the caſe at the firſt iſſue of it, and when the amount is comparatively ſmall, we may eaſily conceive what will be the conſequence, if a larger and conſtantly increaſing quantity is forced on the people : this increaſing quantity muſt act, not only in the manner which we have already deſcribed, towards its own depreciation, by the ſame proceſs in which all commodities are depreciated by increaſe, but it will alſo operate towards its own depreciation in another manner. The very firſt iſſue of a compulſory government paper is a ſufficient proof of an impoveriſhed and embarraſſed government ; and every future iſſue, eſpecially if the amount of the iſſue be increaſed, is a proof that the poverty and embarraſſment of the government are increaſing : but it is utterly impoſſible, that while the poverty and embarraſſment of a government are increaſing, the confidence which the people repoſe in it can remain ſtationary : it muſt diminiſh, and a diminution of public confidence in a government diſplays itſelf in no reſpect ſo unequivocally and materially, as in the eſtimate which is formed of the value of the paper currency. Here, then, we perceive the real and full ſtate of the caſe, whenever a government increaſes the iſſue of its compulſory paper : a larger quantity of a currency, on its firſt circulation received with reluctance, and only becauſe no other mode of payment could be obtained, is iſſued ; the increaſed iſſue, of itſelf, would neceſſarily diminiſh the value of the currency, but this conſequence is increaſed by the ſuſpicion which ſuch a meaſure on the part of government creates, that the finances of government are on the decline ; hence, from the operation of both theſe cauſes, *viz.* an increaſed iſſue, and diminiſhed confidence, a depreciation of the compulſory government paper muſt neceſſarily enſue.

There is ſtill another ſubject incidentally connected with paper currency, on which it may be proper to ſay a few words, before we proceed to the immediate topic of this article. By many, bills of exchange, or exchequer bills, payable only at a certain time, and bearing intereſt, are conſidered as paper currency ; and it is contended that an increaſe in the iſſue of them has exactly the ſame effect as an increaſe in the iſſue of government or bank paper. This notion, though certainly plauſible, and maintained by writers of conſiderable acuteneſs and knowledge on the ſubject of polititical economy, a little reflection will ſerve to convince us is erroneous and unfounded. We have only to reflect on the nature and operations of currency, to be convinced that bills of exchange and exchequer bills do not form a part of it ; and, indeed, that notes *bearing intereſt*, are by that very circumſtance excluded from the character and operations of currency ; and that the increaſed iſſue of theſe, ſo far from tending to depreciate the value of money, muſt rather operate to raiſe it. Under the article MONEY we endeavoured to ſhew that the mere increaſe or diminution of the circulating medium did not neceſſarily tend to lower or raiſe the rate of intereſt : but that the rate of intereſt muſt depend on the quantity of money offered to be lent, and on the number of the borrowers, and the terms which they were willing and able to give : ſo that if the increaſed quantity of money thrown into the market was entirely employed in the purchaſe of commodities, and not offered to be lent, the rate of intereſt would not be affected, in the ſmalleſt degree, by this increaſed quantity : while, on the other hand, if the quantity of money in circulation continued the ſame, but part of it was withdrawn from the purchaſe of commodities, and offered to be lent, the rate of intereſt would fall. The ſame train of reaſoning which ſerves to eſtabliſh theſe facts, will conduct us to a proper conſideration of the nature and operation of bills of exchange and exchequer bills. They are brought into the market, not for the purpoſe of employing them in the purchaſe of commodities, but for the purpoſe of ſale ; and they are generally bought by thoſe who wiſh to put out their money to intereſt : hence they may operate on the rate of intereſt, but they cannot operate on the price of commodities, unleſs it be, as has been already ſtated, to lower the price of commodities, or, in other words, to raiſe the value of money. That they may have this effect will appear from the following conſiderations : let us ſuppoſe that the money and commodities in any market bear a certain proportion to one another, and that this proportion is diſturbed, by the introduction, either of a greater quantity of ſome of the commodities formerly in the market, or by the introduction of ſome new commodity ; it is plain that in either caſe, if the quantity of money continue the ſame, that its value or power of purchaſe will be increaſed, ſince it will now exchange, not merely for the commodities formerly in the market, but alſo, in addition, for the increaſed quantity of the old commodities, or for the new commodities. If, inſtead of a new commodity properly ſo called, we ſuppoſe that a perſon comes into the market, wiſhing to borrow money, and offering ſuch a rate of intereſt, as ſecures to him part of that money which uſed to be expended in the purchaſe of commodities ; in this caſe alſo, the value of the money, or its power to purchaſe muſt be increaſed, ſince it will now command, not only the commodities it formerly did, but alſo the intereſt offered for the ſum wiſhed to be borrowed. But in this queſtion, it is a matter of mere indifference in what manner the intereſt to be paid is promiſed or ſecured ; whether in the uſual way, or by bills of exchange, or by exchequer bills. The general fact and conſequence are preciſely the ſame in all caſes : if bills of exchange or exchequer bills are brought into the market, they are brought, not to purchaſe commodities with, but for ſale ; and if they are ſold, for part of that money which uſed to be expended in the purchaſe of commodities, it is evident that the price of theſe commodities muſt be lowered, not raiſed, by the introduction of theſe bills of exchange, or exchequer bills ; and conſequently, that as their nature and operation is that of commodities, not of circulating medium, their iſſue cannot lower the value of money, but muſt, in ſome degree, tend to raiſe it.

Having thus cleared the way for the uninterrupted conſideration of the more immediate and proper ſubject of this article, we ſhall arrange the remarks which we mean to offer under the following heads: 1. The real nature of bank notes. 2. The effects of this ſpecies of currency. 3. Its advantages and diſadvantages, as compared with a metallic currency. 4. The nature and proceſs of the checks to the over-iſſue of bank paper, when it is payable on demand: and, 5. The ſtate of bank paper, when not payable on demand, ſo far as regards its over-iſſue, and its ſuppoſed depreciation, ariſing from this or other cauſes.

1. Bank notes have very generally, but very erroneouſly and improperly, been denominated the repreſentatives or ſymbols of coin. This is one, among many other inſtances of vagueneſs and confuſion of ideas, ariſing from the injudicious and careleſs uſe of metaphorical language, which has ſo much retarded the advance of the ſcience of political economy. What preciſe or clear idea can we attach to the terms repreſentative of coin? or how can bank notes be ſo denominated? It has been juſtly remarked, "that the moſt accurate repreſentatives of coin, are well fabricated counterfeits, yet every man, when he knows them, refuſes theſe in payment." Indeed it is not eaſy to perceive how this language came to be adopted, or where was the neceſſity or temptation to have recourſe to metaphorical language, to expreſs a fact ſufficiently obvious, clear, and undoubted. A bank note does not repreſent coin; nor is it circulated and received on that account; but it is an obligation on the part of the perſon or perſons who iſſue it to pay, on demand, a certain quantity of gold or ſilver. "A common cheque upon a banker, which nobody ever dreamed of calling a repreſentative of money, is juſt as much a repreſentative of it as bank notes; nay, in fact, the order which the manufacturer, on the Saturday night, puts into the hands of one of his workmen, to get from his clerk the wages of the week, is a repreſentative exactly of the ſame deſcription. The only real difference in practice is, that the one obligation generally paſſes but through one or a few hands, till it comes upon the obligee: the other paſſes through many hands, each accepting it as a ſatisfactory ſecurity for the valuable commodity which it is an order to receive."

Having thus, it is preſumed, refuted, perhaps at the expence of more words than it deſerved, the notion, that bank paper is a repreſentative of coin, the next topic of enquiry under this head, is what, in fact, does the perſon who iſſues the note oblige himſelf by ſuch iſſue, and by the terms of the note, to pay on demand. This enquiry may, at firſt ſight, appear as little neceſſary as the previous inveſtigation, ſince the obligation on the note is clear and diſtinct: there is no vagueneſs or ambiguity about it, and, indeed, if there were, the value of the note would be in a great meaſure, if not entirely, deſtroyed. It is only of late years, that any queſtion or doubt has been ſtarted reſpecting the nature of the obligation expreſſed on a bank note; and the ſtrange and almoſt unintelligible opinion which has been broached on the ſubject, forming part, as it does, of the doctrine of abſtract currency, ſcarcely deſerves notice here, eſpecially as this doctrine has been already canvaſſed under the article MONEY. A few words, however, may be ſpent to ſtate this opinion; and it is believed an impartial ſtatement of it, if it can be made intelligible, will render almoſt unneceſſary any formal and direct refutation of it.

The leading principle of thoſe who hold this opinion is, that the pound ſterling is an imaginary or abſtract portion of the currency, and not any thing tangible or ſubſtantial: hence they infer, that as the bank note promiſes to pay one, five, or any given number of pounds ſterling, the obligation laid on the iſſuer, is not to pay any preciſe and real ſum, nor can the note be ſaid to be depreciated, if it does not paſs current for the value of the metal expreſſed on it. In ſupport of this opinion no argument is advanced; no reference to general, undiſputed principles is made; it is left to ſtruggle, arbitrary and abſurd as it is, relying ſolely on the hardy and reiterated aſſertions of its defenders: they forget that though there is no coin called a pound ſterling, the value of a pound is known and acknowledged both by the laws and by common conſent; that their doctrine is totally inapplicable to notes ſuch as thoſe common in Scotland, which promiſe the payment of a guinea, an exiſting and known coin; and that while the notes of the bank of England were payable on demand, their opinion was neither acted upon by the bank, nor entertained by themſelves.

2. With regard to the effects of paper money, they may be conſidered under two heads: the effect it produces on the price of commodities, and the effect it produces on the metallic currency along with which it circulates. Mr. Hume entertained the notion that paper money raiſes prices, whereas Dr. Adam Smith, referring to what he conſiders as a general fact in the theory of circulation, that every addition of paper to the currency diſplaces an equivalent quantity of gold, holds an oppoſite opinion. This notion of Smith, however, muſt be received with ſome limitation: if by an addition of paper to the currency in any country, the price of any commodity is raiſed in that country ſo high, as will pay for its importation, it will be imported, and part of the metallic currency will probably be employed to pay for the commodity thus imported. But whenever the addition made to the currency by paper money is employed in the production of commodities, and the increaſe in the quantity of theſe commodities is in the ſame proportion as the increaſe to the currency, by the addition of paper money, there will be no reaſon for exporting gold, and the whole currency, conſiſting of the precious metals, and of paper, will be no more than is neceſſary to circulate the increaſed quantity of commodities in the market. In conſidering this branch of the ſubject in a more extended ſenſe, it will be neceſſary to look to the effect produced on the value of the precious metals, in the general market of the world, by the addition of paper to the currency of any particular country, in caſes where that addition, not producing a correſponding increaſe in the quantity of commodities, enhances their price, and thus leads to the exportation of gold from the country where the paper currency is iſſued. In theſe caſes, "the ſame exportation of gold, which remedies the temporary riſe that takes place in the particular country where paper has been iſſued, has a tendency to increaſe the ſupply of precious metal in the general market of the world, and thus to occaſion a general riſe of prices in which that particular country muſt participate. The whole quantity of bullion, of which Great Britain has ſpared the uſe by adopting a different medium of domeſtic exchange, is added to the general ſtock of the mercantile commonwealth, as much as if an equal quantity had been brought additionally from America; and the ſaving of that annual loſs which would have been occaſioned by the waſte of Britiſh coin, is equivalent to an increaſe in the annual produce of the mines."

The above remarks diſplay conſiderable command of the ſubject, and are worthy of that author, who by his analyſis of, and obſervations on, "Thornton on the Paper Credit of Great Britain," contributed ſo materially to bring the Edinburgh Review into notice; we are, therefore, the more ſurpriſed that in the remark immediately following the paſſage which we have juſt quoted, he ſhould have ſo completely miſunderſtood the ſubject and contradicted himſelf: we allude to the following obſervations. "But, on the other hand, it muſt be remembered that the uſe of paper money tends, in ſome degree, to *lower* the price of commodities. In proportion as the inſtruments of commerce, or the machinery of manufactures are of a leſs expenſive conſtruction, the articles which they contribute to produce may be afforded at a lower rate. To employ paper money inſtead of gold, is to ſubſtitute a very cheap inſtrument of commerce in the room of a very expenſive one." Now the inference to be drawn from the circumſtance here alluded to, appears to us directly the reverſe; when any ſaving of labour or expence takes place in the production or manufacture of any commodity, that commodity, coſting leſs, can be ſold at a lower rate, with an equal profit to the ſeller: in like manner, when paper, a very cheap inſtrument of commerce, is employed in the ſtead of gold or ſilver, very expenſive ones, more paper money can be afforded in exchange for the ſame quantity of any commodity than could have been afforded of metallic money: but in this caſe certainly the price of the commodity is not *lowered,* but raiſed, ſince for it more money is now given than was formerly given.

On the whole, with reſpect to the effect of a paper currency on the price of commodities, and on the precious metals with which it circulates, it may be remarked, that it muſt vary according to the circumſtances under which the paper currency is emitted, and the quantity which is thrown into the market: and theſe variations in its effects will more properly be conſidered under the next head, *viz.* the advantages and diſadvantages of a paper currency, as compared with a metallic currency.

The firſt advantage reſulting from the uſe of a paper currency, which occurs to the obſervation of a perſon reflecting ever ſo ſuperficially on the ſubject, is, that by the ſubſtitution of paper in the room of gold and ſilver money, a very expenſive inſtrument of commerce is replaced by one much leſs coſtly. So far the ſubſtitution of paper money muſt be advantageous to the community; the currency of a country is a part of its capital, which may be conſidered as unproductive; it is, indeed, neceſſary to carry on the operations of its commerce, but it does not, ſtrictly ſpeaking, increaſe that commerce; it is, therefore, of the utmoſt importance, that this inſtrument, thus unproductive, ſhould be procured and kept in action, with the leaſt poſſible expence. But where gold and ſilver alone are employed as the currency of a country, they muſt either be obtained directly from the mines at great labour or expence, or purchaſed by commodities on which the ſame quantity of labour and expence has been laid out. Again, if in a country, the currency of which conſiſted entirely or principally of gold and ſilver, a paper currency is introduced, it is evident that a part of its former metallic currency will be ſet at liberty, and may be expended in the purchaſe of foreign commodities. Paper currency, as we have already ſhewn, is in fact only an obligation to pay on demand a ſpecific ſum of gold and ſilver; it therefore might be inferred that the ſubſtitution of paper for gold and ſilver would not ſet at liberty any portion of the latter, ſince it would be neceſſary to retain the whole, in order to anſwer the demands of thoſe who brought the paper currency for payment. But the fact is, that a comparatively ſmall proportion of gold and ſilver is required to anſwer the demands occaſioned by a very extenſive paper circulation; thoſe who iſſue bank notes ſoon aſcertain, with ſufficient and perfectly ſecure preciſion, the exact amount of gold and ſilver, which it is neceſſary or prudent to keep by them, and the reſt is employed in the purpoſes of commerce.

Whatever evils may have reſulted from an injudicious and ſuperabundant iſſue of paper money, there can be little doubt that this ſpecies of currency has been of great ſervice in increaſing the produce and extending the commerce of the country. Let us ſuppoſe an inſtance of common occurrence, and of no intricacy or complication in its detail: a gentleman poſſeſſes a large eſtate, that is in a great meaſure in an uncultivated and unproductive ſtate: he does not poſſeſs the capital adequate to the full improvement of it; and yet there can be no doubt, that if ſufficient capital were laid out upon it, in a judicious and ſkilful manner, not only the owner, but the community, would be greatly benefited. In a country deſtitute of paper currency, he would experience great, perhaps inſurmountable difficulties, in borrowing the requiſite capital; whereas, in a country poſſeſſed of a paper currency, the means of improvement would be eaſily obtained, and a great increaſe of produce, and conſequently of wealth, would be added to the public ſtock. Whoever has watched the progreſſive improvement of Great Britain, not only in the extended and ſuperior cultivation of her ſoil, but in the increaſe of her manufactures and commerce, muſt be convinced that the rapid and great advances ſhe has made in wealth within theſe few years, have been in a great meaſure owing to her paper currency.

The following paſſage from Smith's Wealth of Nations will ſet the advantages of a paper currency, perhaps, in a ſtill clearer light. "It is not by augmenting the capital of the country, but by rendering a greater part of that capital active and productive than would otherwiſe be ſo, that the moſt judicious operations of banking can increaſe the induſtry of the country. That part of his capital which a dealer is obliged to keep by him unemployed, and in ready money for anſwering occaſional demands, is ſo much dead ſtock, which, ſo long as it remains in this ſituation, produces nothing, either to him or to his country. The judicious operations of banking enable him to convert this dead ſtock into active and productive ſtock; into materials to work upon, into tools to work with, and into proviſions and ſubſiſtence to work for; into ſtock which produces ſomething, both to himſelf and his country. The gold and ſilver money which circulates in any country, and by means of which the produce of its land and labour is annually circulated and diſtributed to the proper conſumers, is, in the ſame manner as the ready money of the dealer, all dead ſtock. It is a very valuable part of the capital of the country, which produces nothing to the country. The judicious operations of banking, by ſubſtituting paper in the room of a great part of this gold and ſilver, enable the country to convert a great part of this dead ſtock into active and productive ſtock; into ſtock which produces ſomething to the country. The gold and ſilver money which circulates in any country may very properly be compared to a highway, which, while it circulates and carries to market all the corn and grain of the country, produces itſelf not a ſingle pile of either. The judicious operations of banking, by providing, if it may be allowed ſo violent a metaphor, a ſort of waggon-way through the air, enable the country to convert, as it were, a great part of its highways into paſtures and corn-fields, and thereby to increaſe very conſiderably the annual produce of its land and labour. The commerce and induſtry of the country, however, it muſt be acknowledged, though they may be ſomewhat augmented, cannot be altogether ſo ſecure, when they are thus, as it were, ſuſpended upon the Dædalian wings of paper money, as when they travel about upon the ſolid ground of gold and ſilver. Over and above the accidents to which they are expoſed from the unſkilfulneſs of the conductors of paper money, they are liable to ſeveral others, from which no prudence or ſkill of thoſe conductors can guard them."

The diſadvantages and evils of paper money, indeed, ariſe from the ſame cauſes which produce its advantages and benefits: we muſt never forget, that the foundation of paper money is credit ; that it is, in fact, an obligation to pay on demand a certain ſum of metallic currency. Credit does not create capital, it only ſets that portion of capital in operation, which would otherwiſe be inactive : the perſon who gives credit, in reality gives part of his capital, which he has not the diſpoſition or the means to employ : and the perſon who receives credit or capital, by employing his induſtry and ſkill along with his borrowed capital, is enabled to repay it, and the ſtipulated intereſt. So long as the credit of the lender is good, and the repayment of the borrower punctual or undoubted, ſo long a paper currency thus eſtabliſhed, if not puſhed too far, muſt be beneficial to the lender, the borrower, and the nation at large. But let us ſuppoſe that from any cauſe, confidence in the paper money of a country was deſtroyed or ſhaken, and we ſhall immediately perceive the diſadvantages and evils of this ſpecies of currency, as compared with a metallic currency. Where the commercial tranſactions of a country are entirely carried on in a metallic currency, opinion has no room for operation : no confidence is repoſed ; commodities are ſold, not for what may or may not be worth the value which they repreſent or promiſe, but for what poſſeſſes abſolute and intrinſic value. No circumſtance will point out and exemplify the difference between a paper and a metallic currency ſo clearly and ſtrikingly, as the invaſion, or dread of invaſion, in the countries in which they reſpectively exiſt. If a country, the currency of which conſiſted principally or entirely of paper, were actually invaded, or threatened with invaſion ; or even, if its internal ſtate were convulſed or diſturbed, or its finances conſiderably diſarranged, its paper currency would be immediately affected : its value would fall, in proportion as the confidence repoſed in it was diminiſhed : people would prefer metallic currency for this ſtrong and obvious reaſon, that whoever had poſſeſſion of the country, whatever change took place in its government, or into whatever circumſtances of political or financial embarraſſment and confuſion it was thrown, the value of the metallic currency would remain unchanged, whereas the value of the paper currency would be ſubject to conſtant variation, and might probably be totally deſtroyed.

It is ſometimes objected to a paper currency, that by exchanging commodities for it, we in fact get nothing valuable, whereas when we ſell our commodities for gold or ſilver, we obtain ſomething of real and intrinſic value : but this obſervation amounts to nothing, provided the credit of the paper currency be good ; it is, indeed, founded on the erroneous idea, that when we ſell our commodities, we look for any thing elſe in the money which we receive, but the certainty that it will be taken from us at an undiminiſhed value. When a perſon ſells a quarter of wheat for five pounds, it muſt be a matter of perfect indifference to him, whether he receives five pounds in ſilver, or five pounds in paper, provided he is convinced that in the purchaſe of what he may want, the latter will go as far as the former : in ſelling his wheat he is never diſturbed by the idea, that five pounds in ſilver have intrinſic value, *i. e.* value as metal, while the five pounds in paper poſſeſs no intrinſic value ; the power each poſſeſſes over commodities is all he regards, and if that power be equal, their value, for all the purpoſes he needs them for, is equal in his eſtimation.

It has alſo been objected to paper currency, that its uſe is ſolely confined to tranſactions of domeſtic traffic ; and conſequently that a country, which has no other ſpecies of currency, muſt go to a foreign market to purchaſe commodities at a great diſadvantage ; the fact is undoubted, that, generally ſpeaking, a paper currency is without value in a foreign country, but the inference by no means follows, that on this account foreign commodities muſt be purchaſed by a country which poſſeſſes only a paper currency, at a great diſadvantage. On the firſt eſtabliſhment of a paper currency, the very reverſe muſt be the caſe ; or to ſpeak more correctly, the eſtabliſhment of a paper currency ſetting looſe a portion of the metallic currency, this may be employed in purchaſing a larger quantity of foreign commodities, than the country could afford to purchaſe, while this metallic currency was neceſſary for the circulation of its internal commerce. But, even after a paper currency is eſtabliſhed, foreign commodities may be purchaſed at an equally cheap rate, as they were while the currency was metallic ; for in the firſt place, foreign commodities are ſeldom purchaſed by the coin of the country purchaſing, but either by bullion, or the interchange of commodities ; and ſecondly, while a bank note for a guinea will exchange for a guinea, it will always command, indirectly, the ſame quantity of foreign commodities, as could be purchaſed, if the currency were entirely metallic.

But the objection to paper currency, urged moſt frequently, and with the moſt confidence in its appoſiteneſs and ſolidity, ariſes from the extreme facility with which it may be increaſed ; the ſtrong temptations to increaſe it, and the evils to the community, to which an improper increaſe muſt give riſe. The conſideration of this objection naturally leads us to the fourth head of our diſquiſition, *viz.* the nature and proceſs of the checks to the over-iſſue of bank paper, when it is payable on demand.

It may be proper firſt to conſider what is meant by an over-iſſue of paper money : the term is too often uſed without any clear and definite idea being attached to it. When the quantity of circulating medium, whether metallic, or of paper, is increaſed in a country, the increaſe either operates to the production of a great quantity of commodities, that is, is uſefully employed, or it merely operates to raiſe the prices of the commodities already in exiſtence : before, therefore, the addition of any ſum to the circulating medium can be ſaid to be an over-iſſue or not, the effects produced by it muſt be traced and aſcertained : if a correſpondent addition to the quantity of commodities has taken place, there cannot be ſaid to be an over-iſſue of currency ; but if no ſuch correſpondent addition has taken place, as the ſum added to the currency cannot be inactive or unapplied, a riſe of price muſt take place, and then an over-iſſue may juſtly be ſaid to have occurred. Thoſe who ſell as well as buy, probably will not be much or long injured by this riſe, ſince any addition to the currency is not long in adjuſting itſelf to the various commodities in the market, and conſequently, if ſome commodities are bought dearer, other commodities are alſo ſold dearer : but thoſe perſons, whoſe whole property conſiſts in money, are injured, when there is an over-iſſue of the currency ; *i. e.* when an addition to the currency does not produce a correſpondent addition to the commodities in the market. While the currency is entirely metallic, they are in a great meaſure guarded from a ſudden or violent over-iſſue, and conſequently, from a ſudden or violent riſe of prices, or depreciation of money, their ſole property ; ſince before any great addition can be made to the circulating medium, additional labour muſt have been beſtowed on the mines. But where paper currency is eſtabliſhed, the caſe at firſt ſight ſeems different ; the value of their property, *i. e.* money, is at the mercy of all who can iſſue bank notes : if, however, we inveſtigate what actually takes place, where there is a paper currency payable on demand, we ſhall find that the property of the monied man is guarded as effectually, though not ſo directly, as if the currency were metallic. Let us ſuppoſe a large addition to be made to the paper currency of any particular diſtrict in this country ;

country; this addition operates either to the riſe of prices ſolely, or to the increaſe in the quantity of commodities; in the latter caſe, the monied man has no cauſe to complain; there is indeed more money in his neighbourhood, but as there are alſo more goods, the value of his money is not affected. On the other ſuppoſition, that the increaſe to the paper currency raiſes the price of commodities, let us ſee what will occur: thoſe commodities, the price of which is raiſed, will be purchaſed in another diſtrict, where they have not undergone a ſimilar riſe; but before they can be purchaſed, the local notes muſt be exchanged for ſuch as are current in the diſtrict where the purchaſe is to be made; or, in other words, ſome part of the over-iſſued notes will return to the bank which iſſued them. This will be a ſufficient proof and warning to the bank, that they have iſſued more notes than the commercial tranſactions of the diſtrict required, and as on notes almoſt immediately returned, the expence in manufacturing them, and their proportion of the eſtabliſhment muſt far exceed the profit made on them while they were in circulation, the bank will be careful in future not to over-iſſue their notes.

A proceſs ſimilar in all its ſteps, and in its reſult, will take place, if the bank of England, while ſubject to be called upon for caſh payments, ſhould over-iſſue their notes: the over-iſſued notes will either ſpread themſelves over the country, for the purchaſe of ſuch commodities as have become cheaper in the country than in London, by the addition to the circulating medium, or they will be returned to the bank of England for gold, wherewith to go to a foreign market.

Thus it would appear that the property of the monied man is rather more ſecure, and better protected from depreciation, in a country, the currency of which conſiſts of paper payable on demand, than in a country, the currency of which is entirely metallic; ſince, in the former country, the real and well underſtood intereſt of thoſe who iſſue the paper money muſt lead them moſt carefully to avoid any over-iſſue; whereas in a country, the currency of which is entirely metallic, though no addition to it, ſufficient to raiſe the prices, can long remain in it, yet it may both remain longer, than an over-iſſue of paper money, and be repeated more frequently.

We now come to the laſt head, *viz.* the ſtate of bank paper, when not payable on demand, ſo far as regards its over-iſſue, and its ſuppoſed depreciation ariſing from this or other cauſes.

The ſuſpenſion of caſh payments in the bank of England, in the beginning of the year 1797, forms a moſt memorable era in the hiſtory of the ſcience of political economy; and the undiminiſhed confidence which after this meaſure was, and is repoſed in the bank of England notes, has ſhaken to the foundation many favourite theories in this moſt intricate and delicate ſcience. By ſome it is alleged, that the confidence in bank of England paper remained the ſame, even after the ſuſpenſion of caſh payments, becauſe there was a general and well-founded belief, that the bank was able to pay all its notes in ſpecie; but ſomething more than mere ability would ſeem neceſſary to inſpire or continue confidence. Of what moment is it to the holder of a bank of England note, to be told that the bank can pay it in ſpecie, if he knows that they will not, and that he cannot compel them? By others it was argued, that the confidence was ſtill continued, becauſe it was expected, that in a ſhort time caſh payments would be reſumed; this conſideration might have operated on ſome perſons, at the time of the impoſing the reſtriction, but now it can have no weight, as the expectation that caſh payments will ſoon be reſumed, muſt be utterly baniſhed from the mind of every man; and yet no diminution of confidence has taken place. The continued confidence, without diminution, in the bank of England paper, after they were relieved from the obligation to pay in caſh, ſeems to have ariſen from the following circumſtances; all the principal merchants, and government itſelf, declared their willingneſs to receive bank paper as before; the maſs of the nation were content with this, for, as has been remarked under the article MONEY, though intrinſic value is indiſpenſibly neceſſary, at firſt to give circulation, yet, in proceſs of time, that circumſtance is never adverted to, except by thoſe whoſe buſineſs it is to watch the variations in the value of the metals of which the money is formed. The nation at large knew, that the bank would no longer pay in caſh, but they alſo knew, that bank of England paper, though thus deprived of its intrinſic value, would be received the ſame as before by all thoſe to whom their principal or moſt common payments were to be made: as, therefore, the bank of England paper ſtill retained the character and uſes of money, the alteration in its intrinſic value was not adverted to.

With reſpect to the danger of over-iſſue, when caſh payments are ſuſpended, it is argued, that it is merely chimerical; ſince no one will pay intereſt to the bank for money, from which he does not expect to derive more profit than the intereſt he pays; and conſequently, as all iſſues are made for commercial purpoſes, they will not be carried to a greater extent than the ſtate of commerce requires. But it may be very true, that there are no iſſues, but what the ſtate of commerce requires, and what will produce, or are expected to produce a profit to the borrower; and yet there may be an over-iſſue of bank paper; or, in other words, an iſſue, that will raiſe the price of commodities; ſince, in many inſtances, the profit expected by the borrower, may ariſe from this increaſe of prices. Let us ſuppoſe a merchant wiſhes to buy largely cotton, corn, or any other commodity, and for this purpoſe gets his bills diſcounted at the bank of England: his ſpeculations ſucceed, and he makes a large profit; in this caſe, the price of the cotton or corn is neceſſarily increaſed by the greater ſum brought into the market for the purchaſe of it, by means of the diſcount afforded by the bank of England: there is a real commercial tranſaction; and yet, as there is no increaſe in the quantity of commodities, but a mere transfer, the bank notes iſſued for this purpoſe ought to be conſidered an over-iſſue, that is prejudicial to the property of the monied man, though advantageous to the bank and the merchant.

It is evident that paper money, when not payable in caſh on demand, muſt be more liable to depreciation from any doubt reſpecting the ſecurity of the country, than if it could be converted into caſh at pleaſure; but how far it is liable to depreciation from other cauſes, is a queſtion on which there is much difference of opinion. If, as we have endeavoured to ſhew, there may be an over-iſſue, *i. e.* ſuch an iſſue as will raiſe the price of commodities, the price of gold and ſilver bullion muſt riſe as well as all other commodities; but when the bullion price of the metals riſes above the mint price, the coin will ſoon be regarded only as a commodity, and will in ſpite of all laws and penalties be bought and ſold as ſuch. When a difference in the eſtimated value of paper currency and metallic currency takes place, from whatever cauſes it may ariſe, one of two effects muſt follow; either the paper currency and the metallic currency will be equally current, each at its reſpective value; or the metallic currency, being regarded ſolely as a commodity, will diſappear. Where depreciation has occurred from want of confidence, it has generally happened, that the paper and metallic currency have circulated together, each at its own value; but where depreciation has taken place, from an increaſe in the quantity of paper, from a diminution in the quantity of the precious metals, or from an increaſed demand for them, it has generally happened, that the metallic currency, being regarded ſolely as a commodity, has diſappeared. Theſe two different effects may eaſily be accounted for; a riſe in the price of bullion, occaſioned by an over-iſſue of paper, by a diminiſhed ſupply of bullion, or by an increaſed demand for it, is only known to, and acted upon by, comparatively a few people; the great maſs of the nation, as has been already obſerved, in receiving or paying money, do not advert in the ſlighteſt degree to the character or value of the money as bullion, but ſolely to its character and value as a means of interchanging commodities; the variations in its bullion value, therefore, are unheeded both in their payments and receipts; they are, however, conſtantly and carefully watched by all whoſe buſineſs conſiſts in dealing in bullion, and as ſoon as the bullion value of coin exceeds its mint value, it diſappears from circulation by their means. The caſe is widely different, when there is any alarm reſpecting the credit of the paper currency; in this all are immediately and deeply concerned; all are eager to exchange it for the precious metals, and under theſe circumſtances, as the precious metals, in their character of coin, can thus be exchanged for as much paper as they could command as bullion, there is no temptation to withdraw them from circulation. It is not juſt, therefore, to infer, that the paper currency of a country is not depreciated, becauſe two prices do not exiſt, if the other effect of depreciation, *viz.* the diſappearance of the precious metals, has taken place; each circumſtance marks depreciation, but of a different kind, and ariſing from different cauſes. On the other hand, it is not fair to infer, that where the credit of the paper currency, or in other words, a difference of value between the paper currency and the coin it promiſes to pay, may ariſe, like a difference of value between any other two commodities, from the quantity of the one being increaſed, or the demand for it being diminiſhed, or from the quantity of the other being diminiſhed, or the demand for it being increaſed.

Paper-*Office*, (in the palace of Whitehall,) is an ancient office, where all the public writings, matters of ſtate and council, proclamations, letters, intelligences, negociations of the king's miniſters abroad, and generally all the papers and diſpatches that paſs through the offices of the ſecretaries of ſtate, are lodged, and diſpoſed in the way of library. It was chiefly from this noble repoſitory that biſhop Burnet had materials for his Hiſtory of the Reformation.

Paper *Portraits and Pictures.* One Elizabeth Pyberg, who lived at the Hague in 1699, cut in paper not only towns, as Loo and Hounſlerdyke, but even faces to an extreme likeneſs. Mr. Ellys aſſures us, ſhe did king William and queen Mary better than any limner he had ever ſeen, and refuſed 1000 guilders for the pieces; which were ſo curious, that he could not believe the queen's drapery not to be point till he had moſt accurately examined it. Vide Phil. Tranſ. N° 286, p. 1418.

Paper, *Stamped.* See Stamp.

Papers, a term uſed for writings, eſpecially thoſe relating to a man's eſtate, property, dealings, or the like. In which ſenſe, papers include books of accounts, invoices, and orders; alſo deeds, bonds, charters, and the like.

Papers is alſo ſometimes uſed for manuſcript books.

Papers is more particularly uſed of late days for gazettes, journals, and other public news-writings.

We have daily papers, weekly papers, morning papers, evening papers, occaſional papers, political papers, literary papers, papers of entertainment, &c.

PAPETTO, in *Commerce*, a ſmall ſilver coin of Rome, valued at two paoli. The papetto of 1775, weighs 3 dwt. $8\frac{1}{2}$ gr., contains in pure ſilver 72.8 gr., and is valued at $10\frac{1}{4}$ *d.* ſterling.

PAPHIS, in *Ichthyology*, a name by which ſome have called the gar-fiſh. See Esox *Belone*.

PAPHLAGONIA, in *Ancient Geography*, a province of Aſia Minor, ſituated on the Euxine ſea, between Bithynia to the W., and the gulf Amiſenus towards the E.; to the S. was Galatia. When other diviſions were introduced, ſuch as the province of the Helleſpont, &c. the name of Paphlagonia diſappeared. On the northern coaſt it had a conſiderable promontory, that of Carambis (Kerempi.) The river Parthenius ſerved for a conſiderable time as a boundary between Paphlagonia and Galatia. Towards the E. the mouth of the Halys ſerved as a limit to Paphlagonia on that ſide. In the interior of the country were the Heneti or Veneti, regarded as the progenitors of thoſe who afterwards paſſed over into Italy; they occupied the parts towards the N. In the centre of Paphlagonia was a country called Domanitis, which included a conſiderable town under the name of Germanicopolis (Kaſtamoni.) This country was bordered on the S. by a chain of mountains called Olgaſſys (mount Etkas.) In the country called Blacua, S. of theſe mountains, was Docea (Touſieh), and towards the E. Pompeiopolis.

PAPHOS, (*Baſo* or *Baſa*,) a town of the iſland of Cyprus towards the W., at the bottom of a ſmall creek, terminated by the promontory Zephyrium. In this town was a very ancient temple of Venus, whence her appellation "Paphian." Of its origin there have been many conjectures. Tacitus pretends, that it was built by Aerias, and that the goddeſs, having conceived in the midſt of the waves, was landed in this place. He adds, that every one offered any victims according to his pleaſure, but the moſt ſelect were males. It was prohibited to ſpill any blood on her altar. Pauſanias relates, that the Arcadians, in returning from the war of Troy, were caſt by a tempeſt on the iſle of Cyprus. Agapenor, their chief, founded a colony at Paphos, and there erected a temple in honour of Venus.

In this temple was an oracle, which was conſulted by Titus, in his way to compliment Galba upon his elevation to the empire. When Cato was ſent to the iſle of Cyprus, he was aſſured by Ptolemy, that if he retired without oppoſition, he ſhould want neither money nor honour, and that the Roman people would confer upon him the profitable and honourable poſt of chief prieſt of Venus. The firſt town that bore the name of Paphos was in the interior of the country; the ſecond was on the ſea-coaſt.

PAPIA, in *Botany*, a name given by Micheli, to what he ſuppoſed a new genus, in honour of Joſeph del Papa, phyſician to ſeveral of the Tuſcan princes of the Medici family, whom he celebrates for his various learning, eloquence, virtue, and affability, as well as his zeal in promoting the ſtudies of Medicine and Botany. Whatever the merits of this gentleman might be, the plant conſecrated to immortalize them, after having been named *Orvala* by Linnæus, is now conſidered as the very ſame plant with his Lamium *Orvala*; ſee that article.

PAPIAN-Popæan *Law*, in *Roman Antiquity*, was enacted by the conſuls M. Papius Mutilus, and Q. Popæus Secundus. This law obliged all men to marry at a certain age, eſtabliſhed great exemptions and privileges in favour of thoſe that had children, and laid heavy fines on all who, after a certain age, continued ſingle. It was alſo called the

Julian law, becauſe it had been publiſhed by the order of Auguſtus, who was of the Julian family. The ſeverity of this law was mitigated by Tiberius.

PAPIAS, in *Biography*, biſhop of Hierapolis, a city of Phrygia, who flouriſhed in the early part of the ſecond century. He is ſuppoſed to have died a martyr; and the author of the "Alexandrian Chronicle" affirms, that he ſuffered at Pergamos, during the ſevere perſecution in the reign of Marcus Aurelius. As theſe facts are not noticed by Euſebius or Jerome, Lardner does not think them entitled to much credit. Irenæus ſpeaks of him as a hearer of John, and a companion of Polycarp; the John here mentioned is ſuppoſed by ſome to be the apoſtle of that name, but Euſebius obſerves, that "Papias does not ſay that he heard or ſaw any of the apoſtles, but only that he received the things concerning the faith from thoſe who were well acquainted with them, that he received the apoſtles' ſayings from thoſe who converſed with them, and that he was a hearer of Ariſtion, and John the Preſbyter." Euſebius and Jerome eſteemed him as a good man, but extremely credulous, and of very ſhallow abilities, who delighted much in hearing and telling ſtories, and relating miracles, which he learned from tradition. But Dr. Lardner ſays, "I eſteem the teſtimony very valuable, which he has given to the goſpels of St. Matthew and St. John. If Papias had been a wiſer man, he had left us a confirmation of many more books of the New Teſtament." Papias was the firſt perſon who propagated the famous notion concerning a *Millennium*, or perſonal reign of Jeſus Chriſt upon earth for a thouſand years after the reſurrection, when he believed the elect ſhould be gathered together at Jeruſalem, and enjoy all the felicity imaginable during that period. He was author of five books, entitled "An Explication of the Oracles of the Lord," of which only a few fragments are preſerved in the works of Irenæus and Euſebius. Lardner, vol. ii. edit. 1788.

PAPIER MACHE' is made of cuttings of white or brown paper, boiled in water, and beaten in a mortar, till they are reduced into a kind of paſte, and then boiled with a ſolution of gum arabic or of ſize, to give tenacity to the paſte, which is afterwards formed into different toys, and by preſſing it into oiled moulds either of wood or of plaſter of Paris. When dry, it is done over with a mixture of ſize and lamp-black, and afterwards varniſhed. See GILDING, JAPANNING, and VARNISH.

PAPIGOHAVEN, in *Geography*, a bay on the E. coaſt of Scotland, and county of Caithneſs; one mile N. of Wick.

PAPILIO, the Butterfly, in *Entomology*, a genus of inſects of the order Lepidoptera. The generic character is, antennæ thickening towards the extremity, commonly terminating in a knob or clavated tip; wings, when ſitting, erect and meeting upwards. They fly in the day-time.

The prodigious number of ſpecies of this numerous and beautiful tribe has made it neceſſary to divide the whole into ſections, inſtituted from the habit or general appearance, and, in ſome degree, from the diſtribution of the colour of the wings. "This diviſion of the genus is," ſays the late excellent naturaliſt, Dr. Shaw, to whoſe labours we have frequently been indebted, "conducted by Linnæus in a peculiarly elegant and inſtructive manner; being an attempt to combine, in ſome degree, natural and civil hiſtory, by attaching the memory of ſome illuſtrious ancient name to an inſect of a particular caſt."

The firſt Linnæan diviſion conſiſts of *Equites*, which are diſtinguiſhed by the ſhape of their upper wings: theſe are longer, if meaſured from their poſterior angle to their anterior extremity, than from the ſame point to the baſe. Some of this diviſion have filiform or ſharpened antennæ, in which they reſemble moths, but may commonly be diſtinguiſhed by their habit or general ſhape. The Equites are denominated *Troes* or *Trojans*, diſtinguiſhed by having red or blood-coloured ſpots or patches on each ſide their breaſts; or *Achivi*, *Greeks*, without red marks on the breaſt, of gayer colours, in general, than the former, and frequently having an eye-ſhaped ſpot at the inner corner of the lower wings.

The ſecond diviſion conſiſts of *Heliconii*, which are diſtinguiſhed by wings that are narrow and entire, frequently naked or ſemi-tranſparent; the upper ones are oblong, the lower ones very ſhort.

The third diviſion conſiſts of the *Danai*, ſo called from the ſons and daughters of Danaus. They are divided into Danai *candidi*, which have whitiſh wings; and Danai *feſtivi*, in which the ground-colour is never white, and the wings are variegated.

The fourth diviſion conſiſts of the *Nymphales*, diſtinguiſhed by the edges of the wings being ſcolloped or indented. It is ſubdivided into the Nymphales *gemmati*, in which the wings are marked with eye-ſhaped ſpots; and Nymphales *phalerati*, in which the wings are without thoſe ſpots.

The fifth diviſion contains the *Plebeii*. Theſe are commonly ſmaller than the preceding kinds of butterflies, and are ſubdivided into *Rurales* and *Urbicolæ*: the wings of the former are marked with obſcure ſpots; thoſe of the latter have for the moſt part tranſparent ſpots.

The above diſtribution, ſays Dr. Shaw, is not entirely accurate; the taſk of arrangement, though apparently very trifling, is really extremely difficult. The blood-coloured ſpots, mentioned by Linnæus as characteriſtics of the Trojans, are not always found; and the anterior angle of the wings in the Achivi is not always marked with an eye-ſhaped ſpot. The ſureſt method, therefore, is to conſider ſuch of the Equites as are of a dark or mourning colour, as belonging to the Troes, and thoſe of gayer or livelier ones to the Achivi. The under wings in ſome of the Heliconii are ſlightly indented, and might perhaps as well have been referred to the Nymphales phalerati; the under wings of the Danai feſtivi are alſo often indented; and the family of the Plebeii is alſo very inaccurate, many of theſe inſects having characters which would more properly entitle them to a place in ſome of the other diviſions.

The larvæ of butterflies are univerſally and emphatically known by the name of caterpillars, and are extremely various in their forms and colours; ſome being ſmooth, others beſet with either ſimple or ramified ſpines, and ſome, eſpecially thoſe belonging to the diviſion Equites, are obſerved to protrude from their front, when diſturbed, a pair of ſhort feelers, ſomewhat analogous to thoſe of a ſnail. (See ENTOMOLOGY.) In our account of the ſpecies, we ſhall give, in general, little more than the name, ſpecific character, and native place where it is known.

Species.

Equites. Trojans.

PARIS. Wings tailed, that is, furniſhed with a pair of lengthened proceſſes, black; the lower ones with a large blue ſpot and purple eye, and ſeven lunules beneath. It is found in China, and other parts of Aſia.

BIANOR. Wings tailed, black, both ſurfaces nearly of the ſame colour; the lower ones with five rufous lunules. It inhabits China, and has five red creſcents on the lower wings.

Helenus. Wings tailed, black; the lower ones with a white ſpot and double purple lunule. Found in Aſia.

Theseus. Wings tailed, brown, both ſurfaces of the ſame colour; the lower pair with nine red lunules, dotted with white. It is found in the iſland of Sumatra.

Polytes. Wings tailed, black, both ſurfaces of the ſame colour; the upper ones with a band compoſed of five white ſpots and red lunules. It is an inhabitant of Aſia.

Mutius. Wings tailed, black; the upper ones with a white band; lower ones with a band of five red ſpots and lunules. It is found in the iſland Tranquebar. It is thought to be a variety of the laſt.

Hector. Wings tailed, black, both ſurfaces of the ſame colour; the upper pair with an uninterrupted white band; lower ones with numerous crimſon ſpots. The thorax is red on each ſide. It is a native of the Eaſt Indies, and feeds on the Ariſtolochia or Birthwort.

Ascanius. Wings tailed, black, with a common white band, both ſurfaces alike; the lower ones clouded red. It inhabits Braſil.

Antenor. This is a very large ſpecies, meaſuring ſix inches and a half in extent of wings. Its colour is black, with numerous cream-coloured ſpots and patches; and the under wings, which are tailed, are edged with a row of red creſcent-ſhaped ſpots. It is a native of India.

Troilus. Wings tailed, black; the upper ones with pale marginal ſpots; lower ones with pale ſpots above, and fulvous ones beneath. Found in North America.

Ilioneus. Wings tailed, black; the lower ones with a blueiſh border, fulvous at the angle of the tail, with red ſpots beneath. It inhabits Georgia.

Glaucus. Wings tailed, brown; the lower ones blue-black, fulvous at the angle of the tail, with yellow lunules beneath. It inhabits America.

Palinurus. Wings tailed, black, with green-gold ſpecks, and a common blue-green band. It is found at Tranquebar.

Crinis. Wings tailed, black, with green-gold ſpecks, and a common blue-green band; the lower ones beneath with green, blue, and cinereous lunules. It is found in Africa.

Deiphobus. Wings tailed, black, the baſe beneath ſpotted with red; the lower ones with ſeven red and almoſt angular ſpots. It is found in divers parts of Aſia.

Peleus. Wings tailed, black; the upper ones with a white band; the lower pair with white marginal lunules, and two red dots. It is found in India.

Asterias. Wings tailed, black, with two macular bands; angle of the tail fulvous, with a deep black dot. Found in America.

Phorbanta. Wings tailed, black, ſpotted with blue; lower ones with an interrupted white band beneath. Found in the iſland of Cayenne.

Philenor. Wings tailed, black; the lower ones with a greeniſh gloſs, and ſeven eye-like ſpots beneath. It inhabits America.

Cyrus. Wings tailed, black, the margin ſpotted with white; lower ones with a white macular band, and marked beneath with ſeven red lunules. A ſpecimen is preſerved in the Britiſh Muſeum.

Pammon. Wings tailed, black, both ſurfaces of the ſame colour; the margin is ſpotted with white; lower ones with ſeven white ſpots.

Asius. Wings tailed, black, with a common white band; lower ones ſpotted with red beneath, at the baſe, and tip. Found in South America.

Acamus. Wings indented, tailed, brown, both ſurfaces of the ſame colour; upper ones with a yellow band; lower ones with red, blue, and yellow lunules. Found in Jamaica.

Laodochus. Wings indented, tailed, black; the upper pair with an abbreviated yellow band; lower ones with rufous, blue, and white lunules beneath. It inhabits Braſil.

Achates. Wings tailed, black, rufous at the baſe, both ſurfaces nearly of the ſame colour; the lower ones with a white ſpot divided into eight parts. It is found in China. There is a variety of this ſpecies named *Papilio Alcenor*, with brown wings, black at the baſe; the upper ones with a rufous ſpot; lower ones with white ſpots.

Lysander. Wings tailed, black; upper pair with a white ſtreak; lower ones with a white ſpot in the middle, and red lunules. It is found in India.

Polydorus. Wings tailed, both ſurfaces alike, black; lower ones with a ſix-cleft ſpot at the ſuture, and ſeven red lunules. It inhabits India.

Coon. Wings tailed, both ſurfaces alike; upper ones brown; lower ones black, ſpotted with white at the baſe, and a double yellow ſpot at the angle of the tail. It inhabits China.

Antiphus. Wings tailed, black, both ſurfaces of the ſame colour; the lower ones with ſeven red lunules. It reſembles the Polydorus, and is found in India.

Dardanus. Wings tailed; the upper pair with a green round ſpot; lower ones with a red palmate ſpot. It is found in Braſil.

Tros. Wings indented, tailed, black, both ſurfaces alike; upper ones with an abbreviated white band; lower ones with a macular red one. It is found in Braſil.

Antimachus. Wings indented, elongated, black; upper ones with ſubradiate fulvous ſpots; lower ones with a radiate rufous diſk ſpeckled with black. It is found in Africa.

Priamus. Wings indented, ſilky; upper pair above green, with a black diſk and edge; lower ones with from four to ſix black ſpots. This, ſays Dr. Shaw, ſhould take the lead, not only from the correſponding dignity of the name, but from the exquiſite appearance of the animal itſelf, which Linnæus conſidered as the moſt beautiful of the whole papilionaceous tribe. It meaſures more than ſix inches from wing's end to wing's end; the upper wings are velvet-black, with a broad band of the moſt beautiful graſs-green, and of a ſatiny luſtre, drawn from the ſhoulder to the tip, and another on the lower part of the wing, following the ſhape of that part, and of a ſomewhat undulating appearance as it approaches the tip; the lower wings are of the ſame green colour, edged with velvet-black, and marked by four ſpots of that colour, while at the upper part of each, or at the part where the upper wings lap over, is a ſquariſh orange-coloured ſpot; the thorax is black, with ſprinklings of lucid green in the middle; and the abdomen is of a bright yellow or gold colour. On the under ſide of the animal the diſtribution of colours is ſomewhat different, the green being diſpoſed in central patches on the upper wings, and the lower being marked by more numerous black as well as orange ſpots. It is a very rare inſect, and is a native of the iſland of Amboyna.

Amphrisius. Wings indented, black, both ſurfaces alike; upper ones with yellow ſpots; lower ones with a yellow diſk.

Remus. Wings indented, black, both ſurfaces nearly alike; lower ones with yellow marginal ſpots on each ſide. It inhabits Amboyna.

Laomedon. Wings indented; upper pair brown, lower ones black, with a double rufous ſpot at the angle of the tail. It inhabits China.

MEMNON. Wings indented; all of them marked beneath with rufous at the baſe. It inhabits China.

ASTYANAX. Wings indented, black, both ſurfaces of the ſame colour; the upper ones with a ſtriate white band, including a ſmaller one, lower ones ſpotted with black. It is found in India.

PROTENOR. Wings indented, black; the lower ones beneath with an irregular red ſpot at the angle of the tail. It is found in Surinam.

AGENOR. Wings indented, black, ſanguineous at the baſe; lower ones white on the diſk, with black ſpots. It is found in China.

ANCHISES. Wings indented, black, both ſurfaces alike; lower ones with ſeven ovate ſcarlet ſpots.

SARPEDON. This is a highly elegant ſpecies; the wings are of a lengthened ſhape, and the lower pair are ſtretched downwards into a pointed proceſs; the whole animal is black, with a broad, interrupted, ſea-green ſtripe, or band, paſſing through all the wings; on the lower part is alſo a border of creſcent-ſhaped green ſpots.

POLYDAMAS. Wings indented, black, bronzed with a ſpotted yellow band; the lower ones with flexuous red lunules beneath. This is found on the Ariſtolochia anguicida.

ANDROGEUS. Wings indented, black, bronzed; the lower pair beneath with red, blue, and yellow lunules. It inhabits Surinam.

PERANTHUS. Wings indented, tailed, black; above green at the baſe, beneath pale at the tip, lower ones with ſeven fulvous lunules. It is found in China.

AMPHIMEDON. Wings indented, brown, both ſurfaces alike; upper ones radiate with white, lower ones with a five-cleft red ſpot, and red lunules. It inhabits Amboyna.

ZACYNTHUS. Wings indented, black; the upper ones with a green-white ſpot, lower ones with a palmate red one. It inhabits Braſil.

DIMAS. Wings indented, black, both ſurfaces alike; the upper wings with a white ſpot divided by the veins; lower ones with a palmate red ſpot. This alſo is a native of Braſil.

IDÆUS. Wings indented, black; upper pair with an abbreviated yellow band; lower ones with a palmate red ſpot and dots. Found at Madras.

VERTUMNUS. Wings indented, black; upper pair with a round green ſpot in the middle; lower ones with a palmate ſanguineous ſpot. Inhabits Surinam.

ÆNEAS. Wings indented, black; upper pair with a green ſpot above; lower ones with a red palmate ſpot. It is found in India.

ILUS. Wings indented, black; upper pair with a white ſpot, lower ones beneath with red dots at the baſe and angle of the tail. This is an American inſect.

IPHIDAMUS. Wings indented, black, both ſurfaces uniform; upper pair with an abbreviated white band; lower ones with a broad red one.

BELUS. Wings indented, greeniſh; lower pair rather pale at the inner margin, beneath brown, with red lunules. It inhabits Surinam.

POMPEIUS. Wings indented, black, both ſurfaces uniform; lower pair with red ſpots. It inhabits Surinam.

POLYMNESTOR. Wings indented, black, both ſurfaces nearly of the ſame colour; lower pair blueiſh towards the tip, and ſpotted with black and white. Found in divers parts of Aſia.

PANTHOUS. Wings indented, black, both ſurfaces uniform; upper pair ſpotted with white, lower ones with white ſpots, including ſome black ones It is found in India. There is a variety in which the upper wings are clouded; lower ones with yellow ſpots.

PANDARUS. Wings ſlightly indented, both ſurfaces nearly alike, blackiſh, ſpotted with white; lower pair yellow, with ſeven black eyes; the pupil blue. It inhabits India.

ASTENOUS. Wings indented, black, both ſurfaces of the ſame colour; upper pair with a radiate white ſpot; lower ones yellow on the diſk. It inhabits the Cape of Good Hope.

HELENA. Wings indented, black, both ſurfaces alike; common diſk of the ſecond pair of a brilliant gold-colour. It inhabits Surinam.

HELIACOR. Wings indented, black, both ſurfaces alike; diſk of the lower ones yellow, dotted with black. It inhabits India.

EURYPYLUS. Wings indented, black, both ſurfaces alike, with an interrupted green band and ſpots; lower pair beneath ſpotted with red. It inhabits India.

CRESSIDA. Wings indented; upper pair hyaline, with two black ſpots; lower ones black, with a white ſpot. It is found in New Holland.

HARMONIA. Wings ſcalloped, white; both ſurfaces alike; upper pair with a black ſpot; under ones with a brown margin, and five white dots. It inhabits New Holland.

Equites. Greeks.

RIPHEUS. Wings with ſix tail-like proceſſes, black with green bands; lower ones with a large red patch, incloſing two black dots. It inhabits Coromandel.

LEILUS. Wings tailed, both ſurfaces alike, black with a ſhining green band, and numerous narrow ſtripes. This is an American inſect.

LAVINIA. Wings tailed, black, barred with green, beneath ſilvery with fulvous ſtripes. It inhabits America.

BRUTUS. Wings tailed, white, with a black border; lower pair with a brown band beneath. It inhabits Africa.

DOLICAON. Wings tailed, white, with a common black border lower ones with marginal white dots on each ſide. It Inhabits America.

ULYSSES. Wings tailed, black, with a blue radiating diſk; lower pair with ſeven ocellate ſpots beneath. This ſpecies is found in Aſia.

DIOMEDES. Wings tailed, black; the diſk unequally radiate with blue; the lower ones with blue lunules. It inhabits India.

PROTESILAUS. Wings tailed, both ſurfaces nearly alike, white with brown bands, and a ſingle red one beneath; angle of the tail red. It is found in America.

ANTILOCHUS. Wings tailed, both ſurfaces alike, yellow, with black bands and margin; the tail is white, and as long as the wings. It is an inhabitant of North America.

* PODALIRIUS. Wings tailed, both ſurfaces nearly alike, yellowiſh, with double brown bands and margin; lower ones with five blue ocellate ſpots, and a reddiſh line beneath. This is found in our own country, and other parts of Europe. Mr. Donovan has given a figure of it.

ANTIPHATES. Wings tailed, white; the margin brown, barred with white; the lower ones beneath yellowiſh at the baſe, and barred with black. It inhabits America.

ALCIBIADES. Wings tailed, white; upper ones with black bands on the margin; lower ones beneath ferruginous at the tip, dotted with black. It inhabits Tranquebar. Is leſs than the P. podalirius.

Pompilius. Wings tailed, white; the border barred with white; lower ones beneath with ferruginous ſpots, marked with black. This is an Indian inſect.

Sinon. Wings tailed, black, with green entire band, ſtripes, and dots; lower ones with a red line underneath. It is found in India, and is half the ſize of the Podalirius.

Agapenor. Wings tailed, black, with green macular bands; lower ones with a ſanguineous line beneath. Found in Africa.

Thyastes. Wings tailed, black, with a yellow band and ſpots; lower ones with a red line beneath. It inhabits Braſil.

Chiron. Wings tailed, black, barred with brown; underneath white, on the fore part with ferruginous ſtreaks. It inhabits India.

Crithon. Wings tailed, above brown, beneath glaucous, with a white band on both ſides. It is a ſmall brown inſect, and inhabits Surinam.

Orsilochus. Wings tailed; upper ones with two white bands; lower ones with one; beneath white at the baſe, with a fulvous band. This alſo is an inhabitant of Surinam.

Curius. Wings tailed, both ſurfaces alike, black; upper pair with two hyaline bands; lower ones with a ſingle white one. It inhabits Siam. A ſpecimen is preſerved in ſir Joſeph Banks' muſeum.

Octavius. Wings tailed, hyaline, with a red margin and ſtripe. It inhabits Surinam.

Licarsis. Wings tailed, black, with two white bands; the angle of the tail has two red dots. Found alſo in Surinam.

Melibœus. Wings tailed, brown; upper pair with a red ſtripe; lower ones with two; beneath ſhining blue. It inhabits Surinam.

Homerus. Wings tailed, black, with a yellow band; lower ones yellowiſh underneath, with ſeven eyes. It inhabits America.

Turnus. Wings tailed, both ſurfaces alike, yellow, with black margin, and five abbreviated bands; angle of the tail fulvous. Found in America.

* Machaon. This is an inſect of great beauty, and may be conſidered as the only Britiſh ſpecies of Papilio, excepting the Podalirius, belonging to the tribe of Equites. It is commonly known among the Engliſh collectors by the title of the Swallow-tailed butterfly, and is of a beautiful yellow, with black ſpots or patches along the upper edge of the ſuperior wings; all the wings are bordered with a deep edging of black, decorated by a double row of creſcent-ſhaped ſpots, of which the upper row is blue, and the lower yellow. The under wings are tailed, and are marked at the inner angle or tip with a round red ſpot, bordered with blue and black. The larva, or caterpillar of this ſpecies, feeds principally on fennel, and other umbelliferous plants, and is ſometimes found on rue. It is of a green colour, encircled with numerous black bands, ſpotted with red, and is furniſhed on the top of the head with a pair of ſhort tentacula of a red colour, which it occaſionally protrudes from that part. In the month of July it changes into a yellowiſh-grey angular chryſalis, affixed to ſome part of the plant, or other neighbouring ſubſtance, and from this chryſalis, in the month of Auguſt, proceeds the complete inſect. It frequently happens that two broods of this butterfly are produced in the ſame ſummer; one in May, having been in the chryſalis ſtate all the winter; the other in Auguſt, from the chryſalides of July.

Thersites. Wings tailed, yellow, with a black border; lower ones with yellow lunules. It is found in America. A ſpecimen is found in Dr. Hunter's muſeum.

Codrus. Wings tailed, above black, underneath brown; upper ones with a macular white band on each ſide. This is found in Amboyna.

Chalcus. Wings tailed, black, with two yellow macular bands; lower ones beneath with a yellow fillet and rufous lunules. Found in America.

Menestheus. Wings tailed, black, beneath with whitiſh ſpots in ſtreaks; lower ones with rufous and blueiſh lunules. It inhabits India.

Xuthus. Wings tailed, black, with white ſpots in ſtreaks; lower pair underneath with ſubfaſciate blue and fulvous. It inhabits India.

Thesander. Wings obtuſely tailed, brown, with a yellow band and macular ſtreaks; lower ones beneath cheſnut-brown, on the diſk with black lines. It inhabits Sierra Leone.

Thoas. Wings tailed, black-brown, with ochre yellow bands; lower pair yellow beneath, with a black band and blue lunules. This is found in South America. Dr. Shaw has given a figure of it.

Cresphontes. Wings tailed, black, with a green band; lower ones with a blue band beneath. Found in India.

Polycaon. Wings indented, tailed, black, with a yellow band; lower ones with fulvous blue and yellow lunules beneath. It is found in Surinam.

Ajax. Wings tailed, both ſurfaces alike, brown with yellow bands, lower ones beneath with red ſtreaks, and fulvous at the angle of the tail. Found in North America.

Agamemnon. Wings tailed, black ſpotted with green; lower ones with three rufous lunules beneath. It inhabits Aſia.

Orestes. Wings ſlightly tailed, above black, beneath yellowiſh, all of them with a ſnowy diſk and two black bands. It inhabits Africa.

Pylades. Wings indented, ſnowy, with a black border dotted with white; angle of the tail with a rufous eye. This alſo is an African inſect.

Demoleus. Wings indented, black, with yellow ſpots and bands, the under ones with a blue and rufous eye. It is found in different parts of the Eaſt Indies.

Epius. Wings indented, brown ſpotted with yellow; lower ones with a rufous ſpot at the angle of the tail. It is found in China.

Leonidas. Wings indented, both ſurfaces nearly alike, black ſpotted with green, lower ones with a green diſk. It inhabits various parts of the continent of Africa.

Tynderæus. Wings indented, black ſpotted with green; lower ones varied beneath with green, brown, and red, the baſe dotted with black.

Antheus. Wings indented, black barred, and ſpotted with green; lower ones variegated beneath, with three red lunules. It is found in Amboyna.

Nireus. Wings indented, black, with a green gilt band, beneath blackiſh. It is found in India.

Lacedemon. Wings indented, black, with whitiſh marginal lunules; lower ones cheſnut brown, with ſeven black lunules beneath. Inhabits Malabar.

Zenobia. Wings indented, black, with a common white band, and marginal ſpots; lower ones beneath yellow at the baſe, and ſtriate with black. It inhabits Sierra Leona.

Cynorta. Wings indented, black, with a ſnowy band; lower ones beneath yellow at the baſe, dotted and ſtriate with black.

Amphimacus. The wings of this inſect are indented, black, with a ſhining blue band ; beneath white on the fore part, cinereous behind. It inhabits India.

Amphitrion. Wings indented, black, with an unequal yellow band ; lower ones beneath with a ſtripe of yellow dots and blue lunules. Inhabits America.

Hippocoon. Wings indented, black, ſpotted with white, the common diſk white. It inhabits Sierra Leona.

Dissimilis. Wings indented, with dilated veins, black, with white arrow-ſhaped ſpots ; lower ones with marginal yellow ſpots beneath. Found in Aſia.

Assimilis. Wings ſlightly ſcalloped, both ſurfaces alike, black, with blueiſh-white dots ; lower ones with ſcarlet dots.

Hypsipyle. Wings indented, yellow, varied with black and radiate at the tip ; lower ones with ſeven red dots. Found in the ſouthern parts of Europe on the Ariſtolochia clematitis.

Trapejus. Wings entire, fulvous ; all of them with four blind eyes. Found in Ruſſia.

Fortunatus. Wings entire, brown ; lower ones marbled with white ; black beneath. It inhabits Lapland.

Clytus. Wings very entire, brown ; upper pair with a yellow band, lower ones with five eyes. It inhabits Africa.

Hyperbius. Wings very entire, brown, with a fulvous patch ; upper ones with a bipupillate eye, lower ones blind beneath. It is found in divers parts of Africa.

Cassus. Wings very entire, brown ; upper pair with a double eye ; lower ones with three eyes.

Florimel. Wings very entire, brown ; under ſurface of the upper ones with two eyes, of the lower ones with ſeven.

Philocles. Wings very entire, brown ; upper pair with a tripupillate eye, lower ones with tranſverſe waved lines. It inhabits India.

Renatus. Wings very entire, both ſides alike, black, with a common white band ; upper pair with a tripupillate eye. It is found in Surinam.

Crœsus. Wings very entire, blue, with numerous black ſtreaks ; upper ones with a tripupillate ſpot above. It is found in Surinam.

* Hyperanthus. Wings entire, brown ; under ſide of the upper pair with three eyes, the lower ones with five. It is an European inſect and found in this country.

Clerimon. Wings ſlightly ſcalloped ; upper pair with a black eye above, all of them with four minute eyes beneath.

Zachæus. Wings entire, brown, with two eyes above ; under ſide of the upper pair with four, of the lower ones with ſix eyes. All the eyes have a white pupil.

Ethus. Wings very entire, brown ; upper pair with a bipupillate eye ; lower ones with three eyes above, beneath black, with a white dot in the middle. It is found among the higheſt mountains of Lapland.

Oedipus. Wings very entire, above black, immaculate ; beneath brown, with about three eyes on the upper, and five on the lower ones. It inhabits Ruſſia.

Zangis. Wings very entire, brown ; all of them beneath with a ſingle eye, that on the upper ones bipupillate. It is found in Carolina.

Phocion. Wings entire, above brown, immaculate ; lower ones beneath with yellow ſtreaks, and three oblong eyes. It is preſerved in the Britiſh Muſeum.

Areolatus. Wings very entire, above brown, immaculate ; beneath with a common teſtaceous ſtreak, margin, and circles, on the upper pair four eyes, on the lower ones ſix, the middle ones elongated. It is found in Georgia, and has been ſuppoſed to be a variety of the P. canthus.

Sosybius. Wings very entire, above brown, immaculate ; under ſurface of the upper ones with five eyes, of the lower ones with ſix, the middle ones blind.

Perseus. Wings very entire, brown ; under ſide of the upper ones with ocellar ſpots, of the lower ones with ſeven. It inhabits New Holland.

Martius. Wings very entire, black ; under ſide of the upper pair with four, of the lower ones with ſeven ocellar ſpots.

Terminus. Wings entire, brown, with a rufous patch ; upper pair with a ſingle eye above, lower ones with four. Found in New Holland. A ſpecimen is preſerved in the muſeum of ſir Joſeph Banks.

Sirius. Wings very entire, dull rufous ; upper pair with two eyes above, lower ones with four. This is alſo a New Holland inſect, and is likewiſe in ſir Joſeph Banks' muſeum.

Cornelius. Wings very entire, dull, cinereous ; lower ones with four approximate eyes.

Davus. Wings very entire, fulvous ; upper pair with an eye, and white bands beneath, lower ones with ſix eyes. It is found in Germany.

* Pamphilus. Wings very entire, yellow ; under ſide of the upper ones with a ſingle eye, of the lower ones cinereous, with a band and four obliterated eyes. This and the next ſpecies are found in England and other parts of Europe.

* Arcanius. Wings very entire, ferruginous ; under ſurface of the upper ones with a ſingle eye, of the lower ones with five, ſeparated by a band.

Leander. Wings very entire, browniſh ; lower pair beneath cinereous, with fulvous tip and ſix eyes. Common in the ſouthern parts of Europe.

Sabæus. Wings entire, brown ; upper pair with four blind eyes above, and ſix pupillate ones beneath.

* Hero. Wings very entire, fulvous ; under ſurface of the upper pair with a ſingle eye, of the lower one with ſix. This is an Engliſh inſect, and is deſcribed and figured by Mr. Donovan.

Arctuous. Wings entire, brown ; upper pair with bipupillate eye on both ſides ; lower ones nearly blind. Found in New Holland. A ſpecimen is in the muſeum of ſir Joſeph Banks.

Phryneus. Wings entire, above white, beneath brown, with white veins and five eyes. Found in Ruſſia.

Hypheus. Wings entire, both ſides alike, white with brown bands ; upper pair with a black eye, lower ones brown. Inhabits the Eaſt Indies.

Baldus. Wings very entire, brown ; upper pair with an eye on each ſurface, the pupil double ; lower ones with four eyes above, and ſix beneath. It is a ſmall inſect and a native of India. A ſpecimen is in the muſeum of Dr. Hunter.

Magus. Wings very entire, dull, fulvous ; upper pair with an eye on each ſide, the pupil double ; lower ones with two eyes above and three beneath.

Dromus. Wings very entire, black ; upper pair with the diſk rufous, in which is a double eye. It inhabits Italy, and is a ſmall inſect.

Eumenus. Wings very entire, half brown ; upper ones with a black tripupillate eye on both ſurfaces. It inhabits the Weſt Indies.

Ephynes. Wings very entire, blue, with purple bands ; upper pair with an eye on each ſide, which is tripupillate beneath. It inhabits Surinam.

Tullius. Wings very entire, dull, cinereous; upper pair brown at the tip, with a tripupillate eye on each ſide. It inhabits Cayenne.

Actæa. Wings ſcalloped, above brown; upper pair with two eyes and two white dots; lower ones marbled beneath. It inhabits Ruſſia.

Fidia. Wings indented, above brown; upper pair with two eyes and two white dots; lower ones with an angular black ſtreak beneath. It inhabits Africa.

Ferula. Wings ſcalloped, black; under ſide of the upper pair with two eyes, of the lower with cinereous bands. Inhabits Italy.

Cordula. Wings indented, brown; upper pair with two eyes, and two white dots on both ſides, lower ones with two black dots. It inhabits Italy, and is the ſize of the former ones.

Fauna. Wings indented, above brown; upper pair with two eyes, and two white dots; lower ones grey beneath. It inhabits Germany.

Feronia. Wings indented, marbled with blue, brown, and white on the upper ſurface, all of them with ſix eyes. It inhabits the Eaſt Indies.

* **Mæra.** Wings indented, brown; upper pair with an eye, including a leſſer one on both ſides; lower ones with three eyes above, and ſix beneath. Found in this country, as the aſteriſk denotes.

Roxelana. Wings indented, brown; above blind; lower ones waved beneath, with ſeven eyes, the inner one with a double pupil. It inhabits ſeveral parts of Aſia.

Proserpina. Wings indented, fulvous; upper pair black at the tip, with yellow dots; lower ones marked beneath with four eyes, the middle ones blind. A ſpecimen is in the muſeum of ſir Joſeph Banks.

Lycaon. Wings indented, upper pair brown and ſpotted with yellow and white; lower ones ferruginous, with ſix blind eyes; beneath variegated.

Alope. Wings indented, brown; upper pair with a yellow band on each ſide, and two eyes; lower ones with a ſingle eye above, and ſix beneath. It inhabits India.

Clueria. Wings indented, brown; lower ones with a blue band, in which are five black eyes; a brown band beneath, with five eyes.

Laches. Wings indented, brown, with a blue band beneath; upper pair with five eyes, lower ones with ſix. Inhabits Guiana.

Herse. Wings indented, ruſty-brown; upper pair dotted with white; lower ones with ſeven blind eyes.

Dejania. Wings indented, brown; upper pair with five eyes on each ſide; lower ones with ſix, and a white ſcalloped band. It is found in Germany.

Pegala. Wings indented, brown; upper pair with a rufous band and ſingle eye; lower ones with an eye above, and ſix beneath. This is an American inſect, and is found in Dr. Hunter's muſeum.

Briseis. Wings indented, brown, with a green gloſs and white band; the upper ones have two eyes; the lower ones none. Found in Germany. The eyes, in this ſpecies, are ſometimes wanting on the upper ſurface.

Manto. Wings ſlightly indented, brown; with four ocellar dots on the upper and three on the lower wings; the under face of the latter cinereous with brown waves. It is found in Auſtria.

Autonoe. Wings indented, brown, ſubfaſciate with yellow and two pupillate eyes; upper ones brown at the baſe beneath. It is found in Ruſſia.

* **Semele.** Wings indented, brown, with a macular fulvous marginal band, in which are two eyes; upper pair with a fulvous diſk at the baſe beneath. It is found in divers parts of Europe.

Arethusa. Wings indented, above brown, with a macular rufous band; upper pair with a ſingle eye on each ſurface. It is found in Germany.

Hermione. Wings indented, brown, with a pale band; upper pair with two eyes above, and one beneath. It is found in France and Germany.

Circe. Wings indented, brown, with a white band on both ſurfaces; upper pair with a ſingle eye. This is an European inſect.

* **Phœdra.** Wings indented, brown, both ſides alike, upper pair with two violet eyes.

Peribœa. Wings indented, brown; upper pair with an obſolete eye, a yellowiſh ſtreak beneath; lower ones with ocellar black dots. Inhabits Surinam.

Delila. Wings ſcalloped, brown; upper pair with a ſmall eye; under ſide of the upper one with two eyes, of the lower one with ſix, the fourth larger. It inhabits Guinea, and is middle-ſized.

Ligea. Wings indented, brown, with a rufous band; upper pair with four eyes, the lower with three on each ſurface, all ſpotted with white beneath. Found in Europe.

Bathseba. Wings ſcalloped, brown, with the diſk ferruginous; upper pair with a bipupillate eye on both ſides, lower ones beneath brown, with a white band. It is found in Barbary.

Medusa. Wings ſlightly ſcalloped, brown, both ſurfaces alike, all of them with a yellow macular band, and about four eyes. This is found in Auſtria.

Epiphron. Wings entire, black with a red band; upper pair with two eyes above and three beneath, lower ones with three above and five beneath. It inhabits Germany.

Blandina. Wings indented, brown, with a rufous ocellate band; lower ones brown beneath, with a cinereous band. Found in Germany.

Griela. Wings ſlightly indented, black; upper pair with four connected ſpots on each ſide. It inhabits the higheſt mountains of Lapland.

Afra. Wings entire, brown with ſix eyes; lower ones covered with cinereous down. It inhabits Ruſſia.

Erina. Wings indented, brown, with a macular fulvous band and ocellar black dots. It is found in Germany.

Arachne. Wings entire, black, upper pair with a rufous band on each ſide, containing two eyes; lower ones with an indented cinereous band beneath. It inhabits Auſtria, and is the ſize of the laſt.

Pyrrha. Wings entire, brown, with a red band, which is dotted with black on the upper pair, and macular on the lower ones. It inhabits Auſtria.

Cassiope. Wings entire, brown, with a rufous band, containing three ocellate black ſpots; the lower ones with only dots beneath.

Arete. Wings entire, brown with a rufous band; lower ones with a ſtripe of white dots on each ſide. It inhabits the mountainous parts of Auſtria.

Salome. Upper wings brown, with a rufous band containing a ſingle eye; lower wings with three eyes, beneath an indented white ſtreak, and five eyes. This ſpecies is found at Gibraltar.

* **Galathea.** Wings indented, varies with brown and yellowiſh-white; under ſurface of the upper one with a ſingle eye; of the lower ones with five.

Arge. Wings indented, white ſtreaked with black;

upper pair with a ſingle eye, the lower ones with five. Found in Ruſſia.

Liria. Wings ſlightly indented, cinereous, with brown waves; the upper pair has a white band, lower ones with four ocellar white dots. It inhabits India.

Piloſellæ. Wings indented, brown, with a yellowiſh diſk; upper pair with a black eye, and double pupil on each ſide; lower ones with ſnowy ocellar ſpots beneath. It is found in many parts of Germany.

Ida. Wings ſlightly indented, brown, with a yellow diſk; the upper pair with a black bipupillate eye on each ſide, the lower ones varied with grey beneath.

Melufona. Wings indented, brown, with a white diſk; lower ſurface whitiſh, with two eyes on the upper pair, and ſeven on the lower ones.

Cadma. Wings indented, fulvous; lower ones beneath white on the diſk, with two eyes, the pupil double, blue. Inhabits America.

* Janeira. Wings indented, brown; upper pair beneath yellow, with a ſingle eye on each ſide; lower ones with three dots beneath. In the female, the upper pair of wings has a yellow patch, including a ſingle eye on each ſide.

Clymene. Wings indented, brown, with a ferruginous patch; lower ones with about three eyes above, and ſeven beneath. Inhabits Ruſſia.

Miriam. Wings indented, brown, beneath cinereous, with two eyes on the upper pair, and ſeven on the lower. It inhabits India.

Eudora. Wings indented, brown; upper pair with a ferruginous diſk on each ſide, containing a ſingle eye in the male, and two in the female. It inhabits Germany.

Tabitha. Wings indented, black; upper pair with a ſingle eye; all of them paler beneath, with a ſtreak of ocellate dots. It inhabits the Eaſt Indies.

Tiſiphone. Wings indented, brown; upper pair with two eyes on each ſide, lower ones with ſix. The pupils all are violet. It is found in Germany.

Halyma. Wings indented, above brown, immaculate, beneath with yellow bands; upper pair with five eyes, the lower with ſeven. It inhabits India.

Rumina. Wings indented, variegated; upper pair with ſix red dots above, lower ones with four. It inhabits the ſouthern parts of Europe.

Flegia. Wings indented, both ſides alike, fulvous, with numerous brown dots. It inhabits Cayenne.

Allica. Wings indented, both ſurfaces nearly alike, obſcure, fulvous, with numerous black ſpots, each including a white one. It inhabits Siam.

Melicerta. Wings indented, both ſides alike, black dotted with white; upper pair with a common white interrupted band. This is an African inſect.

Aceris. Wings indented, with black bands, above black, beneath fulvous. This is found in many parts of Europe and Aſia.

Aceſte. Wings ſcalloped; upper pair black, with a yellow band and baſe, lower ones yellow, with brown bands beneath. Found in India.

Sulpitia. Wings indented, black, with a common white band; lower ones yellowiſh beneath, with black dots at the baſe, a white band in the middle, and dots at the tip.

Sibilla. Wings indented, above brown, beneath ferruginous, ſpotted with black, and a macular white band on both ſurfaces. It inhabits Europe.

* Camilla. Wings indented, dark brown, with a white band, and dots on each ſide; lower ones ſilvery blue at the baſe.

Lucilla. Wings indented, above brown, beneath cheſnut-brown, with a macular white band both ſides. It inhabits Auſtria.

Cœnobita. Wings indented, black; upper pair with a white ſtreak and ſpots; lower ones with a white band above, beneath white, with four brown bands and marginal ſpots. It inhabits India.

Herſilia. Wings indented, white, with a fulvous border, lower ones fulvous, beneath two white bands, and a dot in the middle. It inhabits America.

Sophia. Wings indented, varied with yellow, fulvous and black, the margin brown, dotted with black; white lunules on the lower ones. It inhabits India.

Doriclea. Wings ſcalloped down; lower ones with a fulvous band dotted with black, and a black dot beneath. It inhabits India.

Auge. Wings indented, brown; upper pair with three green bands; lower ones with a fulvous band dotted with black, a black dot at the baſe beneath. It inhabits India.

Etheſia. Wings indented, black, with a yellow diſk; beneath varied with brown and yellow, the baſe dotted with black. It inhabits Africa.

Narva. Wings indented, black, with a line of white dots behind; upper pair with yellow ſpots, lower ones with a yellow diſk. This is found in Africa.

Mardania. Wings indented, fulvous; upper pair black at the tips, with a white band; lower ones with four ocellar yellow ſpots.

Cocalia. Wings indented, brown; upper pair ſpotted with black and yellow; all of them grey beneath, with a line of white dots. It inhabits India.

* Lucina. Wings indented, brown, with teſtaceous ſpots; lower ones with two rows of whitiſh ſpots beneath. It inhabits Europe.

* Cinxia. Wings indented, fulvous, with black ſpots; lower ones with three whitiſh bands, dotted with black beneath. It inhabits Europe.

Phœbe. Wings indented, varied with black and fulvous; lower ones beneath yellowiſh, waved with black, the baſe with four black ſpots, and two fulvous bands, the hinder one compoſed of ſpots. This is an European inſect.

Didyma. Wings indented, fulvous, ſpotted with black; lower ones beneath yellow, dotted with with black, with two continued fulvous bands. It inhabits Ruſſia.

Faſcelis. Wings indented, varied with fulvous and brown; lower ones beneath white, dotted with black, with two fulvous bands, the lower compoſed of lunules.

Athalia. Wings ſcalloped with fulvous, dotted with black; lower ones beneath white, dotted with black, with two fulvous bands. It inhabits Ruſſia.

Hylla. Wings indented, fulvous, ſpeckled with black; lower ones brown at the baſe, beneath whitiſh. This is found in the Eaſt.

* Dictynna. Wings indented, black, with fulvous ſpots; lower ones beneath fulvous, with white ſpots at the baſe, and band in the middle, the tip with yellow lunules.

Cynthia. Wings indented, black, with fulvous and yellow bands; lower ones beneath fulvous, with yellow bands. It inhabits Auſtria. In the male there are a few white ſpots.

* Maturna. Wings indented, varied with fulvous and black; lower ones beneath with yellow bands, and waved black ſtreaks, the baſe impunctured. It inhabits Europe.

Arduina. Wings indented, fulvous, ſpotted with black; lower ones beneath white, with two fulvous bands, the lower ſpeckled with black. This is found in Ruſſia.

Hecate. Wings indented, fulvous, ſpotted with black;

all of them with two ſtreaks of black dots at the tip. This is found in Auſtria.

* Artemis. Wings indented, fulvous, variegated with black; lower ones with a ſtreak of black dots on each ſide.

Amathusia. Wings indented, fulvous with black ſpots, and a punctured ſtreak; lower ones variegated beneath, a black dot at the baſe, and a ſtreak at the tip.

* Dia. Wings fulvous, ſpotted with black; lower ones beneath purple, the baſe with yellow and ſilvery ſpots, and an obſolete ſilvery band in the middle.

Dryope. Wings indented, brown, with rufous ſpots, the tip fulvous; beneath with rufous ſpots, ſurrounded with a white ring. It inhabits Sierra Leona.

* Levana. Wings denticulated, variegated, beneath reticulate, upper ones with a few white ſpots.

Prorsa. Wings indented, brown, beneath reticulate with white; the upper pair with a white interrupted band on each ſide. This is an European inſect.

Pandora. Wings indented, fulvous, ſpotted with black; lower ones beneath ſcarlet, immaculate.

Pales. Wings ſlightly indented; fulvous, with black baſe and ſpots; lower ones beneath nut-brown, and variegated with yellow and ſilvery. This is found in Auſtria.

Daphne. Wings indented, fulvous, ſpotted with black; lower ones beneath yellow, with rufous veins, the tip ſilvery, ferruginous. Inhabits Auſtria, and is found on the Rubus idæus.

Heliconii.

Horta. Wings entire, red, upper one hyaline at the tip, lower ones beneath whitiſh dotted with black. This is an inhabitant of Africa.

Quirina. Wings entire, hyaline; diſk of the upper pair fulvous, ſpeckled with black. This is found at Madras.

Calliope. Wings entire, yellow; upper pair with three black ſtreaks; lower ones with three black bands. It inhabits India.

Melite. Wings entire, yellow; upper pair black, with two yellow lines, and a band. Inhabits India.

Mopsa. Wings entire, both ſurfaces alike, yellow and black, the margin dotted with white. It inhabits India.

Mneme. Wings entire, fulvous, ſpotted with black; upper pair black at the tip, with yellow ſpots; lower ones black, with a fulvous band behind. It inhabits India.

Lycaste. Wings entire, fulvous, tipt with black; upper pair ſpotted with yellow.

Lysimnia. Wings entire, fulvous, with a yellow band, the tip black, with a white ſpot on the upper pair.

Clara. Wings ſcalloped, black, ſpotted with yellow, and a common teſtaceous baſe. It is found in Surinam.

Egena. Wings entire, upper pair fulvous, with a yellow band, the tip ſpotted with yellow, and a row of white dots on each ſide. This is an American ſpecies.

Eva. Wings entire, both ſurfaces alike, black; upper pair with fulvous ſtreaks at the baſe, and ſpots at the tip, diſk of the lower ones fulvous, with a black band. It inhabits Surinam.

Lybia. Wings entire, upper pair black, with two fulvous bands; lower ones fulvous, with a marginal black band. It inhabits India.

Vesta. Wings entire, yellowiſh, the margin dotted with black. It inhabits China.

Hypartia. Wings entire, fulvous, dotted with black, the margin black, immaculate. It inhabits Africa.

Violæ. Wings entire, fulvous, dotted with black; margin of the lower ones black, with ſeven white dots. It inhabits India.

Terpsicore. Wings entire, fulvous; lower pair dotted with black. It inhabits Aſia.

Serena. Wings entire, fulvous; baſe of the lower pair beneath dotted with black. Found in India.

Polymnia. Wings entire; upper pair with black ſpots, and tip and yellow band; lower ones with three black bands, the middle one ſerrate. This is found in America.

Hippodamia. Wings entire, upper pair black, with three hyaline bands; the lower ones are likewiſe hyaline.

Irene. Upper wings black, with yellow ſpots, and a fulvous line at the baſe; lower ones fulvous, edged with black. It inhabits America.

Sappho. Wings entire, both ſurfaces alike, black-blue; upper pair with a white band; lower ones edged with white. Inhabits Jamaica.

Urania. Wings entire, brown, with a white diſk; lower ones with two eyes each. This is found in India.

Doris. Wings entire, black; upper pair ſpotted with yellow; lower ones radiate, with blue at the baſe above. It is found in Surinam.

Olympia. Wings entire, black; upper pair with an oblong fulvous ſpot at the baſe, and white ones at the tip, lower ones fulvous at the baſe.

Crisia. Wings entire, black; upper pair acuminated with a yellow band; lower pair with a yellow diſk. It inhabits America.

Hecale. Wings entire, black; upper pair with a white band; lower pair with white marginal dots beneath. Found in Surinam.

Ricini. Wings entire, brown; upper pair with two yellow bands on each ſide; lower ones rufous at the baſe. It inhabits America.

Sara. Wings ſcalloped, black, with a blue baſe; upper pair with two yellow bands; lower ones with red beneath. It inhabits Guiana.

Aranea. Wings black; upper pair with a yellow ſtreak at the baſe, and two bands; lower ones with a red band beneath.

Brassolis. Wings entire, brown; upper pair ſpotted with yellow; lower ones beneath with red rays. It inhabits Surinam.

Thales. Wings nearly entire, and alike on both ſurfaces, black, with red rays at the baſe; the upper pair is ſpotted with yellow. It inhabits Surinam.

Myrti. Wings entire, black; upper pair with two yellow bands; lower ones with a rufous diſk. It inhabits Surinam.

Nasica. Wings entire, black; upper pair with two yellow bands; lower ones with a yellow diſk.

Cepha. Wings entire, black; upper pair with an abbreviated white band; lower ones fulvous at the baſe, and radiate beneath. It inhabits Cayenne.

Psidii. Wings entire, brown; upper pair with three hyaline bands, lower ones with two. It is found in India.

Aspasia. Wings entire, black, with hyaline ſtreaks and ſpots; lower ones yellow at the baſe. It inhabits Tranquebar.

Ægle. Wings entire, black; upper pair with hyaline ſpots; lower ones with a hyaline diſk.

Charitonia. Wings entire, black, upper pair with three yellow bands, lower ones with two. Inhabits America.

Melpomene. Wings entire, black; upper pair with a red band; lower ones with red dots at the baſe beneath. It inhabits America.

Phyllis. Wings entire, black; upper pair with a red band; lower ones with a yellow one. It inhabits Brazil.

Clio. Wings entire, brown; upper pair ſpotted with white; lower ones with a white band. It inhabits America.

Thalia. Wings entire, brown; upper pair ſpotted with yellow; lower ones ſtriate. It inhabits India.

Rosalia. Wings entire, both ſurfaces alike, fulvous; upper pair with a yellow ſpot; lower ones with two black ſtreaks. Inhabits Surinam.

Euryta. Wings entire, both ſurfaces alike brown, with a white band; lower ones ſtriate, the baſe is dotted with black.

Umbra. Wings entire, brown, with a teſtaceous baſe; lower ones ſpeckled with black.

Aedea. Wings entire, ſpotted with white; upper pair greeniſh; lower ones with a yellow band. It inhabits India.

Thallo. Wings entire, black; upper pair with two yellow bands; lower pair with a ſingle one. It inhabits China.

Anticha. Wings entire, black; upper pair with two white bands. It is found in India.

Camoena. Wings nearly entire, brown, dotted with black; lower ones with a red band. It inhabits Africa.

Macaria. Wings entire, brown; upper pair with a black baſe, and broad rufous band in the middle; lower ones dotted with black at the baſe.

Zetes. Wings brown, dotted with black; lower pair with a fulvous band, dotted with black, the margin beneath with pale dots. It inhabits Guinea.

Persiphone. Wings entire, brown, dotted with black; upper pair with a white ſpot, margin of the lower ones black, immaculate.

Gea. Wings entire, black; upper pair with two ſpots; diſk of the lower ones fulvous, ſtriate with black, the baſe beneath is ſtriate with black. This ſpecies inhabits Africa.

Jodutta. Wings entire, black, upper pair with two white ſpots, diſk of the lower ones white, ſtriate with black, the baſe beneath dotted with black.

Parrhasia. Wings entire, black; upper pair with a four-cleft fulvous and hyaline ſpot; lower ones with a fulvous band, beneath yellow with black dots and lines.

Lycia. Wings entire, both ſurfaces alike, brown, ſpotted with white; diſk of the lower ones white, with black dots. It inhabits Sierra Leona. There is a ſpecimen in ſir Joſeph Banks' Muſeum.

Pyrrha. Wings entire, both ſurfaces alike, brown, ſpotted with yellow; diſk of the lower ones ferruginous, ſtriate with black. It inhabits Brazil.

Pasiphæ. Wings entire, brown, varied with white, with black ſpots and margin. It inhabits Guinea.

Marcia. Wings entire; upper pair brown, immaculate; lower ones yellowiſh, dotted with black. This, and alſo the two next, are found in Africa, and ſpecimens are preſerved in ſir Joſeph Banks' Muſeum.

Cœcilia. Wings white, in the middle dotted with black; margin of the lower ones black, beneath it is dotted with white.

Bonasia. Wings entire, brown, with a common fulvous band; baſe of the lower ones dotted with black.

Euterpe. Wings entire, black, with a fulvous band and white dots. It inhabits America.

Susanna. Wings entire, black, dotted with white, a fulvous ſpot at the baſe and band behind. It is found in Africa. A ſpecimen is in ſir Joſeph Banks' Muſeum.

Hyparete. Wings entire, white, with black veins; lower ones beneath yellow, the margin ſpotted with red. It inhabits India.

Pasithoe. Wings black, ſlightly radiate, with white, and a central white dot; lower ones beneath ſulphur, with black margin and veins; the baſe is red. There is a variety, in which the wings are entire, black, ſpotted with white; lower ones beneath yellow on the diſk, with a red band at the baſe.

Erythrea. Wings black; upper pair with two red bands; lower ones with ſix red ſtreaks. Found in Surinam.

Erato. Wings entire, black; upper pair ſpotted with yellow and red at the baſe; lower ones are ſtriate with red. This is found in India.

Belladona. Wings entire, black; upper pair with hyaline dots; lower ones with yellow ſpots.

Julia. Wings indented, fulvous; upper pair with two black ſtreaks; lower ones black on the hind margin.

Hippona. Wings indented, tail varied with yellow and black; lower ones with four white dots. It inhabits India.

Parnaſſii.

Apollo. Wings entire, white, ſpotted with black; lower ones with four eyes above and ſix beneath. This is a native of many parts of Europe, but has not been obſerved in theſe iſlands. It is ſomething larger than the common great cabbage butterfly. The caterpillar is black, with ſmall red ſpots, and a pair of ſhort retractile tentacula in front; it feeds on orpine and ſome other ſucculent plants, and changes into a brown chryſalis, covered with a kind of violet-coloured powder.

Phœbus. Wings entire, both ſurfaces alike, white, ſpotted with black; lower ones with three red ſpots, circled with black. It is found in the wilds of Siberia.

Mnemosyne. Wings entire, white, with black nerves; upper pair with two black marginal ſpots. It inhabits Europe.

* **Cratægi.** Wings entire, white, with black veins. This is ſometimes called the hawthorn butterfly, and is well known in this country. It is of the ſize of the common cabbage butterfly, and is ſeen in the months of June and July.

Andromacha. Wings entire, both ſurfaces alike, dotted with black; the upper pair is duſky and naked; the lower ones yellowiſh. It is found in New Holland.

Mandane. Wings oblong, entire; the upper pair is hyaline, with black veins; the lower ones black, with a white band. It inhabits Africa.

Piera. This ſpecies has ſemitranſparent wings, with the lower pair marked by two ocellated black ſpots, with a yellow ring and centre. It is a native of South America.

Anacardii. Wings entire, hyaline, greeniſh; lower ones brown at the tip, with two eyes. It is found in America.

Nereis. Wings ſcalloped, brown; lower ones with a ſnowy band, the diſk is fulvous, with two black eyes. It inhabits America.

Andromeda. Wings hyaline white; lower ones red at the tip, with a ſingle eye in each. It is found in India.

Diaphanus. Wings entire, hyaline, white, the margins brown. It inhabits Jamaica.

Hyalinus. Wings entire, both ſurfaces alike, upper pair hyaline, with black bands and margin; lower ones teſtaceous.

Obscuratus. Wings teſtaceous hyaline; upper pair with a yellow band.

Idea. Semitranſparent wings, white, with black ſpots and veins. It inhabits India.

Feſtivi.

Cyparissus. Wings entire, black, with two white bands, thoſe of the upper pair oblique, of the lower ones punctate. It inhabits America.

Midamus. Wings entire, black, dotted with white; upper pair above blueiſh; lower ones with a row of white dots. A native of India.

Dryasis. Wings entire, brown; upper pair with two white dots, all of them with numerous ones beneath. A ſpecimen of this is in the Britiſh Muſeum.

Diocletianus. Wings entire, black; upper pair with an interrupted white band; lower ones with white lines at the baſe, and a double row of dots at the tip. A native of the Eaſt Indies.

Claudius. Wings entire, black; upper pair with a blue gloſs, and dotted with white; lower ones with white lines. It inhabits Tranquebar.

Niavius. Wings entire, black; upper pair with a white band; lower ones with a common white ſpot at the baſe. A native of Sierra Leona.

Damocles. Wings entire; upper pair black; lower ones brown with a white diſk. It inhabits Aſia and Africa.

Corus. Wings entire, black, all of them with a double row of white dots. A native of India, as is alſo

TullKolus. Wings entire; upper pair black, with a macular white band; lower ones brown, above immaculate, beneath dotted with white.

Sylvester. Wings entire, brown, with a macular white band.

Cochrus. Wings entire, both ſurfaces alike, black, with a macular white band; abdomen red, with black belts. In Dr. Hunter's Muſeum.

Liberius. Wings entire, lead colour, under ſurface of the upper pair green, of the lower ones fulvous. It inhabits Amboyna.

Radamanthus. Wings entire, black, with a blue gloſs; upper pair with a marginal white ſpot; the lower ones with a white ſpot and four lines. It is a native of Aſia.

Zoilus. Wings entire, black; upper pair with three white ſpots, lower ones with a white diſk. It is a native of New Holland.

Cyntheus. Wings entire, black with teſtaceous veins, and a white band, which in the upper pair is interrupted. It inhabits Africa.

Aretheusus. Wings entire, black with blue ſpots; lower ones with red dots beneath. It is found in Surinam.

Clymenus. Wings entire, with a blue band; upper pair beneath, ſanguineous; lower ones beneath, white with black rings and dots. It is a native of Brazil.

Sisamnus. Wings entire, black dotted with white and a common white band, which is interrupted in the upper pair.

Jassus. Wings entire, brown with black ſtreaks; upper pair with a marginal white ſpot, beneath paler with brown ſtreaks. It inhabits Cayenne.

Antiochus. Wings entire, black with a common fulvous band above. It is a native of China.

Syphax. In this the wings are entire and black; the upper pair has a white band; the lower ones with a marginal red one.

Evalthe. The wings are entire, black; upper pair with two yellow bands; the lower ones are marked with a yellow band and red ſpots, beneath red with a yellowiſh macular band. It is a native of India.

Licas. Wings entire, brown; upper pair with two white bands; lower ones with a ſingle white band and red ſpots, beneath cinereous with white bands. It is a native of Surinam.

Phalaris. The wings of this ſpecies are entire and brown; the lower pair with two macular white ſtreaks.

Pelasgus. The wings are entire, both ſurfaces alike; upper pair greeniſh with a fulvous band; lower ones immaculate. It inhabits Surinam.

Phœton. In this the wings are entire, black, with white and rufous ſpots. It is a native of America.

Sophus. The wings are entire; upper pair black, the diſk fulvous, ſpotted with black; the lower ones brown, with a black ſtreak and dots.

Galanthis. Wings entire; above black, with ſanguineous bands; upper pair with two white dots at the tip.

Cenœus. Wings entire, browniſh; lower ones beneath with a red orb of nine ſpots. It inhabits India.

Chermes. Wings entire, duſky; lower ones red, with black bands above, and a ſnowy dot, in the middle beneath. It is a native of Africa.

Hesperus. The wings of this are ſcalloped, brown with black waves, upper pair with white dots.

Mirus. The wings are ſcalloped, brown, ſlightly faſciate with teſtaceous; lower ones beneath brown at the baſe, and variegated at the tip.

Tytius. Wings entire, brown ſpotted with white; upper pair with ocellar black dots. It inhabits Surinam.

Eupalus. The wings are entire, brown; lower ones with a blue band, beneath green, with a black dot. It inhabits Africa.

Pinthæus. Wings entire, both ſurfaces alike, brown; upper pair with three yellow ſpots; lower ones white on the lower half. It is a native of India.

Archippus. Wings ſcalloped, fulvous, with black veins, the margin black, dotted with white; upper pair with fulvous ſpots at the tip. It is a native of America.

Plexippus. Wings entire, fulvous, with dilated black veins, the margin black, with white dots; upper pair with a white band at the tip. It inhabits America.

Erippus. Wings entire, dull teſtaceous, the edge black dotted with white; diſk of the lower ones immaculate, beneath with black veins, and white dots. A native of China.

Misippus. The wings of this are ſcalloped, and fulvous, the edge black, dotted with white, lower ones with a black curve. Found in America.

Chrysippus. Wings entire, fulvous, the margin black, dotted with white; diſk of the lower ones white, with black dots.

Alcippus. Wings entire, fulvous, the margin black, dotted with white; diſk of the lower ones white, with black dots. This and the two following are natives of America.

Eleus. The wings are entire, fulvous; the margin black, of the upper pair with a white band, of the lower ones with white dots.

Eresimus. The wings ſcalloped, teſtaceous, the tip and margin black dotted with white; lower ones beneath with an obſolete macular whitiſh band.

Diocippus. Wings ſcalloped, fulvous, with a common black border dotted with white; lower ones beneath with three black dots, and a ſtreak of white ones behind. It inhabits India.

Gilippus. Wings entire, both ſurfaces alike, fulvous, ſpotted with white, the margin black, with white dots. It inhabits America.

Hegesippus. Wings entire, both ſurfaces alike, black, ſpotted with white ; baſe of the upper pair fulvous, of the lower ones with white lines.

DARIUS. The wings are entire, brown ; upper pair ſpotted with white, lower ones with a black curve beneath. It inhabits Brazil.

DÆDALUS. Wings entire, brown ſpotted with white ; beneath nut-brown. It is a native of Guinea.

NICÆUS. Wings entire ; upper pair with a black eye ; lower ones above with a red marginal band and black ocellar ſpots. It inhabits India.

NUMILIUS. Wings entire, black ; upper pair with two fulvous ſpots, lower ones with a ſingle one. A native of Brazil.

CODOMANNUS. The wings entire, black, with red bands, lower ones beneath with angular yellow lines and blue dots. It inhabits Brazil.

POLYMENUS. Wings entire, ruſty-brown, dotted with black ; beneath yellowiſh, waved with black. It inhabits Surinam.

HYDASPES. Wings entire, brown, with a blue gloſs ; lower ones beneath yellow, with annular black lines, and three blue dots. A native of Brazil. A ſpecimen is preſerved in ſir Joſeph Banks' muſeum.

JAIRUS. Wings entire, brown ; diſk of the lower ones white, with a blue eye above, and two beneath. A native of India.

HAQUINUS. Wings nearly entire, brown ; beneath orange, with blueiſh-ſilvery ſpots, marked with black. Found at Tranquebar.

ORION. Wings ſcalloped ; upper pair falcate, rufous, the tip black, with a marginal white ſpot. Found at Surinam.

COCYTUS. Wings falcate ; above black, the hind margin cinereous. It inhabits Siam ; and a ſpecimen is in ſir Joſeph Banks' muſeum.

DRUSIUS. Wings entire, fulvous, tipt with black ; lower ones beneath with white dots and two eyes. This is a native of Rotterdam iſland.

THYMETUS. Wings entire ; yellow, with a common brown border. In the muſeum of Dr. Hunter.

ABSOLON. Wings fulvous, with brown bands, beneath orange, with brown waves. It inhabits Guinea.

ODIN. Wings entire, duſky, with a ſingle angle ; lower ones beneath with a pair of black ſub-ocellate dots on each ſide. It inhabits China.

CELLINE. Wings indented, oblong, fulvous ; upper pair with a black lunule. It is a native of America.

DIDO. Wings indented, oblong, black, ſpotted with green ; lower ones with a blueiſh band, and ſeven tranſverſe ſpots. It is a native of America.

EURINOME. Wings indented, black, ſpotted with white ; lower ones white at the baſe. It inhabits India : ſo alſo do the two following.

PHILOMELA. Wings ſcalloped, black, ſpotted with white ; lower ones radiate, with yellow at the baſe.

SIMILIS. Wings ſlightly ſcalloped, both ſurfaces alike, with blueiſh-white dots lineate towards the baſe.

AFFINIS. Wings indented, black, ſpotted with white ; border of the lower ones beneath black, ſpotted with yellow and white. A native of New Holland.

LAIS. Wings indented, black, with blueiſh ſtriæ, beneath brown. Found in India

ENOTHREA. Wings indented, black, with a green diſk, beneath black, with a white coſtal dot. It inhabits Sierra Leona.

DIRTEA. Wings indented, both ſurfaces alike, black, dotted with yellow. A native of Bengal.

HIPPIA. Wings ſcalloped, greeniſh-white, with black border and veins.

PANOPE. Wings indented, brown, both ſurfaces alike, the outer margin ſpotted with white, angle of the tail fulvous. This and the next are natives of India.

JACINTHA. Wings ſcalloped, toothed, brown ; upper pair with a ſtreak of white dots ; lower ones white at the tip.

MICALIA. Wings falcate, toothed, black, ſpotted with yellow, middle of the lower ones fulvous, ſpotted with black. This and the following are natives of America.

PASSIFLORÆ. Wings indented, fulvous, ſpotted with black ; beneath with thirty ſilvery ſpots.

JUNO. Wings angular, indented, oblong, fulvous, with a black border ; lower ones beneath black, with fulvous and ſilvery ſpots. Found at Surinam.

Danai.

* BRASSICÆ. The wings of this inſect are rounded, entire, white ; tip of the upper pair brown. This is the common large white butterfly known in our gardens : it proceeds from a yellowiſh caterpillar freckled with blueiſh and black ſpots, and which changes during autumn into a yellowiſh-grey chryſalis, affixed in a perpendicular direction to ſome wall, tree, or other object, ſome filaments being drawn acroſs the thorax, in order the more conveniently to ſecure its poſition. The fly appears early in the ſpring, and is ſeen almoſt through the ſummer.

* RAPÆ. Wings entire, white ; upper pair tipt with brown ; male with a brown ſpot on each, female with three brown ſpots on the upper, and one on the lower pair. This is common in our own country.

* NAPI. Wings entire, with dilated green veins beneath. It inhabits Europe and Aſia.

* SINAPIS. Wings entire, white ; upper pair tipt with brown. This and the three preceding are the inſects which in the caterpillar or grub ſtate commit ſuch ravages in our gardens.

NARICA. Wings ſnowy ; upper pair with a brown ſpot before the tip. It inhabits Guinea.

RAPHANI. Wings entire, white, the tip black, ſpotted with white ; the lower ones beneath with black veins, and covered with yellowiſh meal.

CASTALIA. Wings entire, white ; above immaculate, beneath yellowiſh at the baſe. A native of India.

POPPÆA. Wings entire, white ; the margin dotted with black ; upper pair with a ferruginous ſpot at the baſe. It is found at Sierra Leona.

SYLVIA. Wings entire, white ; tip of the upper pair brown, with a fulvous ſpot beneath. Inhabits Sierra Leona. A ſpecimen is in ſir Joſeph Banks' muſeum.

PAULLINA. Wings entire, white, edged with black ; lower ſurface of the upper pair with a yellow ſpot at the baſe, of the lower ones immaculate. It is found in India.

ARGANTE. Wings entire, fulvous ; beneath ſpeckled with ferruginous. It inhabits Brazil.

MONUSTE. Wings entire, white, edged with brown. Found in America.

AMARYLLIS Wings entire, both ſurfaces alike, dull white, upper pair with a black lunule. A native of India.

ARGIA. Wings entire, white ; upper pair black at the tip. It inhabits Sierra Leona.

NEPHTE. Wings ſcalloped, white ; upper pair with a black dot above, all of them with a brown one beneath. It inhabits China .

AMATHONTE. Wings rounded, white at the tip with black; margin of the upper pair beneath nut-brown. Inhabits America.

Phileta. Wings entire, grey; upper pair above white, tipt with brown. It is a native of America.

Libythea. Wings entire, white; upper pair brown at the baſe of the rib, and at the tip. Found in India.

Calypso. Wings entire, upper pair with a black dot and tip; lower ones beneath yellowiſh, the margin dotted with black. This is a native of Sierra Leona.

* Daplidice. Wings entire, white, with a brown margin, beneath marked with yellowiſh-white and green. It inhabits Europe and Africa, and is common here.

Cneora. Wings entire, white, the margin black, with a ſtreak of dots. It inhabits India.

Nerissa. Wings entire, white, with a black margin; beneath with black veins. It is a native of China.

Demophile. Wings white, with two brown bands and margin; lower ones beneath fleſh-colour. It inhabits India.

Vanessa. Wings entire, white; upper pair with a brown exterior margin and black dot; lower ones with brown ſtreaks. It inhabits America.

Hecabe. Wings entire, yellow, the outer margin black; beneath dotted with brown. A native of India

Agave. Wings entire, yellow; tip of the upper pair above black; beneath cheſnut-brown. It is found at Cayenne.

* Cardumines. Wings entire, white; upper pair, of the male, with a large bright orange patch at the tip, including two black dots; the lower ones beneath marbled with green; the female is without the orange tip.

Genutia. Wings falcate, entire, white; upper pair fulvous at the tip; lower ones marbled with green. It is found in India, as is the next.

Dorothea. Wings entire, white; upper pair black at the tip; lower ones beneath with yellow bands, ſpeckled with black.

Florea. Wings entire, white; upper pair black at the tip; lower ones with a black ſpot and marginal dot.

Nina. Wings entire, white; upper pair with a black ſpot and tip; lower ones beneath ſpeckled with green. This is an Indian inſect, but a ſpecimen may be ſeen in ſir Joſeph Banks' muſeum.

Eucharis. Wings entire, white; upper pair fulvous at the tip, with a black margin; the lower ones are immaculate. A native of the Eaſt Indies.

Nysa. The wings of this ſpecies are entire, and white; the lower ones beneath brown, with a white dot and ſix yellow lunules. It is a native of New Holland. A ſpecimen is in ſir Joſeph Banks' muſeum.

Muta. Wings entire, white; lower ones with a black dot in the middle, beneath yellow, with two black dots. It is found in many parts of India.

Chloris. Wings entire, white, tipt with black; lower ones beneath fulvous with a broad black margin. This is an African inſect.

Rhodope. Wings entire, white, both ſurfaces nearly alike; upper pair yellow; lower ones white; all black on the outer margin. It is found in Sierra Leone.

Elathea. Wings entire; upper pair yellow; lower ones white; all black on the outer margins; beneath it is cinereous. It inhabits Tranquebar.

Alcmeone. Wings with both ſurfaces alike, yellow at the baſe, and white at the tip. It is found at Tranquebar.

Phryne. Wings entire, white, edged with black; lower ones beneath yellow. It is found in various parts of America.

Licinia. Wings entire, white, edged with black; lower ones beneath immaculate. It is found in India.

Aurota. Wings entire, white, the margin black, ſpotted with white; lower ones beneath yellow. This is a native of Coromandel.

Zelmira. Wings white, with a common brown border; upper pair with a white coſtal band, lower ones with a brown ſtreak beneath. This is found common at Tranquebar.

Pyranthe. Wings white, with a black dot and tip; beneath with cinereous waves and a fulvons dot. Found on the Caſſia in the Eaſt Indies.

Leucippe. Wings entire; upper pair red, edged with black; lower ones yellow. It is a native of Amboyna.

Glaucippe. Wings entire, white; upper pair tipt with black; lower ones beneath cinereous, with brown waves. It is found in Aſia.

Coronis. Wings entire, with black veins; above white, beneath greeniſh. It inhabits China.

Eudoxia. Wings entire, white, edged with black; beneath fulvous at the baſe and ſpotted with black at the margin. This is found in Sierra Leona.

Iphigenia. Wings entire, white, tipt with black; the lower ones beneath are yellowiſh, with a black band in the middle, and an abbreviated fulvous ſtreak. It is found in Surinam.

Teutonia. Wings entire, white; lower ones beneath with black veins and yellow ſpots. It is found in New Holland.

Mysis. Wings entire, white; margin of the lower ones beneath black with a red band. This is a native of New Holland; and a ſpecimen is in the muſeum of ſir Joſeph Banks.

Argenthona. Wings entire, white, the border black ſpotted with yellow; the lower ones are yellow, the tip black with a rufous macular band.

Nigrina. Wings entire, white tipt with black; beneath black with a ſanguineous flexuous ſtreak on the lower ones. It inhabits New Holland. A ſpecimen is in ſir Joſeph Banks' muſeum.

Maria. Wings white; upper pair brown with a broad white band. This is found in the Eaſt Indies.

Saba. Wings entire, black with a common white band. It inhabits Sierra Leona. Sir Joſeph Banks has a ſpecimen.

Coronea. Wings entire, white edged with black; beneath black radiate with fulvous at the baſe. Found at Surinam.

Melania. Wings entire, white tipt with black; lower ones dull glaucous beneath. It inhabits New Holland. There is a ſpecimen in ſir Joſeph Banks' muſeum.

Scylla. Wings entire, yellow; upper pair white with a black border; all of them clouded beneath. It is found in the Eaſt Indies.

Flippantha. Wings entire; upper pair white with a black ſpot and tip; lower ones yellow; beneath nut-brown at the tip.

Judith. Wings entire, both ſurfaces alike; upper pair white with black veins and margin; lower ones fulvous edged with black. This is a native of Poulicandor: a ſpecimen is in ſir Joſeph Banks' muſeum.

Amata. Wings fulvous, bordered with black, beneath they are greeniſh. This and the three following are natives of the Eaſt Indies.

Cypræa. Wings entire, fulvous, the margin is black, with fulvous ſpots; beneath greeniſh, with a fulvous dot and moniliform ſtreak.

Danae. Wings white; upper pair ſaffron at the tip, with a black band and margin; beneath with an abbreviated moniliform ſtreak.

Pyrene. Wings rounded, yellow, with a fulvous ſpot in the middle, the tip black; lower ones beneath with ſeven ocellar white ſpots. It is found in America.

Rahel. Wings entire, yellow; above edged with black; beneath immaculate. This and the following are natives of India.

Messalina. Wings entire, white tipt with black; beneath yellow, with a marginal cheſnut-brown ſpot. It inhabits India.

Ænippe. Wings yellow; underneath they have yellow ocellar brown dots; on the upper pair ſix; on the lower ones ſeven. It inhabits China.

Evippe. Wings entire, yellowiſh; upper pair tipt with black; lower ones white beneath. It is found in Aſia.

Charmione. Wings entire, both ſurfaces alike, white with a black border; which on the upper wings has two yellow ſpots, and one on the lower. A native of Johanna iſland.

Trito. Wings entire, yellow; upper pair white above the margin; all of them with a ferruginous ſtreak beneath. It is found in Africa, and alſo in Europe.

* Edusa. Wings entire, fulvous with a black dot and margin; beneath greeniſh; upper pair with a black dot; lower with a ſilvery one. It inhabits Europe.

Eupheno. Wings entire, yellow; tip of the upper pair black, fulvous in the middle; lower ones with three brown ſtreaks beneath. Found in the ſouthern parts of Europe.

Belia. Wings entire, white; lower ones ſubfaſciate with grey beneath. It is a native of Barbary.

Phronima. Wings entire, white; baſe of the rib and tip black; lower ones beneath yellowiſh, with two darker bands. This and the next are natives of America.

Psamathe. Wings entire, white; tip of the upper pair black ſpotted with white; lower ones beneath greeniſh with two darker bands, the foremoſt incurved.

Palæno. Wings entire, yellow, with a black tip and fulvous margin; lower ones with a ſilvery dot beneath. It is found in Europe, as is the next.

* Hyale. Wings entire, yellow, the tip black, ſpotted with white; lower ones with a fulvous ſpot, a ſilvery dot with a ſmaller contiguous one beneath. In the male, the margin of the wings is immaculate; in the female it is ſpotted.

Aurora. Wings entire, fulvous; upper pair with an ocellar dot beneath; lower ones with a double ſilvery one. Thought to be a variety of the laſt.

Nicippe. Wings entire, fulvous, tipt with brown; upper pair with a black lunule on each ſide; the lower ones beneath ſpeckled with red. This is found in Virginia.

Lesbia. Wings entire, fulvous; upper pair with a brown dot, all of them beneath pale with a ſnowy dot. It is found in Patagonia. Sir Joſeph Banks has a ſpecimen.

Sennæ. Wings yellow, each of them beneath with a double ferruginous dot. This is a native of America.

Marcellina. Wings entire, yellow; each of them beneath has a double ſilvery dot. It inhabits Surinam.

Eubule. Wings entire, yellow, the margin dotted with black; the lower ones beneath with a double ſilvery ferruginous dot. A native of Carolina.

Catilla. Wings yellow; upper pair with a black dot and margin; all of them beneath with a cheſnut ſpot, which on the lower ones contains a double ſilvery dot. It inhabits Tranquebar.

Proterpia. Wings entire, angular, fulvous; upper pair with a black exterior margin. It inhabits Jamaica. There is a ſpecimen in Dr. Hunter's muſeum.

Gnoma. Wings white; upper pair with a black dot, all of them beneath with a ſilver dot. Found in India.

Drya. Wings yellow; lower ſurface of the upper pair with a ferruginous dot, of the lower ones with a ſilvery one. It inhabits America.

Philippa. Wings entire, yellow; upper pair acuminated, varied with black, and with a black dot; lower ones with a red dot; all have a ſilvery one beneath.

* Rhamni. Wings entire, angular, yellow; each with a ferruginous dot in the middle. Inhabits Europe.

Philea. Wings entire, angular, yellow; upper pair with a pale ſpot, lower ones with a pale border. It is a native of India.

Cipris. Wings ſlightly tailed, yellow, the margin dotted with black.

Mærula. Wings entire, angular, yellow; upper pair with a black ſpot and ferruginous one beneath; lower ones with a ferruginous ſpot on both ſides. Inhabits India.

Pomona. Wings ſubangular, white; upper pair with a black dot; beneath yellow with two ſilvery dots on the lower ones. A native of New Holland, and is in ſir Joſeph Banks' muſeum.

Florella. Wings ſubangular, white; upper pair with a brown dot; lower ones beneath with three ſilvery dots. Native of Africa, and is among ſir J. Banks' collection.

Cleopatra. Wings entire; upper pair with a fulvous diſk above, and ferruginous dot beneath; lower ones with a ferruginous dot on each ſide. Found in Europe and Africa.

Nymphales.

Jasius. Wings two-tailed, brown, yellowiſh behind; beneath with a white band. Found in different parts of Africa.

Pyrrhus. Wings tailed, brown, with a common white band, reaching half way on the upper pair. It is a native of India.

Camillus. Wings two-tailed, white, with fulvous bands, edged with black; lower ones with a black caudal ſpot. It is found in Africa, and is in ſir Joſeph Banks' muſeum.

Sempronius. Wings two-tailed, white, the margin black, dotted with white.

Tiridates. Wings indented, two-tailed, above black, ſpotted with blue; the margin is dotted with white. It inhabits Amboyna.

Castor. Wings indented, two-tailed, fulvous, edged with black; beneath with a white band and white ſpots, including a black one. This and the next are found in Guinea.

Pollux. Wings indented, two-tailed, brown, with a yellow band; beneath with a white band and ſpots, including a black one.

Æclus. Wings indented, two-tailed; above black; beneath cinereous, with black waves, and an ocellar fulvous ſpot. It inhabits Amboyna.

Paulus. Wings indented, two-tailed, fulvous, tipt with black ; lower ones beneath variegated with a white ſpot at the baſe. A native of Jamaica.

Etheocles. Wings two-tailed, blue-brown, with a white band on each ſide ; the lower ones edged with green. It inhabits Sierra Leona.

Fabius. Wings indented, two-tailed, brown, with yellow bands ; the baſe beneath with black waves ; the tip with fulvous dots. It inhabits India, and is in the muſeum of ſir Joſeph Banks.

Horatius. Wings indented, two-tailed, black ; lower ones ſanguineous at the tip, with black ocellar dots.

Eudoxus. Wings tailed, with a common red band ; beneath with ſilvery ſpots, including ſome black ones. It inhabits Africa.

Cœles. Wings ſlightly tailed, ſtreaked with white and yellowiſh, and a white band in the middle ; lower ones beneath with a ſtreak of ocellate dots. It is a native of Siam, and is among ſir Joſeph Banks' collection.

Miltiades. Wings tailed, brown ; lower ones with a white ſpot, all beneath with a white band and ſingle eye.

Varanes. Wings tailed, above brown, with fulvous and black ſpots ; the baſe is white. It is an Indian inſect.

Themistocles. Wings tailed, cheſnut-brown, with brown bands ; lower ones with black dots.

Periander. Wings tailed, both ſurfaces alike, white, with yellow bands ; the tip brown, ſtreaked with white. It is a native of India, and is in the collection of ſir Joſeph Banks.

Lycurgus. Wings tailed, black, with blue marginal lunules ; behind theſe are five white dots on the lower ones. It is a native of Africa.

Decius. Wings tailed, with a common white band ; lower ones rufous at the tip, with two eyes and two white dots. It is found in Guinea.

Sabinus. Wings tailed, brown, with a fulvous band ; beneath grey, with a white band and ocellar dots. It inhabits Amboyna.

Doreus. Wings tailed, with a green band above, and a white one beneath. It inhabits Africa, and is in the collection of ſir Joſeph Banks.

Palamedes. Wings tailed, black, with yellow marginal lunules ; upper pair with a yellow band ; lower ones with a macular rufous band. It is found in America, and is in the collection of Dr. Hunter.

Orontes. Wings tailed, black, with two greeniſh bands ; the tail is white and diſtant. It is a native of India, as is alſo the next.

Ægistus. Wings tailed, undulate with brown and yellow, and about three caudal eyes.

Solon. Wings tailed, black, with yellowiſh bands, brown at the baſe.

Empedocles. Wings tailed, brown ; upper pair with an abbreviated macular green band ; lower ones beneath with two black ſpots, and a rufous lunule at the angle of the tail. It is a native of India, and in the collection of ſir Joſeph Banks.

Euryalus. Wings tailed, black ; lower ones blue before the margin, with black ſpots, including a white pupil. It inhabits Amboyna, as does the next.

Nisus. Wings tailed, black ; upper pair with a fulvous band ; lower pair with a ſubmarginal white one.

Phidippus. Wings ſlightly tailed, brown ; beneath with white biocellate bands, and two blind eyes at the tail. It inhabits India.

Xiphares. Wings indented, tailed, black ; upper pair with white ſpots ; lower ones with a yellow band. Found in Africa.

Aurelius. Wings ſlightly tailed, brown ; the tip black, ſpotted with white ; lower ones with two eyes beneath. It inhabits India.

Bernardus. Wings tailed, fulvous ; upper pair black at the tip, with a yellow band ; lower ones with a ſtreak of ocellate dots. It is found in China.

Gerdratus. Wings tailed, brown ; upper pair with an ocellate ſpot at the tip, beneath ferruginous, with a white dot on the upper, and two on the lower ones.

Chorinæus. Wings tailed, brown ; upper pair falcate, with a fulvous band. It inhabits Surinam.

Laertes. Wings tailed, brown, blue at the baſe ; lower ones above with five white dots, beneath with four ocellar dots. Found in Surinam.

Morvus. Wings tailed, above brown, with a blue baſe ; beneath greeniſh-grey. A native of India, as are the two following.

Octavius. Wings tailed, black, with an abbreviated green band ; beneath grey, with a brown ſtreak.

Eribotes. Wings ſlightly tailed, fulvous, with a blueiſh baſe ; beneath grey.

Itys. Wings ſlightly tailed, fulvous, tipt with yellow ; beneath variegated at the baſe ; the lower ones are blue at the baſe. This and the two following are inhabitants of Surinam.

Cymodoce. Wings ſlightly tailed, brown, the baſe ſhining blue ; lower ones with a ſingle eye on each ſide.

Basaltide. Wings ſlightly tailed, fulvous, tipt with black ; under ſurface of the upper pair with two ocellate dots, of the under ones with three.

Arsinoe. Wings indented, tailed, fulvous, ſpotted with black ; lower ones with two eyes beneath. It inhabits Amboyna.

Panthera. Wings indented, tailed, brown, beneath waved ; lower ones with two eyes on the diſk, and five blueiſh ones on the margin. It inhabits Tranquebar.

Rohria. Wings indented, tailed, brown ; upper pair with a white band ; lower ones with ſeven eyes beneath, moſt of them dotted with white. It inhabits India.

Rebecca. Wings indented, tailed, brown, immaculate ; beneath paler, with two nut-brown ſtreaks and white ſubocellar dots. Found in Guinea.

Erota. Wings ſlightly tailed, brown, with black waves, and a common white band in the middle ; lower ones with two eyes on each ſide. A native of Africa.

Europa. Wings ſlightly tailed, brown ; lower ones beneath with a whitiſh ocellar band. Found in America.

Acheronta. Wings indented, tailed ; upper pair red at the baſe ; the tip is black, ſpotted with white. It inhabits Braſil.

Troglodyta. Wings indented, tailed, rufous, with a brown ſtreak and hind margin. It inhabits America, and is in the collection of Dr. Hunter.

Thetys. Wings indented, tailed, fulvous, with black ſtreaks ; lower ones beneath glaucous, dotted with black. It inhabits South America.

Portia. Wings indented, tailed ; beneath grey, ſpeckled with black. It inhabits the South American iſlands.

C. aureum. Wings indented, tailed, fulvous, ſpotted with black ; lower ones marked with a gold C beneath. It is found in Aſia.

Isidore. Wings falcate, tailed, fulvous ; upper pair with two pale dots in the middle, and black at the tip. It is found in India.

Bella. Wings ſlightly tailed, teſtaceous; upper pair black at the tip, with a yellow band and white ſpots; margin of the lower ones yellow, with black ſtreaks. This and the ſix following ſpecies are all inhabitants of India.

Furcula. Wings tailed, brown, fulvous at the baſe; upper pair with a blue band.

Eurocilia. Wings indented, tailed, brown, with a common fulvous diſk; lower ones variegated beneath

Phorcys. Wings ſlightly tailed, indented, brown; beneath with darker ſtreaks, and two cinereous dots on the lower ones.

Chelys. Wings indented, tailed, brown; beneath variegated, with a ſtreak of yellowiſh dots.

Lethe. Wings indented, tailed, fulvous; upper pair black at the tip, with a yellow band and ſpots.

Aflina. Wings tailed, brown, with a common fulvous diſk; upper pair with a black lunule. It inhabits St. Thomas's iſland.

Fatima. Wings ſlightly tailed, black, with a common yellow band; lower wings with the band abbreviated, and four rufous ſpots. It is found in India.

Achilles. Wings indented, black, with a broad blue band; beneath brown, with three or five eyes. Found in America.

Medon. Wings above black; upper pair with a yellow band, and white at the tip; lower ones with a blueiſh diſk. It is found in India.

Erithronius. Wings indented, black; lower ones with a blue band; beneath green, with a ſtreak of white dots. It inhabits Africa, and is in the muſeum of Dr. Hunter.

Ceres. Wings indented, black; upper pair with a white band; diſk of the lower ones blueiſh, with a black dot. It inhabits Sierra Leona.

Ursula. Wings indented, black; hind ones with a blueiſh border, and marginal black band; beneath they are marked with fulvous ſpots. It is a native of America.

Cato. Wings indented, black, with a common greeniſh diſk beneath, dotted with black, with a rufous ſpot at the baſe of the lower ones. It inhabits Sierra Leona.

Philoctetes. Wings indented, brown; lower ones with two eyes, the pupil black, and three white dots. It is found in India, as is the next.

Menetho. Wings indented, brown, the margin ſpotted with yellow; the lower ones have three eyes beneath.

Lucretius. Wings indented, black, with fulvous bands; beneath with black ſpots, ſurrounded with a blue line. Found in Guinea.

Epistrophus. Wings indented, grey-white; upper pair black at the tip; lower ones with a ſtreak of yellow eyes beneath. It is a native of America.

Helenes. Wings indented, brown, with two greeniſh bands; one on the lower wings entire. It inhabits America.

Gambricius. Wings indented, above black ſpotted, and ſtreaked with green; upper pair with a macular ſnowy band. A native of India.

Demophon. Wings indented, above black, with a green band; beneath grey, ſtreaked with white. Inhabits Cayenne.

Nestor. Wings indented, brown, with a bright blue common diſk, and white ſpots; beneath with three or four eyes. This ſpecies inhabits America.

Perseus. Wings indented, pale blue, the tip black, with ferruginous ſpots; beneath they are waved with three or four eyes. Inhabits Surinam.

Aristides. Wings indented, brown, ſpotted with yellow; lower ones with two eyes beneath. Found in India.

Telemachus. Wings indented, brown, with a common blue radiate area, each with eyes beneath. A native of America, as are the two following

Menelaus. Wings indented, above highly poliſhed, blue; beneath clouded brown, with ferruginous eyes.

Teucer. Wings ſcalloped, livid brown; beneath clouded, and on the lower ones three eyes, the laſt very large.

Automedon. Wings angular, ſcalloped, brown; beneath livid, with an eye at the angle of the tail. Inhabits Surinam.

Hecuba. Wings indented; upper pair red, edged with black; lower ones black; all of them ocellate beneath. It inhabits Cayenne.

Metellus. Wings indented, fulvous, the hind part black; under ſurface of the upper pair with three eyes, of the lower ones five. This is a native of Surinam.

Idomeus. Wings indented, blue; upper pair with a broad brown upper margin, and abbreviated white band; lower ones with a large yellowiſh eye beneath. Inhabits America.

* Io; Peacock Butterfly, ſo called on account of its great beauty. It is rather a common ſpecies in this country. The wings are angular, indented, fulvous, ſpotted with black, and on each there is a large blue eye. "The ground colour of this inſect," ſays Dr. Shaw, "is orange-brown, with black bars, ſeparated by yellow intermediate ſpaces, on the upper edge of the ſuperior wings; while at the tip of each is a moſt beautiful large eye-ſhaped ſpot, formed by a combination of black, brown, and blue, with the addition of whitiſh ſpecks; on each of the lower wings is a ſtill larger eye-ſhaped ſpot, conſiſting of a black central patch, varied with blue, and ſurrounded by a zone of pale brown, which is itſelf deeply bordered with black. The caterpillar is black, with numerous white ſpots, and black ramified ſpines: it feeds principally on the nettle, changing to a chryſalis in July, and the fly appearing in Auguſt."

Polynice. Wings angular, indented, fulvous, tipt with black; beneath brown, with blue ſtreaks and eyes, ſix on the upper, and five on the lower ones. A native of Sumatra.

Almana. Wings angular, fulvous, ſpotted with black; lower ones with a larger eye, and a double pupil, all nut-brown beneath. It inhabits Aſia.

Asterie. Wings indented, varied with yellow; lower ones with a larger eye and double pupil; beneath pale, with about three eyes. This inhabits India.

Oenone. Wings denticulate, yellow, edged with black; lower ones blue at the baſe. This is an Aſiatic inſect.

Flirtea. Wings ſubangular, brown, with fulvous ſpots, and two eyes; lower ones beneath ferruginous, with about three eyes. This and the next are found in India.

Lemonias. Wings indented, brown, dotted with yellow, all of them with a ſingle eye.

Vellida. Wings indented, brown, with a fulvous band behind, and two eyes. It inhabits Amſterdam iſland. A ſpecimen is in ſir Joſeph Banks' muſeum.

Orythia. Wings indented, brown; all with two eyes above, upper pair with a ſingle eye beneath. This inhabits Jamaica.

Clelia. Wings indented, black; upper pair with an interrupted white band and ſpot at the tip; lower ones with a blue ſpot on the diſk. It is a native of Guinea.

Penelea. Wings indented, above brown; all with two eyes beneath. A native of Surinam.

Zelima. Wings angular, yellow, ſubfaſciate with brown; lower ones with ſix eyes on each ſide, and a white ſtreak beneath. It inhabits New Holland, and is in ſir Joſeph Banks' collection.

Terea. Wings angular, indented, above brown, with a fulvous band and ſtreak of white dots on the upper pair, and of ocellate ones on the lower. A native of Sierra Leona.

Laodice. Wings angular, above black with a greeniſh band on each ſide, including a ſtreak of ocellar dots. Found in Guinea.

Lampetia. Wings indented, brown; upper pair with a fulvous band; lower ones with ſix blind eyes. This and the next are natives of India.

Glycerie. Wings indented, brown; upper pair with a fulvous band, under ſurfaces of the upper pair with one, of the lower with two blind eyes.

* **Megæra.** Wings indented, yellowiſh-brown with dark bands; upper pair with a ſingle eye; lower ones with five eyes above, and ſix beneath. This is found in our own country, and has been deſcribed and figured by Mr. Donovan.

Ægeria. Wings indented, brown, ſpotted with yellow, upper pair with an eye on each ſide; lower ones with four eyes above, and dots beneath. This belongs to England, and is deſcribed in Lewin's butterflies.

Xiphia. Wings indented, brown, ſpotted with yellow; upper pair with an eye on each ſide; lower ones with three eyes above and four beneath. Found in the iſland of Madeira, and is in the collection of ſir Joſeph Banks.

Minerva. Wings indented, fulvous, the tip black, ſpotted with white; lower ones with five blind eyes above, and ſeven pupillate ones beneath. It is a native of America.

Ocypete. Wings indented; above brown, immaculate; beneath glaucous, with three dark ſtreaks; lower ones with five eyes. It inhabits Surinam.

Ocirrhoe. Wings indented; above white tipt with brown; beneath brown with two white bands; lower ones with five eyes. A native of Surinam.

Penelope. Wings ſlightly indented, brown, with a ſingle eye; lower ones with two beneath. It is found in Surinam.

Aranea. Wings ſlightly indented, brown; lower ones blueiſh with five eyes beneath. This is found in Surinam.

Atlita. Wings indented, brown with a blue gloſs; beneath fulvous, with waved glaucous ſtreaks, and five blind eyes on the lower ones. It is middle-ſized, and a native of the Eaſt Indies.

Jatrophæ. Wings angular, pale with waved brown ſtreaks; upper pair with a ſingle eye, lower ones with two. This is a native of America.

Laomedia. Wings indented, grey; upper pair with ſix eyes; lower ones with five, ſome of them are blind. It inhabits India, as does the next alſo.

Libya. Wings indented, brown; beneath lineate, with ſix eyes on the lower ones, the pupil ſilvery.

Hedonia. Wings indented, both ſides alike, grey; each with ſix ferruginous eyes. An Aſiatic inſect.

Tullia. Wings indented, brown, with ocellar ſpots, beneath with a violet band, which on the lower ones has two eyes. It inhabits China.

Merope. Wings indented, fulvous, with a ſingle eye, and black tip; lower ones beneath cinereous with three minute eyes. It inhabits New Holland, a ſpecimen of it is in the muſeum of ſir Joſeph Banks.

Jole. Wings indented, fulvous, dotted with black; lower ones with five eyes beneath, the laſt with a double pupil. It inhabits Guinea.

Hesione. Wings indented, brown, with an oblique white ſtreak beneath; upper pair with two eyes; lower ones including others within them. It inhabits Surinam.

Egæa. Wings indented, above black, with a common white band; lower ones with two eyes beneath. This and the two following inhabit America. Dr. Hunter's muſeum contains a ſpecimen.

Serina. Wings ſlightly indented, above green; lower ones beneath with a white diſk and two eyes.

Postuerta. Wings indented, green with brown ſpots and margin; lower ones beneath with white bands, and two eyes.

Mylitta. Wings indented, black, with three macular white bands, lower ones with two eyes. A native of India.

Artemisia. Wings indented, black; upper pair with white ſpots, lower ones with white bands, and two ſilvery eyes beneath. It inhabits America.

Dorimene. Wings indented, brown; beneath blue with black bands, and three pair of eyes. This inhabits Surinam.

Janthe. Wings indented, above brown, ſlightly barred with white, lower ones with five blind eyes. It inhabits Cayenne.

Laothoe. Wings angular, indented; lower ones above brown, with a white dot, and ſix blue eyes. This is a native of Surinam.

Gonerilla. Wings indented, black, ſpotted with white, and a common rufous band; lower ones with four eyes. This is an inhabitant of New Zealand.

Itea. Wings indented, black; upper pair with a yellow band and dot; diſk of the lower ones rufous, with four eyes. It inhabits New Zealand, and is thought to be a variety of the laſt.

Portlandia. Wings indented, brown; lower ones with five blind eyes above, and ſeven pupillate ones beneath. It is a native of America.

* **Cardui.** Wings indented, fulvous, variegated with white and black; the lower ones have four eyes beneath. This is an Engliſh inſect, and is deſcribed by Mr. Donovan.

Huntera. Wings ſubangular, fulvous, varied with white and black; lower ones beneath reticulate with white, and with two eyes.

Alliona. Wings indented, brown; upper pair with two eyes, the poſterior one blind. Inhabits Portugal.

Tulbaghia. Wings indented, both ſurfaces nearly alike, browniſh, with a yellow band; lower ones with five eyes. It inhabits the Cape of Good Hope.

Pipleis. Wings crenate, both ſurfaces alike, black; diſk of the lower ones fulvous, with ſeven eyes. It inhabits India, as does the next.

Claudia. Wings crenate, black, with a ſanguineous patch; lower ones fulvous with ſeven eyes.

Blomfildia. Wings indented, yellow, tipt with black; lower ones beneath brown, waved with white, with four eyes, the middle ones blind. It inhabits Brazil. Specimens of this and the two next are in the muſeum of ſir Joſeph Banks.

Bankia. Wings angular, above brown; diſk of the upper pair yellowiſh, with a black eye, in which is a double pupil. It inhabits New Holland.

Solandra. Wings angular, brown; upper pair with an eye, and alſo a contiguous one that is ſmaller; lower ones with two above, and four beneath. It inhabits Otaheite.

Polydecta. Wings indented, brown; upper pair with an eye; lower ones with two above and ſeven beneath. It inhabits Tranquebar.

Tolumnia. Wings indented, black; lower ones beneath with ferruginous and blue ſtreaks and five eyes, the poſterior one very large. This and the next inhabit India.

Morna. Wings indented, brown; lower ones with two eyes on each ſide, and three white dots. A ſpecimen may be ſeen in Dr. Hunter's muſeum.

Juliana. Wings indented, brown, ſpotted with white; lower ones with two eyes on each ſide. This is a native of Amboyna.

Leda. Wings angular, brown, upper pair with a double eye above; beneath reticulate with grey, and ſix eyes on the lower ones. It inhabits Sierra Leona.

Lena. Wings ſlightly indented, brown; lower ones black behind, with white and blue dots, and eyes beneath. There is a variety with brown hyaline wings, the lower ones with five ocellar white ſpots. It is found at Cayenne.

Dyndimene. Wings indented, brown; lower ones above violet, with four white dots. It inhabits Surinam.

Luna. Wings indented, brown, with darker ſtreaks; lower ones with two eyes, and they all have underneath four white dots.

Iphita. Wings angular, indented, brown, with darker bands; all with five eyes beneath. It inhabits China.

Callisto. Wings indented, black; lower ones with a red band, and five eyes above, ſeven beneath. This is an African inſect.

* **Iris.** Wings indented, brown, with a blue gloſs, and whitiſh interrupted band on each ſide; all with a ſingle eye, thoſe on the upper pair above blind. This is deſcribed and figured by Donovan and Lewin.

Ilia. Wings indented, with a blue gloſs, and interrupted white band on each ſide; they have all a ſingle eye. Inhabits Germany, and is probably a variety of the former.

Beroe. Wings entire, brown, with a blue gloſs; lower ones with a ſingle eye; beneath cheſnut-brown with a reddiſh margin. It inhabits Auſtria.

Avia. Wings indented, both ſurfaces nearly alike, black, with a ſtreak of pale dots, and a macular pale marginal band. It inhabits Africa.

Populi. Wings indented, brown, with white bands and ſpots; beneath yellow, with white bands and blueiſh ſpots. This is an European inſect.

Chrysippe. Wings indented, black, with a common rufous patch; lower ones beneath brown, ſpotted with black. This is a native of New Holland, and is preſerved in ſir Joſeph Banks' collection.

Cydippe. Wings indented, black, with white ſpots, and a common rufous patch; the baſe beneath is teſtaceous, varied with black and blue. A native of India.

Marica. Wings indented, teſtaceous, the tip black, with a white band on the upper, and blue ſpots on the lower pair. It inhabits Africa.

Althea. Wings indented, brown, with an angular indented white band and ſtreak. It inhabits Guinea.

Amphiceda. Wings indented, brown, the common diſk cinereous, with brown waves; beneath grey at the tip with black lunules. It inhabits Guinea.

Penthesilia. Wings indented, black, with white ſpots, and a common rufous patch; lower ones beneath with yellow bands, and a white one ſpotted with black. It is a native of India.

Berenice. Wings indented, black, with a common red band; lower ones beneath ſpotted with black, white, ferruginous and yellow. This and the next inhabit Sierra Leona.

Semire. Wings indented, both ſurfaces nearly alike, with a green band, and fulvous ſpots, the baſe fulvous, dotted with black.

Cyane. Wings indented, black; upper pair with a white band; diſk of the lower ones white, dotted with black. Found in India.

Vitillia. Wings indented, black; beneath ſpotted with white. This ſpecies inhabits Amboyna.

Zenobia. Wings indented, black, with a common white band, and marginal ſpots; baſe of the lower ones beneath yellow, ſtreaked with black. It inhabits Sierra Leona.

* **Antiopa.** Wings angular, indented, black-brown, with a whitiſh border, behind which is a row of blue ſpots.

Cacta. Wings angular, indented, upper pair black, the baſe purple, with a fulvous ſpot. It inhabits India.

Pythia. Wings angular, indented, brown with a white ſpot on the upper pair; beneath grey, with a ſtreak of black dots on the lower ones. It inhabits Guinea.

Zingha. Wings angular, indented, brown, the tip black, with blue ſtreaks, and a macular fulvous one. It inhabits Sierra Leona.

Protogenia. Wings indented, fulvous, the border black ſpotted with white. It inhabits Java.

Amestris. Wings angular, indented, black with rufous and blue lunules, beneath darker. It inhabits India, as does the next alſo.

Lamina. Wings angular, black with a common white band on each ſide, beneath ſpotted with rufous.

* **Atalanta.** Wings indented, black; upper pair with a red band and white ſpots, the lower ones bordered with red behind. This, as the admirable butterfly, has been deſcribed and figured by Donovan, Lewin, and Dr. Shaw; the latter ſays "it is of the moſt intenſe velvet-black colour, with a rich carmine-coloured bar acroſs the upper wings, which are ſpotted towards the tips with white; while the lower wings are black, with a deep border of carmine colour, marked by a row of ſmall black ſpots; the under ſurface of the wings alſo preſents a moſt beautiful mixture of colours; the caterpillar is brown and ſpiny, feeds on nettles, and changes into a chryſalis in July, the fly appearing in Auguſt."

Archesia. Wings indented, brown with a common fulvous band, which on the upper pair is half blue. It is a native of Java.

Charonia. Wings indented, black, with a blueiſh band. It inhabits India.

Biblis. Wings indented, both ſurfaces alike, black; lower ones with a macular red band. It inhabits America.

Hyperia. Wings indented, black ſpotted with white; lower ones beneath with yellow ſpots, and a rufous band in the middle. Inhabits India. A ſpecimen is in the Britiſh Muſeum.

Prosope. Wings indented, brown with a common fulvous band, which on the upper pair has two black dots. It inhabits New Holland, and is in the muſeum of ſir J. Banks.

Echo. Wings indented, brown, all beneath with a row of white dots. It inhabits Surinam.

Octavia. Wings indented, brown, the diſk angular, fulvous, dotted with black, beneath with yellow ſpots at the baſe. This is a native of Sierra Leona.

LUBENTINA. Wings indented, obſcure green, ſpotted with white, black, and rufous. Found in China.

JANASSIA. Wings ſcalloped, green, bronzed, with black dots on the upper pair; beneath yellowiſh, with black dots at the baſe.

* POLYCHLORIS. Wings indented, fulvous, ſpotted with black; upper pair with four black dots above. This is found in England, and divers parts of Europe.

V. ALBUM. Wings angular, fulvous, ſpotted with black; all with a white ſpot above; lower ones with a white lunule beneath. Found in ſeveral parts of Europe.

* URTICÆ. Wings angular, fulvous, ſpotted with black; upper pair with three black dots, the inner one ſquare. It inhabits this country, and has been deſcribed and figured by Donovan and Lewin. The larva is ſpinous, varied with brown and green, head black; pupa toothed, brown, with gold dots. This inſect and many others of the ſame genus, as the Atalanta, Polychloris, Io, &c. ſoon after their enlargement from the chryſalis ſtate, diſcharge a few drops of reddiſh coloured fluid, which, in places where they have appeared in large numbers, has had the appearance of a ſhower of blood, and having of courſe been greatly magnified, the fact has been recorded by writers as a prodigy ominous of ſome extraordinary event.

CLYTEMNESTRA. Wings angular, black; beneath ſpotted with white; upper pair with a yellow band on each ſide. Inhabits Surinam.

DIRCE. Wings angular, brown; upper pair with a yellowiſh band, beneath undulate with black. Found in various parts of India; as are the two following.

ISIS. Wings indented; upper pair black, with a red ſpot on the diſk; all of them with green lines beneath.

OISIS. Wings angular, blue; upper pair with a black ſpot and margin; beneath duſky.

PROGNE. Wings indented, fulvous, with black dots and margin, the latter dotted with white; beneath grey. Found in South America.

* C. ALBUM. Wings angular, fulvous, ſpotted with black; lower ones beneath marked with a white C. This is found in England, and other European countries.

TRIANGULUM. Wings angular, fulvous, the diſk dotted with black; lower ones beneath cinereous with white waves, and a white angle in the middle. It is a native of Italy.

MERIONE. Wings indented, fulvous, edged with brown; lower ones beneath brown, with white and blue ſpots and ſtreaks. It inhabits Surinam.

ARIADNE. Wings angular, fulvous, with undulate black ſtreaks; upper pair with a white marginal dot. Found in the iſland of Java.

BOLINA. Wings indented, black; upper pair with two, lower ones a ſingle blue-white ſpot; beneath ferruginous, with a white band. Found in the Eaſt Indies.

THECLA. Wings indented, black, with a white-blue ſpot, all of them have a ſtreak of white dots; beneath brown, with a white band. Found in India.

LASINASSA. Wings indented, black, with a ſhining blue ſpot; beneath brown, with white lunules. It inhabits Aſia.

CLYTIA. Wings indented, black; outer margin of the upper pair ſpotted with white; lower ones with a triple row of white and yellow ſpots. This and the next are natives of India.

COCYTA. Wings ſcalloped, indented, brown; lower ones blueiſh at the tip. It inhabits India.

UNDULARIS. Wings indented, above brown; lower ones ferruginous at the tip, with a white dot beneath. It inhabits Coromandel.

MONIMA. Wings indented, brown; lower ones pale cheſnut, blueiſh at the angle of the tail, with a black ſtreak. It inhabits the Eaſt Indies.

HIARBA. Wings indented, black, with a common white band, which is abbreviated on the upper pair. It inhabits India.

AMATHEA. Wings angular, indented; above brown, with white dots, a red band, and waved black line. It inhabits Cayenne.

MELEAGRIS. Wings ſlightly indented, dotted with white, above brown, beneath yellowiſh. It inhabits Africa.

MELANTHA. Wings indented, above brown, dotted with white, beneath pale cheſnut. It inhabits Guinea. A ſpecimen is to be ſeen in ſir J. Banks' muſeum.

LEUCOTHOE. Wings indented, above brown, with three white bands; beneath yellow, with three white bands marked with black. It is found in divers parts of Aſia.

MEDEA. Wings indented, falcate, black, with three macular yellow bands; angle at the tail red. A native of Surinam.

BLANDINA. Wings indented, above brown, beneath yellow, with two blue ſtreaks, and dots marked with black on the lower ones. This and the next are found in Sierra Leona.

HOSTILIA. Wings indented, brown; the baſe fulvous dotted with black; upper pair ſpotted with yellow at the tip.

NAUPLIA. Wings ſlightly indented, both ſurfaces nearly alike, black; upper pair with four white ſpots above, lower ones with a white band. It inhabits South America.

HELIODORE. Wings indented, fulvous, with three black bands. It is found at Siam, and may be ſeen in the muſeum of ſir Joſeph Banks.

OPHIONE. Wings indented, brown ſpotted with white; beneath with numerous black ocellar ſpots. It inhabits Guinea.

ILITHURIA. Wings indented, fulvous, with black bands; lower ones beneath with white bands, ſpotted with black. It inhabits India.

AMPHIONE. Wings indented, black, clouded with blue; upper pair with a white band on each ſide; lower ones beneath radiate with red. It inhabits South America.

OPIS. Wings indented, brown; upper pair reticulate, lower ones barred with yellow. This and the next are found at Sierra Leona.

CRITHEA. Wings indented, brown, with ocellar ſpots; lower ones beneath cinereous, with two brown ſpots and a ſtreak.

PHEGEA. Wings indented, brown; upper pair with a ferruginous or white band; diſk of the lower ones ferruginous or white; beneath paler, waved with black. It is found in India.

SALMASIS. Wings indented, black, radiate with blue; beneath brown, with a white band. It inhabits Africa.

PELEA. Wings indented, black; upper pair with arrow-ſhaped white and black ſpots; beneath cinereous, with black lunules. It is a native of the Eaſt Indies.

NERINA. Wings indented, black, with a white band, which on the upper pair ends in a rufous ſpot. It inhabits New Holland, and may be ſeen at ſir J. Banks.

VENILIA. Wings indented, brown, with a common white curved band, blueiſh at the edges. This and the three following are natives of India.

ALCMENA. Wings indented, black, with an interrupted blue band, each with ſeven white marginal dots.

Phœrusa. Wings indented, fulvous, with three brown bands, thoſe on the upper pair longitudinal, on the lower ones tranſverſe.

Agatha. Wings indented, above fulvous, beneath glaucous, lower ones with one black dot above, and three beneath.

Laura. Wings angular, indented, brown, with a common band, which is fulvous on the upper half, and ſnowy on the lower; lower ones beneath ſilvery with a ſnowy band. It inhabits Jamaica.

Lydia. Wings indented, yellow, black above the margin; beneath with a ſtreak of black dots. It inhabits Surinam.

Iphicla. Wings indented, above brown, with a common white ferruginous ſpot at the angle of the tail. Found in South America.

Liberia. Wings indented, fulvous; upper pair with a black curve at the tip; lower ones with a black dot above, and three ocellar ones beneath. It inhabits India.

Amasia. Wings indented, green; lower pair with marginal black dots above, and eyes beneath. Found at Surinam.

Æthiopia. Wings indented, blue; tip of the upper pair black, dotted with white. A native of Africa.

Veronica. Wings indented, above greeniſh, beneath ferruginous, with a paler band. It is found in Guinea.

Gnidia. Wings indented, teſtaceous, upper pair brown at the tip, with a white band; lower ones with a fulvous ſtreak and black lunules. It is found in India.

Persea. Wings indented, oblong, black, ſpotted with yellow, and with a common red diſk. It inhabits India.

Næerba. Wings indented, above brown, ſpotted with white beneath, with white ſpots ſurrounded with a red line. There is a variety of this ſpecies, wings ſlightly tailed, black; upper pair with two red ſpots, diſk of the lower ones edged with red. Natives of India.

Procris. Wings indented, fulvous, with black ſpots and a white band, beneath variegated. Inhabits China.

Maja. Wings indented, brown; upper pair ſpotted with white, lower ones immaculate. It is found in Braſil.

Erymanthis. Wings indented, fulvous; upper pair black at the tip, with a yellow band; lower ones with black lunules above, and a ſtreak of ocellate dots beneath. Inhabits China.

Carimenta. Wings falcate, indented, brown, ſpotted with yellow; upper pair black at the tip, with four white ſpots. Found in Surinam.

Martha. Wings indented, varied with brown and fulvous; upper pair with three rows of white lunules; lower ones with a white band. It is found in Siam, and a ſpecimen is in ſir Joſeph Banks' muſeum.

Celtis. Wings angular, indented, brown, with fulvous ſpots, and a ſingle white one; lower ones beneath grey. Found in Southern Europe.

F. album. Wings angular, indented, fulvous, ſpotted with brown; lower ones with a ſnowy line beneath. It is found in Ruſſia.

Harpyja. Wings falcate, indented, brown, with a common blueiſh band, dotted with black.

Melissa. Wings indented, brown; lower ones beneath marbled with grey. It is found in America.

Elea. Wings indented, brown; upper pair with a fulvous band, lower ones with a white one. Found in India.

Mesenteria. Wings indented, brown; upper pair with a fulvous band above, and blue central ſpots beneath. Inhabits Surinam.

Niphe. Wings indented, yellow; tip of the upper pair black, with a white band; lower ones beneath ſilvery with five eyes. It inhabits China. There is a variety, of which the wings above are fulvous, ſpotted with black, without the black tip and white band.

Thyelia. Wings indented, fulvous, ſpotted with black; lower ones beneath, with a white band and two ſcarlet dots at the baſe. It is a native of India.

Paphia. This is a highly elegant inſect, of a fine orange-cheſnut colour above, with numerous black ſpots and bars; beneath greeniſh, with narrow ſilvery undulations on the lower wings, and black ſpots on the upper. It proceeds from a yellowiſh-brown ſpiny caterpillar, living principally on nettles. This inſect is generally found in the neighbourhood of woods. There is a variety cinereous, ſpotted with black, peculiar to Ruſſia.

Cynara. Wings indented, green ſpotted with black; lower ones beneath green, with three ſilvery ſpots and two bands. An inhabitant of the Eaſt.

Cethosia. Wings indented, fulvous, ſpotted with black; lower ones beneath brown at the tip, with a glaucous gloſs, and ending in an interrupted ſilvery band. It inhabits Ruſſia.

Cytheræa. Wings crenate, brown; upper pair with a fulvous band; lower ones with a common ſilvery one; beneath with a lanceolate ſilvery band. It is found in India.

* Aglaja. Wings indented, fulvous, ſpotted with black; beneath it has twenty-one ſilvery ſpots. This is found in England and other parts of Europe.

Aphrodite. Wings indented, fulvous, ſpotted with black; lower ones beneath brown, with twenty-four ſilvery ſpots. A native of South America.

Myrina. Wings indented, fulvous, ſpotted with black; beneath with thirty ſilvery ſpots. It inhabits North America, as do the two following.

Cybele. Wings indented, fulvous, ſpotted with black; beneath thirty-four ſilvery ſpots.

Idalia. Wings indented, fulvous, ſpotted with black; beneath with thirty-ſeven ſilvery ſpots.

Diana. Wings indented, brown, with a common black diſk; lower ones beneath with nine ſilvery ſpots.

* Adippe. Wings indented, fulvous, ſpotted with black; beneath there are twenty-eight ſilvery ſpots. This is an Engliſh inſect.

* Lathonia. Wings ſlightly indented, pale, fulvous, ſpotted with black; beneath with thirty-ſeven ſilvery ſpots. This and the next, like the laſt, are Engliſh inſects.

* Euphrosyne. Wings indented, pale, fulvous, ſpotted with black; beneath with nine ſilvery ſpots.

Selene. Wings indented, fulvous, with black; lower ones beneath, with twelve ſilvery ſpots; a diſtinct black dot at the baſe and ſtreak behind. This is found at Kiel.

Niobe. Wings indented, fulvous, ſpotted with black; beneath with pale ſpots, and three ſilvery ocellate ones. Found in various parts of Europe.

Columbina. Wings indented, fulvous, ſpotted with black; lower ones beneath with two ſilvery ſtreaks. It is found in America, as is the next.

Bellona. Wings indented, fulvous, ſpotted with black; lower ones beneath ſilvery at the tip, with ſix ocellar ſpots.

Phalanta. Wings indented, fulvous, ſpotted with black; lower ones beneath; glaucous at the tip, with three fulvous ocellar ſpots. Found in the Eaſt Indies.

Thais. Wings indented, fulvous, the margin ſtreaked with black; beneath glaucous; lower ones with a ſilvery band and ocellar dots. Native of America.

Gripus. Wings entire, browniſh; beneath a ſtreak of white dots. It is found in India.

Posthumous. Wings falcate, entire, brown, with a blue diſk; lower ones beneath grey immaculate.

Sophoræ. Wings entire, brown, with a ferruginous band; lower ones beneath cheſnut-brown, with two eyes. It inhabits America.

Xanthus. Wings entire, brown, with a ferruginous band; lower ones beneath marbled with grey and two eyes. It inhabits Aſia.

Cassiæ. Wings ſcalloped, brown, with a ferruginous band, bifid at the tip; lower ones beneath cinereous, with two eyes. It inhabits America.

Berecynthus. Wings entire, above black, with a marginal yellow band; lower ones beneath with ſix ocellar ſpots. Found at Surinam.

Arcadius. Wings entire; upper pair black, ſpotted with blue and white; lower ones brown; beneath cheſnut-brown. It inhabits Africa.

Honorius. Wings entire, blue; upper pair black at the tip, with a brown rib; lower ones dotted, with black at the baſe and ſtriate at the tip.

Oethon. Wings entire, brown, with a fulvous marginal ſtreak; lower ones beneath, nearly naked, with ſeven eyes. Found at Surinam.

Polixenes. Wings entire, brown; lower ones beneath clouded with brown and grey. It inhabits North America, and is in the muſeum of ſir Joſeph Banks.

Capavius. Wings entire, black, ſpotted with white; lower ones beneath grey, with a white band on each ſide. It is found on the Guinea coaſt of Africa.

Constantius. Wings entire, dull, cinereous, with a marginal ſtreak of brown dots.

Marthesius. Wings entire, black; upper pair with a fulvous diſk; lower ones with a ſtreak of white dots. It is a native of Surinam.

Arcesilaus. Wings entire, above ferruginous, immaculate, beneath brown, with two darker ſtreaks. It is found in Siam; a ſpecimen is preſerved in ſir Joſeph Banks' muſeum.

Nero. Wings entire, ſanguineous, with a browniſh margin; lower ones orange beneath. This is a native of Aſia. It is in the Britiſh Muſeum.

Polycarmes. Wings entire, above black, beneath cheſnut-brown, immaculate. This is found in Surinam.

Æropus, Wings entire, brown with a yellow band; upper pair beneath, with a ſingle eye at the baſe. It inhabits India, as does the next.

Obrinus. Wings entire, above brown, with a blue band and ferruginous ſpot, beneath green, with a whitiſh band.

Lucindus. Wings entire, barred with black, above blue, beneath fulvous. It inhabits Surinam.

Liriope. Wings entire, fulvous, the border brown, with fulvous ſpots; lower ones yellowiſh, with fulvous waves. It is a native of Guiana.

Arminius. Wings entire, both ſurfaces alike; fulvous, with reddiſh lunules and dots.

Morpheus. Wings entire, fulvous, ſpotted with black; lower ones with a ſtreak of black dots on each ſide.

Lysidice. Wings entire, blue, with a black border above, and bands beneath. Found at Surinam.

Eumenus. Wings entire, brown, with a white band, which in the lower ones is terminated on each ſide by a fulvous ſpot. Native of Cayenne.

Dardus. Wings entire, brown; upper pair with a blue eye in the middle of each ſide; all beneath with two ocellar ſtreaks. This and the next are found at Surinam.

Arcas. Wings entire, blue; upper pair ſpotted with white; lower ones with a black and white marginal ſpot. It inhabits Surinam.

Canthus. Wings entire, above brown, immaculate; lower ones with ſix eyes beneath. Found in North America.

Eurythis. Wings entire, brown; upper pair with two eyes on each ſide; lower ones with a ſingle pupil, one above and four beneath; all of them with a double pupil. It is found in the iſland of Jamaica.

Hermes. Wings entire, above brown; immaculate, with ſix eyes on the upper pair, three of which are blind. Found at Brazil.

Irius. Wings entire, with a yellow diſk; lower ones with a ſingle eye above and one beneath. A native of New Holland. Preſerved in ſir Joſeph Banks' muſeum.

Mineus. Wings entire, brown; upper pair with a ſingle eye above; lower ones with ſeven beneath and a white band. It inhabits China.

Crantor. Wings entire, brown; lower ones with a ſingle bipupillate eye above, and five beneath, the firſt and fourth bipupillate. It inhabits India.

Mergus. Wings entire, brown, both ſurfaces alike; upper pair with four eyes, the anterior one with a double pupil; lower ones with five. It is an African inſect.

Heſperia. Rurales.

Cupido. Lower wings ſix-toothed; tailed; beneath whitiſh, with ſilvery ſpots. It inhabits America.

Cnidus. Wings ſix-toothed, tailed, white, with a black border; lower ones with ſilvery ſpots beneath. A native of Surinam.

Agrippa. Wings three-tailed, blue with a black border, beneath cinereous, with a white ſtreak and two rufous ſpots at the angle of the tail. It is a native of America.

Helius. Wings three-tailed; upper pair black, lower ones blue; beneath cinereous, with two brown ſtreaks and two eyes at the angle of the tail. This is an inhabitant of Africa.

Janias. Wings three-tailed, blue, with a black border; beneath green. It inhabits Surinam.

Pythagoras. Wings three-tailed, with a yellow border; beneath black, varied with white, and a white band in the middle. It inhabits India.

Amor. Wings three-tailed, brown, the diſk beneath variegated, and a golden ſtreak behind on the lower ones. It inhabits India.

Hesiodus. Wings three-tailed, black with a blue diſk, beneath white, with a common greeniſh ſtreak, and two ſilvery dots at the angle of the tail. It is found in India.

Timon. Wings three-tailed, greeniſh at the baſe; beneath white, with an abbreviated red band on the lower ones. It inhabits America; a ſpecimen is in Dr. Hunter's muſeum.

Monous. Wings three-tailed, brown; beneath ſnowy, ſlightly barred with brown; the lower ones with two gilt eyes. This is a native of Africa, and preſerved in ſir Joſeph Banks' collection.

Faunus. Wings three-tailed, brown; beneath white, with two fulvous ſtreaks. It inhabits Africa.

Lisias. Wings three-tailed; upper pair brown, with a fulvous ſpot; lower ones beneath white, ſpotted with black. It inhabits Poulicandor, and is in ſir Joſeph Banks' muſeum.

Hymen. Wings three-tailed, brown, ſpotted with white beneath; upper pair white above. It inhabits Africa, and like the laſt is to be ſeen in ſir Joſeph Banks' muſeum.

Gabrielis. Wings nearly three-tailed, gloſſy blue;

lower ones beneath brown, with white bands before the tip. It is found in divers parts of America.

Pindarus. Wings nearly three-tailed, blue, with a black border; beneath brown, with ſilvery and fulvous ſpots. Inhabits India.

Chiton. Wings three-tailed, blue with a brown border; beneath yellowiſh-white, with black bands.

Pelion. Wings nearly three-tailed, blue, with gold dots and a brown border. It inhabits America.

Aunus. Wings nearly three-tailed, blue, with a black border; beneath black, with white bands. It is an American inſect.

Petus. Wings nearly three-tailed, blue, with a black border; beneath brown; the baſe rufous dotted with white. It inhabits Surinam.

Freja. Wings two-tailed, brown; the diſk beneath brown, with a waved ſtreak, which on the upper pair is fulvous, on the lower ones black. It inhabits Tranquebar.

Etolus. Wings two-tailed, upper pair black; lower ones blueiſh, beneath whitiſh, with a black dot at the baſe, and two at the tip. Native of India.

Vulcanus. Wings two-tailed, above brown, with fulvous ſpots; beneath variegated with fulvous yellow and ſilvery ſtreaks. It is a native of India.

Ganymedes. Wings two-tailed, blueiſh, with a brown border; beneath greeniſh, at the baſe with gold dots. It inhabits India.

Mars. Wings two-tailed, brown; lower ones with a rufous ſpot and two white dots, and an oblique band beneath. A native of America.

Celerio. Wings two-tailed, white; beneath with alternate brown and white bands, and a triple rufous eye at the angle of the tail. It inhabits Surinam, as do the two next.

Ematheon. Wings two-tailed, gloſſy blue, beneath black ſpeckled with blue.

Didymaon. Wings two-tailed, brown, the baſe beneath red with white ocellar dots.

Erosine. Wings two-tailed, brown, upper pair with ſeven red dots, lower ones with three; upper pair with three ſilvery dots. It inhabits the Cape of Good Hope.

Isocrates. Wings two-tailed, brown, two approximate, waved, darker ſtreaks, and a double black ſpot at the angle of the tail. This, and the two following, are found in India.

Atys. Wings two-tailed, brown, with a blue diſk; beneath cinereous with brown veins, the baſe with a fulvous ſpot, and white dots.

Sophocles. Wings two-tailed, black, with a common blue diſk; beneath white, with waved yellowiſh ſtreaks, the lower ones with a fulvous dot at the tip.

Euripides. Wings two-tailed, with a blue diſk; beneath brown, with an abbreviated white ſtreak on the upper pair, and two angular rufous ſtreaks and marginal ocellar ſpots on the lower ones.

Pholeus. Wings two-tailed, blue; beneath black, with green and blue bands. A native of Surinam.

Anacreon. Wings two-tailed, brown, beneath waved with white, and a macular fulvous ſtreak behind. This and the next ſpecies are natives of India.

Thales. Wings two-tailed, black, with blue lunules beneath, lower ones beneath with an abbreviated ſub-marginal gold band.

Endymion. Wings two-tailed; beneath green, with rufous and gold ſpecks, lower ones with a black ſtreak and red band.

Venus. Wings two-tailed; lower ſurface of the upper pair green, ſpeckled with gold; of the lower ones gold, ſpotted with green and black. There is a variety of this ſpecies, of which the wings are three-tailed, blueiſh, tipt with black; beneath golden, ſpeckled with black.

Echion. Wings two-tailed, above brown, beneath paliſh, with a rufous band, and terminal red eye. Found in America.

Telemus. Wings two-tailed, ſhining blue; lower ones with a marginal angular black ſtreak beneath. Found in America.

Dindus. Wings two-tailed, black, the thinner margin blue; beneath cinereous, with white ſpots, and a double rufous ſpot at the angle of the tail. It is found in India, as is the next.

Cecrops. Wings two-tailed, black, with a red band beneath.

Hemon. Wings two-tailed, above brown, immaculate; lower ones beneath with three blueiſh bands at the angle of the tail. A native of Surinam.

Sphinx. Wings two-tailed, blueiſh; beneath cinereous, with a double black ſpot at the angle of the tail. This and the next are natives of India.

Melibœus. Wings two-tailed, blueiſh, with a brown border; beneath yellowiſh, with brown ſtreaks on the upper pair, and black ones on the lower, angle of the tail black, with blue rings.

Mæcenas. Wings two-tailed, black, with a blue diſk beneath, with cheſnut-brown clouds. It inhabits China.

Tyrtæus. Wings two-tailed, brown; lower ones beneath with a waved white ſtreak, and black marginal lunules, the middle ones rufous. This and the next are natives of India.

Xenophon. Wings two-tailed, brown, with a yellow diſk; beneath cinereous, with a white ſtreak in the middle, joined to a brown one.

Marsyas. Wings two-tailed, above blue, beneath blueiſh with black dots. A native of America.

Bathis. Wings two-tailed, blue, with a black eye; beneath brown, with white bands, angle of the tail rufous.

Cyanus. Wings two-tailed, ſhining blue; beneath with a white diſk. Native of Surinam.

Hyacinthus. Wings two-tailed, ſhining blue; under ſurface of the lower ones black in the middle, with a white band. It is found in India.

Halesus. Wings two-tailed, blue, edged with black; lower ones each ſide ſpotted with gold at the tip. It is found in America.

Achæus. Wings nearly two-tailed, brown fulvous ſpots, beneath yellow, with gold ſpots. It inhabits India, as does the next.

Pericles. Wings two-tailed, black; beneath brown, waved with white, angle of the tail with a double ſilvery ſpot.

Formosus. Wings two-tailed, brown; beneath yellowiſh, with red and gold ſpots. It inhabits Surinam, as does the next.

Meton. Wings two-tailed. white, with a brown border; upper pair with an ocellar gold ſpot.

Thero. Wings indented, nearly two-tailed, blackiſh, with fulvous ſpots, beneath with ſilvery ſpots. A native of Africa.

Liger. Wings two-tailed, white, tipt with black, beneath brown, with white ſtreaks, and lunules. An inhabitant of Surinam.

Harpax. Wings tailed, fulvous, ſpotted with black, beneath cinereous, with gold dots. A native of America.

Valens. Wings tailed, brown; beneath yellowiſh, with ſpots including gold ones. A native of Surinam, and ſo is the next.

Perion. Wings tailed, fulvous, with a brown border and bands, beneath dotted with gold.

Augustus. Wings tailed, white, with a brown border; beneath varied with ferruginous and yellow, the lower ones with two cinereous ſtreaks. It inhabits America.

Centaurus. Wings tailed, blueiſh, with a brown border, beneath cinereous, with ocellar ſpots at the baſe. It inhabits New Holland, and is, with the next two, in the muſeum of ſir Joſeph Banks.

Gerontes. Wings tailed, black, with a common tranſverſe white ſpot; upper pair with an eye, lower ones with a double eye. Native of Africa.

Jarbus. Wings tailed, fulvous, with a brown border; beneath cinereous, with a white ſtreak, lower ones with two black dots. It inhabits Siam.

Ceranus. Wings tailed, blueiſh; beneath cheſnut-brown, at the baſe ſpotted with white. It inhabits India.

Pann. Wings tailed, brown; upper pair with a fulvous ſpot; lower ones with a black ſub-marginal one; beneath cinereous, with two eyes at the angle of the tail. Found in Africa.

Phorbas. Wings tailed, brown, with a white diſk; beneath white, with cinereous ſtreaks, and two black dots at the angle of the tail. It inhabits India.

* Betulæ. Wings ſlightly tailed, brown; beneath yellowiſh, with two white ſtreaks on the lower ones.

* Pruni Wings ſlightly tailed, above brown, with a red ſpot at the tip of the lower ones; lower wings beneath, with a fulvous marginal band dotted with black. This and the laſt ſpecies are found in this country.

Spini. Wings tailed, brown; beneath cinereous, with fulvous marginal lunules, and a blueiſh ſpot near the tail. It is found in Germany, on the *Prunus ſpinoſa*, hence its ſpecific name.

Favonius. Wings ſlightly tailed, brown, with fulvous ſpots; beneath cinereous, with two white ſtreaks; lower ones with a ſub-marginal fulvous band, and blueiſh at the angle of the tail. It is found in America.

* Quercus. Wings ſlightly tailed, blueiſh; beneath cinereous, with a white ſtreak, and double fulvous dot near the tail. A native of England, and other parts of Europe.

Linceus. Wings tailed, brown, immaculate; lower ones beneath with a lunulate white and rufous ſtreak. Inhabits Ruſſia, reſembles the P. ſpini.

Cerasi. Wings tailed, brown, immaculate; beneath a white ſtreak, and fulvous lunules marked with a black dot on the lower ones. Inhabits Auſtria.

Acaciæ. Wings tailed, brown; beneath blueiſh, with a white ſtreak, and fulvous lunules near the tail. This is a Ruſſian inſect.

Symethus. Wings ſlightly tailed, brown, with a white ſpot on the diſk, upper pair tipped with black. Found in America.

Bœtica. Wings tailed, blueiſh; beneath cinereous, with white waves, angle of the tail with a double gilt ſpot. Found in Europe and India.

Apidanus. Wings tailed, blue; lower ones beneath brown, varied with blue, angle of the tail with a double gilt ſpot. Inhabits Surinam.

Ælianus. Wings tailed, white; beneath cinereous, with white ſtreaks, angle of the tail with a black eye. Found in the Eaſt Indies, as are the two following.

Strephon. Wings tailed, brown, with a blueiſh diſk; beneath cinereous, with a white band, and a double rufous eye at the angle of the tail.

Ericus. Wings tailed, blueiſh; beneath varied with white and brown, the lower ones with two dots at the angle of the tail.

Theophrastus. Wings tailed, browniſh; beneath white, ſpotted with black; lower ones with five marginal gilt dots. It is found in Morocco.

Columella. Wings tailed, browniſh; beneath cinereous, with a ſtreak of black and white dots, and two fulvous ſpots on the lower ones. Found in the South American iſlands.

Cleon. Wings tailed, brown; beneath cinereous, with a red ſtreak on the upper pair, and band on the lower ones, angle of the tail with a double rufous eye. A native of Brazil; a ſpecimen is in the muſeum of ſir Joſeph Banks.

Phocides. Wings tailed, above brown; lower ones white, with two black dots. It is found in Africa.

Alcides. Wings tailed, black, with a blue gloſs, beneath ferruginous, with a yellow ſtreak. It inhabits Sierra Leona.

Philippus. Wings tailed, brown; beneath white, with two fulvous ſtreaks, and two ſub-ocellar black dots at the angle of the tail. It is a native of India.

Atymnus. Wings tailed, fulvous; upper pair tipped with black. Found at Siam.

Eryx. Wings tailed, black; beneath green, with a ſlightly indented and ſpotted margin on the lower ones. It inhabits China.

Æolus. Wings tailed, blue, with a black ſpot on the upper pair; all beneath with a white band ſtreaked with black. This and the two following inhabit India.

Coriolanus. Wings indented, tailed, dull cinereous, with a common ferruginous ſtreak.

Plinius. Wings tailed, varied with white and brown; lower ones beneath with a double gilt ſpot at the angle of the tail.

Acmon. Wings tailed, blue; lower ones beneath black, with green-gold ſtreaks at the tip. Found in Surinam.

Democritus. Wings tailed, ſhining blue; beneath black, ſpotted with white. Inhabits India.

Amyntas. Wings tailed, blue, with a black margin; beneath cinereous, with black dots, and two ferruginous ones on the lower pair at the angle of the tail. It inhabits Auſtria.

Timeus. Wings tailed, varied with fulvous and brown; upper pair beneath with ocellar black dots. It inhabits Surinam, as does the next.

Simæthis. Wings tailed, brown; beneath green with a ſilvery ſtripe.

Sedi. Wings tailed, blue, the margin ſpotted with white; beneath white, with ſquare black ſpots and a rufous band. Inhabits Germany.

Phidias. Wings tailed, blueiſh, with a brown border; beneath cinereous, all with a black dot at the angle of the tail. This is an Indian inſect.

Herodotus. Wings tailed, blue; beneath green, with a ſtreak of black and white dots on the lower ones. This and the next are inhabitants of India.

Strabo. Wings tailed, blue; beneath cinereous, with white waves; lower ones with two marginal dots, and two at the angle of the tail.

* Rubi. Wings ſlightly tailed; above brown; beneath green. This is found in our own country, and other parts of Europe.

Plato. Wings tailed, blue, with a brown border; beneath cinereous, with white waves; lower ones with a black bipupillate eye. This and the ſix following are natives of India.

Rosimon. Wings tailed, white, with a black border, and dots on the diſk; beneath dotted with black, angle of the tail with three gold dots.

Hippocrates. Wings tailed, brown, tipt with white; beneath white, dotted with black.

Theocritus. Wings tailed, greeniſh, with a darker rib; beneath black, dotted with yellow.

Lincus. Wings tailed, white, tipt with brown; beneath with white and black bands, angle of the tail with three white dots.

Parrhasius. Wings tailed, blue; beneath cinereous, with white ſtreaks; lower ones with marginal gold dots.

Amyntor. Wings indented, tailed, black, with a fulvous ſpot at the baſe, the tip with a yellow band.

Narcissus. Wings indented, brown, with a blueiſh diſk; beneath with red ſpots and bands with ſilvery edges. Inhabits New Holland, as does the next.

Apelles. Wings indented, fulvous, with a border; lower ones beneath with rufous bands and ſilvery edges.

Heraclitus. Wings indented, black, with a fulvous ſpot on the upper pair; lower wings with a blue ſpot above, and yellowiſh ſtreaks and blue dots beneath. It is a native of America.

Plautus. Wings indented, brown, above immaculate; beneath with tranſverſe black and white lines. It inhabits India.

Thysbe. Wings denticulate, fulvous, ſpotted with black; lower ones beneath ſtriate, black ſpotted with gold. Inhabits Africa.

Nais. Wings indented, the baſe ſilvery, with gold ſtreaks. A native of the Cape of Good Hope.

Meleager. Wings indented, blue, with a black border, beneath grey, with black ocellar dots. It inhabits Germany.

Epulus. Wings entire, brown, with fulvous ſpots; beneath variegated. Inhabits Surinam.

* Arion. Wings above blue, edged with brown, and ſpotted with black, beneath grey, with numerous ſmall eyes. This inhabits our own and other countries of Europe.

Erebus. Wings entire, brown; all with a ſtreak of ocellate dots beneath. It inhabits Germany.

Alcon. Wings entire, blue, edged with brown, beneath grey-brown, with numerous eyes. Inhabits Auſtria.

Damon. Wings entire, blue, beneath grey-brown, with numerous dots and a white band on the lower ones.

Cyllarus. Wings entire, blue edged with black; beneath grey-brown, with a ſtreak of ocellate dots, the hind ones blue at the baſe. This is an European inſect.

* Argiolus. Wings entire, blue edged with black, beneath blueiſh-grey, ſpotted with black. This ſpecies is common to this and other European countries.

Acis. Wings entire, blue, beneath grey-blue, with oblong, black ſimple dots. It inhabits Auſtria.

* Alsus. Wings entire, brown, immaculate, beneath cinereous, with a ſtreak of ocellate dots. Found in England.

Cajus. Wings entire, brown, with a blueiſh diſk, beneath varied, cinereous and white, with brown ocellar dots. It inhabits India.

Otis. Wings entire, brown, with a blue baſe, beneath cinereous, with a dot in the middle, and ſtreak on the upper pair, and numerous ocellar dots on the lower ones. Found in China.

* Argus. Wings entire, lower ones beneath with a ferruginous border, and ſilvery blue eyes. This and the three following are found in England, and other European countries.

* Hyacinthus. Wings entire, blue, lower wings beneath with a marginal row of red eyes, and a circle of black ones on the diſk.

* Artaxerxes. Wings entire, brown, upper pair with a white dot in the middle; lower ones with rufous marginal lunules, beneath with rufous and white dots on the margin.

* Titus. Wings entire, brown, immaculate; lower ones ocellate beneath, and a macular fulvous ſtreak behind.

Opilete. Wings entire, blueiſh, with a blackiſh edge; lower ones beneath cinereous, with ocellar black dots, and two fulvous lunules. It inhabits Ruſſia, as does the next.

Triton. Wings entire, blueiſh, beneath a ferruginous ſtreak, and numerous black dots.

* Corydon. Wings entire, blue edged with black; beneath cinereous with black ocellar dots, lower ones with a central white ſpot. This and the next are found in England.

* Adonis. Wings entire, blue, with a black marginal ſtreak, beneath cinereous, with numerous ocellar dots, and a white central one on the lower ones.

Dorylas. Wings entire, blue, beneath cinereous, with a dot in the middle of the upper pair, and ſtreak of ocellar dots behind. It is found in Auſtria.

Hylus. Wings entire, with a black lunule in the middle, and marginal dots; beneath cinereous, with ocellar dots. It inhabits Auſtria.

Battus. Wings entire, blackiſh-blue beneath, whitiſh with numerous black dots; lower ones with a continued fulvous band. Found in Germany.

Argiades. Wings entire, blue, with a brown edge, beneath grey-brown, with a lunule in the middle, and two ſtreaks of ocellated dots. It inhabits Saxony.

Amphion. Wings entire, blue edged with black; beneath cinereous, ocellate with black; lower ones with red lunules, marked before with a white lunule, behind with a black gold dot. It inhabits Germany.

Acreon. Wings entire, brown, beneath paler, with black ocellate dots; lower ones with a white and red band and ſtreak of gold dots. It is found in Ruſſia.

Hebrus. Wings entire, brown, varied with blue; lower ones blue, with a white inner margin. It inhabits Surinam.

Avius. Wings entire, both ſurfaces alike, brown, with two blue ſtreaks at the tip. It is a native of the Weſt Indies.

Acanthus. Wings entire, brown, immaculate, beneath pale ferruginous, with blue bands and yellow border. It is found at Surinam, as is the next.

Ceneus. Wings entire, black, with blue waves; the margin dotted with white.

Erinus. Wings entire, brown, beneath cinereous, with a double black dot on the hind angle of the lower ones. It inhabits New Holland; a ſpecimen is in the muſeum of ſir Joſeph Banks.

Icarus. Wings entire, above with brown bands, beneath with alternate white and black bands. Found at Surinam.

Parcimon. Wings entire, brown, beneath cinereous, with white waves; lower ones with ocellar black dots at the baſe and eye of the tip. It inhabits Africa.

Damoetes. Wings entire, brown, beneath with cinereous waves, lower ones with a double gilt eye. Inhabits

New Holland. Specimens of this and the laſt are in ſir J. Banks' muſeum.

Ceraunus. Wings entire, brown, with a blue gloſs; beneath cinereous, lower ones with ocellar black dots at the baſe, and an eye and dot at the tip. This ſpecies and the next inhabit the South American iſlands.

Catilina. Wings entire, brown, with a blue gloſs; beneath with white bands and two blue eyes at the angle of the tail.

Minereus. Wings entire, brown, lower ones beneath with ocellar red dots, and an eye at the angle of the tail. It inhabits America.

Hylax. Wings entire, above brown, immaculate, beneath cinereous, dotted with black. It inhabits the Eaſt Indies.

Telephus. Wings entire, black; upper pair dotted with white; lower ones above rufous at the baſe, beneath blue, varied with black. It inhabits America.

Emylius. Wings entire, black dotted with white; upper pair with a yellow band; all beneath variegated. It inhabits Surinam.

Caricæ. Wings entire, brown, with a common white diſk, the border cinereous, ſubocellate. It inhabits America.

Pelops. Wings entire, white, with a common brown border, on which are a few fulvous ſpots, and a ſtreak behind. It inhabits Cayenne.

Lamis. Wings entire, brown, with a common abbreviated white and fulvous band. It inhabits Cayenne, as does the next.

Cachrys. Wings entire, blue, with a double white ſpot on the upper pair, beneath cinereous, with black lines.

Lagus. Wings entire, blue, with a double white ſpot on the upper pair, beneath cinereous, with black lines. It inhabits Surinam.

Mœcenas. Wings oblong, both ſurfaces alike, black, with a common red band and line on the upper pair. Found at Guadaloupe.

Mantus. Wings oblong, entire, variegated blue and brown, with a common white band. It inhabits Africa.

Midas. Wings ſubangular, brown, with a whitiſh ſpot, beneath white at the baſe, with a rufous ſtreak. It inhabits India, as do the three following.

Bibulus. Wings entire, brown; beneath white, with a ſilvery band dotted with brown on the lower pair.

Æsopus. Wings entire, above brown, with a white ſpot, beneath white, immaculate.

Phædrus. Wings entire, fulvous, with a brown margin, beneath white, immaculate.

Bias. Wings entire, black, with a blue gloſs, beneath brown, with a white hind margin. Inhabits Cayenne.

Phareus. Wings entire, both ſurfaces nearly alike, red, with a black border. This and the next ſpecies inhabit Surinam.

Tacitus. Wings entire, fulvous, outer margin of the upper pair black, ſpotted with yellow.

Cœnus. Wings entire, white, outer margin of the upper pair brown ſpotted with white. A native of India.

Procas. Wings entire, both ſurfaces alike, black, with yellow diſk, on the upper pair a yellow ſpot. This and the following inhabit Surinam.

Alphonsus. Wings entire, black; upper pair with two yellow ſpots, lower ones with a ſingle one at the baſe.

* Hippothoe. Wings entire, orange edged with black and white; beneath cinereous, with numerous black ocellar dots. Found in England.

* Virgaureæ. Wings ſubangular, fulvous, edged with black; beneath with black and white dots. Found in this and other European countries.

Chryseis. Wings gold, with a blueiſh margin, lower ones ſlightly indented, beneath dull grey, with numerous ocellar dots. It inhabits Auſtria.

Salustius. Wings entire, fulvous, varied with black; upper pair beneath dotted with black, lower cinereous, with brown ſpots. This and the next inhabit India.

Florus. Wings entire, fulvous, edged with black, the baſe beneath dotted with black.

Hiere. Wings brown, dotted with black, beneath cinereous, with numerous ocellar dots. It inhabits Auſtria.

* Phlœas. Wings entire, fulvous, dotted with black, beneath blueiſh. It inhabits England.

Arcas. Wings entire, fulvous, with black margin and dots, lower ones beneath grey, immaculate. Inhabits the Cape of Good Hope.

Ballus. Wings entire, fulvous, with a brown margin; lower ſurface of the upper pair dotted with black, of the lower ones green, edged with brown. It Inhabits Spain.

Helle. Wings entire, duſky, with a blue gloſs; all beneath with numerous ocellar dots. It is found in Germany.

Xanthe. Wings entire, brown, with black dots, and a marginal fulvous band, beneath yellowiſh, with numerous dots. It is found in Ruſſia.

Garbus. Wings brown, dotted with black, and edged with white, beneath greeniſh, with numerous dots. It inhabits Auſtria. Probably the other ſex of the laſt.

Thersamon. Wings ſlightly tailed, fulvous, with numerous ocellar dots beneath; upper pair beneath fulvous, lower ones cinereous. It inhabits Ruſſia.

Lucianus. Wings entire, dotted with black, above fulvous, beneath cinereous. Inhabits Guadaloupe.

Pentheus. Wings entire, fulvous, ſpotted with black; tip of the lower ones white, dotted with black. It inhabits Surinam, as well as the next.

Ulricus. Wings entire, gloſſy-blue, beneath pale cheſnut-brown at the baſe, upper pair with a tripupillate eye.

Thyra. Wings indented, the diſk fulvous, dotted with black, beneath purpliſh, with ſilvery ſpots. It is found in Guinea.

Zeuxo. Wings entire, the diſk fulvous, dotted with black; upper pair with ſilvery dots. This and the two next are found in different parts of Africa.

Juba. Wings entire, black, with a fulvous diſk, beneath with a white band, and abbreviated ſtreaks.

Lara. Wings entire, ſubteſtaceous; upper pair with one eye above, and the lower ones with two.

Cephus. Wings entire, brown, beneath with blue bands and a ſingle eye on the upper pair, and two on the lower ones. It inhabits India.

Domitianus. Wings entire, brown, upper pair with a green ſpot; lower ones with a green band; beneath pale ferruginous, with ſilvery dots, and marginal ſtreak. It inhabits Guadaloupe.

Livius. Wings entire, black, with a blue ſpot on the diſk; lower ones beneath cinereous, with rufous bands that are ſilvery at the edge. This and the next inhabit India.

Romulus. Wings entire, brown, beneath green, with a rufous ſpot on the lower ones.

Actoris. Wings entire, both ſurfaces alike, brown dotted with white. Inhabits Surinam.

Cassius. Wings entire, above white, with a brown border on the upper pair, and five white dots on the hind margin of the lower ones. This is a native of Surinam.

Isarchus. Wings entire, blue, with a white band on the lower ones, beneath varied with white and black. This and the next are of America.

Caractacus. Wings entire, brown, with a white ſpot on the diſk; beneath variegated, a brown band with a ſilvery edge on the lower ones.

Ouranus. Wings entire, both ſurfaces alike, black with a common white band, ending in a red ſpot behind. Found at Surinam.

Haraldus. Wings entire, blue, with a black border, beneath white, the margin dotted with black. It inhabits the Eaſt Indies.

Talus. Wings entire, with brown and blue bands, and an abbreviated red band beneath. Found at Surinam.

Neleus. Wings entire, both ſurfaces alike, black; upper pair with ten white dots; lower ones with a white diſk. Found in India.

Athemon. Wings entire, browniſh, with a common white diſk, and a brown half band behind. It inhabits America.

Regulus. Wings entire, black, with two yellow bands, the poſterior one on the upper wings interrupted. Found in America.

Hisbon. Wings entire, black, with three yellowiſh bands, the hind one interrupted. Inhabits India.

Tarquinius. Wings entire, black; upper pair with an oblong yellow ſpot at the baſe, lower ones yellow, ſpotted with black at the angle of the tail. Found alſo in India.

Gemellus. Wings entire, yellowiſh, with a brown border, beneath white, with a red ſtreak in the middle and marginal lunules. Inhabits Cayenne.

Ptolomæus. Wings entire, ferruginous, with brown ſtreaks; beneath blue, paler at the baſe. This, and the four that immediately follow, are natives of India.

Archimedes. Wings entire, black, with a blue diſk, beneath brown, immaculate.

Lucius. Wings entire, both ſurfaces nearly alike, fulvous, with black waves.

Oviaius. Wings entire, dotted with gold; above fulvous, beneath yellowiſh.

Suetonius. Wings entire, yellow, with a brown border; under ſurface of the upper pair with ſilvery black dots; of the lower pair cinereous.

Electron. Wings entire, both ſurfaces alike, black, with a yellow band and ſanguineous dot at the tip. It inhabits Cayenne.

Sagaris. Wings entire, black, with a common tranſverſe fulvous ſpot. This and the next inhabit Surinam.

Euriteus. Wings entire, black, with a blue ſpot; beneath rufous in the middle, with white bands.

Phereclus. Wings entire, both ſurfaces alike, black; upper pair with a linear red band. This and the next are natives of America.

Lysippus. Wings angular, brown, all of them with a red ſtreak, beneath with cinereous dots.

Æmulius. Wings entire, cinereous, ſpotted with brown and white; the lower ones pale above; beneath all dotted brown. Inhabits India.

Geminus. Wings rounded, blue, with a black border, in which is a blue ſtreak; lower ones beneath ſubfaſciate, with brown. A native of America.

Lucanus. Wings entire, black, with a yellow diſk; lower ones beneath red, with ſquare brown ſpots. Inhabits India.

Perditus. Wings entire, both ſurfaces alike, black, with a fulvous band. It inhabits Cayenne, as does the next.

Pyramis. Wings entire, brown, with a blue gloſs, and a fulvous band; lower ones beneath grey.

Priassus. Wings entire, both ſurfaces alike, black; upper pair with a double fulvous band. This and the four following inhabit India.

Thucydides. Wings entire, black, with a fulvous ſpot on the diſk, beneath cinereous, with rufous waves.

Virgilius. Wings entire, black, with a blue thinner margin, beneath grey, with three whitiſh lunules, including a black dot on the lower ones.

Petronius. Wings entire, blue ſtreaked with black, beneath brown, cinereous, dotted with black.

Numitor. Wings entire, brown, with a yellow diſk on the lower ones, beneath yellow, immaculate.

Philiasus. Wings entire, brown, ſpotted beneath; lower ones with two eyes above on the hind part, and one beneath. It inhabits Africa.

Gyas. Wings entire, brown, beneath fulvous, with punctured gold ſtreaks. A native of Surinam.

Ægon. Wings entire, brown, with numerous macular fulvous bands. Inhabits Jamaica.

Heſperiæ. Urbicolæ.

Exclamationis. Wings entire, divaricate, brown; upper pair with a yellowiſh line and dots under it. Inhabits India.

* Comma. Wings entire, divaricate, fulvous, with a black line on the upper pair; beneath ſpotted with white. This is found in England.

Propertius. Wings divaricate, black, ſpotted with yellow; lower ones beneath with alternate, rufous, and yellow bands. This and the next are natives of India.

Tibullus. Wings entire; upper pair black, ſpotted with yellow; lower ones yellow, with a black border.

Linea. Wings entire, divaricate, fulvous, edged with black. It inhabits Auſtria.

* Sylvanus. Wings divaricate, dark orange, with ſquare yellow ſpots above, and whitiſh ones beneath. This is an Engliſh butterfly, as well as the next.

* Thaumas. Wings divaricate, orange, with a darker patch at the baſe, the upper pair, in the male, with a black line in the middle.

Otho. Wings divaricate, brown, with fulvous ſpots at the baſe, and nearly ſquare yellow ones each ſide on the diſk.

Augias. Wings divaricate, fulvous, with an oblique black band and hind margin. This is a native of India.

Vitellius. Wings divaricate, fulvous; upper pair with a brown margin and ſpot in the middle; lower ones with a brown border. Inhabits the South American iſlands.

Colon. Wings divaricate, fulvous, with a brown ſtriate margin and ſpot in the middle. It inhabits India.

* Paniscus. Wings divaricate, dark brown, with fulvous ſpots. Inhabits England, and has been deſcribed and figured by Mr. Donovan.

Helirius. Wings entire, divaricate, brown, edged with black; upper pair with a central yellow dot. It inhabits Surinam.

Saturnus. Wings divaricate, brown; upper pair dotted with white; lower ones ſtriate beneath with white. Inhabits Cayenne.

Origenes. Wings divaricate, both ſurfaces alike, brown, with a ſtreak of white dots; upper pair teſtaceous at the baſe. It is a native of India.

Nostrodamus. Wings divaricate, brown; upper pair with a macular whitiſh band above; lower ones cinereous beneath. Inhabits Barbary.

Phineus. Wings ſubangular, divaricate, brown, with an interrupted yellow band on the upper pair. This and the next are natives of Surinam.

Helius. Wings ſubdivaricate, brown; lower ones fulvous at the inner margin.

Metis. Wings entire, brown, with ſcattered fulvous ſpots; lower ones beneath, immaculate. Inhabits the Cape of Good Hope.

Dioscorides. Wings entire, brown, ſpotted with yellow; lower ones beneath yellow with brown waves. It inhabits Tranquébar.

Plutargus. Wings entire, brown, ſpeckled with gold; upper pair with a teſtaceous ſpot at the tip above, and teſtaceous outer margin. This and the next are natives of India.

Epictetus. Wings entire, black, with a yellow diſk; upper pair with a brown ſpot, including a yellow lunule; lower ones beneath yellow, immaculate.

Silenus. Wings tailed, brown, beneath pale cheſnut, with a yellowiſh ſtreak. It inhabits Africa.

Orion. Wings tailed, brown; upper pair with ſemitranſparent ſpots; lower ones with white tails. This and the next are inhabitants of Surinam.

Eudoxus. Wings tailed, brown; upper pair with a white band on each ſide; lower ones on the under ſurface only.

Proteus. Wings tailed, brown, with tranſparent ſpots; antennæ hooked. A native of America.

Chemnis. Wings ſlightly tailed, brown, with hyaline ſpots and yellow hind margin. It inhabits India.

Tityrus. Wings ſlightly tailed, brown; upper pair with a yellow band on each ſide; lower ones with a ſilvery ſtreak beneath. A native of America.

Muretus. Wings ſlightly tailed, brown, with hyaline ſpots. This and the next are natives of India.

Meatus. Wings ſlightly tailed, black; upper pair with hyaline ſpots; lower ones beneath brown, with a white band at the baſe.

Epitus. Wings ſlightly tailed, brown, ſpotted with yellow; lower ones beneath with a ſilvery band. A native of Surinam.

Lycidas. Wings ſlightly tailed, brown, with black teeth; upper pair with a yellow band on each ſide; lower ones beneath clouded with brown at the baſe, and afterwards white. It inhabits America.

Nicias. Wings ſlightly tailed, fulvous; upper pair brown at the tip, with a yellow hyaline ſpot. It is found at Cayenne, as is the next.

Mercurius. Wings ſlightly tailed, brown, yellow at the baſe, with hyaline dots on the upper pair; lower ones beneath black, with a cinereous band.

Thyrsis. Wings ſlightly tailed, brown, with a yellow band on the upper pair, beneath all of them purple, ſpeckled with yellow. It is found in America.

Alphæus. Wings ſlightly tailed, black, with a red band; beneath variegated. A native of the Cape of Good Hope.

Pretus. Wings ſlightly tailed, black, ſpotted with green, beneath ferruginous, ſpotted with yellow. This alſo is a native of the Cape.

Phocas. Wings ſlightly tailed, brown, with diaphanous ſpots; lower ones beneath with a black dot at the baſe. A native of America.

Momus. Wings ſlightly tailed, brown, with hyaline ſtreaks at the baſe, and ſpots at the tip. It inhabits Cayenne.

Vespasius. Wings ſlightly tailed, ruſty-brown; upper pair with yellowiſh dots at the tip. Found in India.

Rhetus. Wings ſlightly tailed, fulvous; outer margin of the lower ones blue-black. This and the three next inhabit Surinam.

Clonias. Wings ſlightly tailed, black; upper pair with a ſnowy band; lower ones beneath blueiſh, tail ſanguineous.

Acastus. Wings ſlightly tailed, black; upper pair with a ſnowy band; lower ones beneath greeniſh, with abbreviated yellow ſtreaks.

Palæmon. Wings ſlightly tailed, blueiſh; upper pair with a rufous dot in the middle; lower ones rufous at the angle of the tail.

Julianus. Wings ſlightly tailed, brown; upper pair ſpotted with yellow; lower ones beneath varied with brown and glaucous. It inhabits Jamaica.

Brontes. Wings ſlightly tailed, both ſurfaces alike, brown; upper pair with a ſnowy band; lower ones with a ſnowy margin. It inhabits America.

Arinus. Wings tailed, both ſurfaces alike, black; upper pair with a tranſverſe ſnowy ſpot; tail ferruginous.

Alexis. Wings tailed, brown; lower ones with a blueiſh band beneath. This and the next are natives of India.

Mithridates. Wings rounded, black, with a purple ſpot and band behind, including paler lunules.

Jupiter. Wings without tails, black with a green gloſs, beneath green, with black veins and margin; head and tail ſanguineous. It inhabits Africa.

Cassander. Wings without tails, both ſurfaces alike brown, immaculate.

Polybius. Wings without tails, black; upper pair with a fulvous ſpot; lower ones yellow at the angle of the tail. This and the three following are natives of India.

Thrax. Wings without tails, brown, with a few diaphanous ſpots; antennæ hooked.

Ennius. Wings brown; upper pair with hyaline ſpots; lower ones above black, with a yellow diſk, beneath brown, with a white diſk.

Scipio. Wings without tails; upper pair with a hyaline white band on each ſide, above black, beneath green.

Marcus. Wings without tails, brown, with hyaline ſpots; lower ones beneath with two yellowiſh fillets; the thinner margin fulvous. It inhabits Cayenne.

Flesus. Wings without tails, brown; upper pair with diaphanous ſpots; diſk of the lower ones white, dotted with black. A native of Africa.

Cicero. Wings rounded, brown; upper pair with white hyaline ſpots; lower ones with a white hyaline diſk. It inhabits the Eaſt Indies.

Atticus. Wings rounded; upper pair brown, with black ſpots and hyaline dots; lower ones hyaline, with black ſpots. It is found in India.

Clericus. Wings rounded, brown, ſubfaſciate, with black; upper pair with hyaline dots. This and the next four inhabit different parts of the continent of America.

Lucas. Wings without tails, brown; upper pair with yellow hyaline ſpots on both ſurfaces.

Juvenalis. Wings without tails, brown; upper pair ſpotted with black, and dotted with white.

Bathyllus. Wings without tails, brown; upper pair with diaphanous ſquare white ſpots; lower ones beneath with clouded waves.

Aecius. Wings without tails, brown; upper pair with white diaphanous ſpots; all of them beneath paliſh purple at the tip.

Nepos. Wings rounded, black; upper pair dotted with white; lower ones white at the angle of the tail above and beneath, with a white diſk. It inhabits India, as do the next five ſpecies.

Nerva. Wings entire; upper pair brown, ſpotted with white; lower ones above black immaculate.

Cæsar. Wings entire; upper pair brown, with diaphanous ſpots; lower ones black, with a ſnowy ſpot in the middle.

Tertulianus. Wings entire, rounded, blueiſh, ſpotted with black; the upper pair with white dots.

Orcus. Wings rounded, brown; upper pair ſpotted with yellow; lower ones beneath blueiſh.

Dan. Wings without tails, dull cinereous, dotted with brown; upper pair with hyaline ſpots.

Nothus. Wings without tails, brown; upper pair with hyaline dots; lower ones beneath white; the margin brown, with ſix ocellar dots. Inhabits America.

Silvius. Wings without tails, brown; the diſk yellowiſh, ſpotted with brown; lower ones beneath cinereous, with brown waves. Inhabits the Cape of Good Hope.

Salus. Wings indented, fulvous, with black bands; upper pair with hyaline ſpots; lower ones hyaline in the centre. Inhabits Surinam.

Jacchus. Wings without tails, ſpotted with yellow; lower ones with ſix ſnowy dots. Inhabits New Holland.

Gnetus. Wings indented, both ſurfaces nearly alike, black; upper pair with three hyaline ſpots; lower ones with blue bands. This and the next are natives of India.

Alsarius. Wings indented, black; upper pair with yellow and white ſpots; diſk of the lower ones yellow, with black dots.

Anaphus. Wings entire, both ſurfaces alike, brown; lower ones yellow at the tip. Inhabits Surinam.

Sebaldus. Wings without tails, varied with brown and black; lower ones beneath yellow at the angle of the tail. It is found in America.

Evadrus. Wings without tails, brown, with a yellow diſk; upper pair with ſubocellar ſilvery dots beneath. Inhabits the Cape of Good Hope.

Bixæ. Wings rounded, brown, greeniſh at the baſe; lower ones beneath with a yellow band. Inhabits America.

Polycletus. Wings ſlightly tailed, green-brown, with a white ſpot on the upper pair; beneath with fulvous ſilvery ſpots on the margin. Native of India.

Aracinthus. Wings rounded, entire, brown; lower ones beneath grey, with ocellar ſpots. It inhabits Auſtria.

Busiris. Wings oblong, entire, black; upper pair with two yellow ſpots and dots; lower ones with a yellow diſk. This is a native of India.

Pisistratus. Wings entire, brown; lower ones with a yellow diſk above, and a ſnowy band, dotted with black beneath. It is a native of America.

Hemes. Wings rounded, entire, black; upper pair with a white ſpot; lower ones with a white band. This and the next are natives of Surinam.

Eumelus. Wings rounded, entire, black; upper pair ſpotted with white; lower ones fulvous, with black veins.

Philemon. Wings rounded, entire, black, immaculate. Native of America.

Thrasibulus. Wings entire, black, with blue lunules; lower ones beneath at the angle of the tail cinereous, dotted with brown. This and the two following are natives of India.

Celsus. Wings entire, both ſurfaces alike, black; upper pair with a yellow band.

Zeleucus. Wings entire, both ſurfaces alike, black; lower ones edged with white; head and tail ſanguineous.

Mænas. Wings entire, gloſſy green, black, edged with white; lower ones beneath with a white band; mouth and tail red. A native of America.

Phidias. Wings entire, gloſſy black, edged with white; mouth and tail red. Inhabits Aſia.

Amiatus. Wings entire, black, with a yellow hind-margin; head and tail red. A native of America, and ſo is the next.

Æsculapius. Wings entire, black, with fulvous ſpots, the margin dotted with yellow.

Lycagus. Wings rounded, entire, blue-green, immaculate; tail red. Inhabits Surinam.

Catullus. Wings rounded, entire, black; upper pair dotted with white; lower ones with a ſtreak of white dots. This and the two following ſpecies are natives of India.

Jovianus. Both ſurfaces of the wings alike, black; lower ones radiate with blue and white.

Salvianus. Wings entire, brown, ſpotted with green; lower ones beneath white, with a marginal ſtreak of brown dots.

Oileas. Wings rounded, entire, varied with black and white; lower ones beneath cinereous, with waved black ſtreaks. It is found in America.

Maimon. Wings entire, white, with black margin and ſpots. Inhabits Cayenne.

Talaus. Wings entire, both ſurfaces alike, brown; upper pair with white dots and red baſe; lower ones with a white diſk. Found in India.

Mimas. Wings entire, brown, with a ferruginous margin; beneath with a ſtreak of black dots. This and the next inhabit Surinam.

Gentius. Wings entire, both ſurfaces alike, yellow, with a black border; upper pair with yellow bands.

Pelopidas. Wings entire; upper pair dull cinereous, with a brown line in the middle; lower ones cinereous. This and the next ſpecies are natives of India.

Galenus. Wings entire, both ſurfaces alike, brown, ſpotted with yellow.

* Melvæ. Wings indented, divaricate, brown, with cinereous waves; upper pair with hyaline dots; lower ones with white dots beneath. Inhabits this country.

Alceæ. Wings divaricate, varied with brown and cinereous; upper pair with hyaline dots; lower ones beneath cinereous, immaculate. Inhabits Ruſſia.

Sidæ. Wings entire, divaricate, black, with ſquare white ſpots; lower ones beneath cinereous, with two yellow bands. Inhabits Ruſſia.

* Fritillum. Wings entire, divaricate, black, dotted with white. It inhabits Europe.

Galba. Wings entire, divaricate, black, dotted with white; lower ones beneath grey, with two white bands. It inhabits Tranquebar.

Mævius. Wings entire, above black, beneath greeniſh, with white lines and ſpots on both ſurfaces. Inhabits the Eaſt Indies.

Lavateræ. Wings entire, brown; upper pair with white ſpots; lower ones with white dots; all with a ſnowy lunule in the middle. It inhabits Germany.

Menalcas. Wings entire, both ſurfaces alike, white edged with black. It inhabits India.

Menippus. Wings entire, ſtriate, brown, with a broad white band, in the middle of which is a brown dot. It inhabits Surinam.

Clito. Wings entire, both ſurfaces alike, black; upper pair dotted with white; lower ones with a white band. It inhabits Cayenne.

Vibrius. Wings entire, black; upper pair with three white dots; lower ones tipped with white. Inhabits Surinam, as do the two next.

Curtius. Wings entire, both ſurfaces alike, black; upper pair with four white dots; lower ones immaculate.

Phoreus. Wings entire; upper pair brown; lower ones yellow.

* Tages. Wings entire, denticulate, brown, with obſolete white dots. A native of England and other parts of Europe.

Niso. Wings entire, ſub-reverſed, brown; upper pair with four white ſcattered dots above. This and the two remaining ſpecies are natives of India.

Shio. Wings entire, reverſed, blackiſh, every where ſpotted with white.

Pygmæus. Wings entire, brown, immaculate.

Papilio-*Muſca*, a name given by ſome authors to a ſeries of ſmall inſects, which ſeem to be of a middle nature between the fly and the butterfly claſſes. Its wings are in part covered with thoſe ſcales in form of duſt, which render the wings of the butterfly kinds opaque, and in part are tranſparent and glaſſy. Reaumur has called the wings *alies vitrées, glaſſy wings*. Reaumur's Hiſt. of Inſects.

PAPILION-Bourdon, a name given by the French authors to a ſort of butterflies, which while they feed keep upon the wing with a humming noiſe like that of the humble-bee Reaumur. See Eperviers and Papilio.

Papilion-*a-quene, tailed butterflies*, a name given by the French naturaliſts to a ſort of butterfly, of which there are ſeveral ſpecies. The ſides of the wings of theſe butterflies are jagged, and one of the jags run out ſo far beyond the reſt as to repreſent a ſort of tail iſſuing from the creature. Reaumur.

PAPILIONACEÆ, in *Botany*, the 32d among the natural orders of Linnæus, compoſing a principal part of the Leguminosæ of Juſſieu; ſee that article, and Papilionaceous *Flowers*; ſee alſo Diadelphia. In addition to what is to be found under the laſt-named article, reſpecting the qualities and uſes of theſe plants, it may be mentioned that Linnæus, in his *Prælectiones*, has obſerved that ſcarcely any of them are medicinal, except *Glycyrrhiza*, the Liquorice, for *Galega*, though recommended againſt the plague, is ſcarcely to be truſted, which we can readily believe. He aſſerts moreover that they have ſcarcely any ſcent. If this be intended of the flowers, the *Spartium junceum* and *Lathyrus odoratus* are powerful exceptions, indicated by his editor; to which Mr. Saliſbury has added *Coronilla valentina*, *Lupinus luteus*, *Vicia Faba*, and various ſpecies of *Trifolium*. The herbage of ſome *Papilionaceæ* acquire a very penetrating durable ſcent, of a peculiar kind, in drying; as the common and blue Melilots, *Trifolium officinale* and *cæruleum*; with moſt of the genus *Trigonella*. The ſeeds of this family are of a flatulent quality, and beſt ſuited for the food of hard-working people.

Some of this order are very remarkable for their occaſionally ſubterraneous mode of fructifying. *Lathyrus amphicarpos*, as well as *Vicia amphicarpa* of Dorthes, ſee Willd. Sp. Pl. v. 3 1105, bear ſome flowers from their roots, conſiderably below the ſurface of the ground, which are pale and deformed, but having perfect anthers and ſtigmas, produce good ſeed. The ſame individual plants have abundance of flowers and ſeeds upon their ſtems above, like thoſe of their natural order. Others, after flowering, bury their flower-ſtalks and ripening germens in the ground, in a very curious manner. Such are *Glycine ſubterranea*, *Arachis hypogæa*, and our Engliſh *Trifolium ſubterraneum*, which laſt fixes itſelf by ſupplementary radicles from the tops of the buried ſtalks.

PAPILIONACEOUS Flowers, *Flores papilionacei*, are ſo termed from a fancied reſemblance in their form to a *Papilio*, or Butterfly, ſee the laſt article. This denomination appears, as Tournefort ſuggeſts, to have originated with the ingenious and learned Valerius Cordus, who in his Hiſtoria Stirpium, chap. 162, applies it to the flowers of the Bean. The word does not occur in the Lexicon of David Kyber, publiſhed in 1553, by the care of their common friend the great Conrad Geſner, eight years before the latter printed the works of Cordus.

Linnæus has very particularly deſcribed ſuch flowers in his Genera Plantarum 358, at the head of his claſs *Diadelphia*, which is compoſed of them.

"Calyx. Perianth inferior, of one leaf, bell-ſhaped, withering; its baſe gibbous, attached by its lower ſide to the flower-ſtalk, obtuſe and containing honey at the upper; its mouth with five acute, erect, oblique, unequal teeth, of which the lowermoſt is longeſt, and has no fellow; the upper pair ſhorteſt and furtheſt aſunder: the bottom is internally moiſt with honey, including the receptacle.

Corolla, called *papilionaceous*, is unequal; each *petal* being diſtinguiſhed by an appropriate name, as follows.

The *ſtandard* is one petal, larger than the reſt, which it lies over and covers, in a flattiſh horizontal poſition. Its claw is inſerted into the upper margin of the receptacle; and what projects beyond the calyx approaches to a roundiſh, almoſt entire, figure, having an elevated longitudinal line, eſpecially towards the extremity, as if the petal were depreſſed at the ſides. That part of the petal neareſt the baſe, approaches to a ſemicylindrical ſhape, embracing the parts beneath. The border of the petal is depreſſed at each ſide, but a portion near the margin is reflexed upwards where the halved tube, or claw, ends; where the halved limb, or border, begins to expand, are two poſterior concave impreſſions, prominent beneath, which compreſs the wings lying under them.

Wings two equal petals, one at each ſide of the flower, under the ſtandard, incumbent at the margin, parallel, roundiſh-oblong, broadeſt outwards, ſtraighteſt at their upper edge, more dilated into a roundiſh form at the lower. The baſe of each is divided, the lower portion thereof elongated into a claw, inſerted at the ſide of the receptacle, and about the length of the calyx; the upper portion being ſhorter and inflexed.

Keel, the loweſt petal, is uſually deeply divided, ſituated under the ſtandard, within the wings, boat-ſhaped, concave, compreſſed at the ſides, in the poſition of a boat upon the water, mutilated at its baſe, whoſe lower part is extended into a claw, as long as the calyx, inſerted into the receptacle, its lateral and upper ſegments being ſhorter, and twiſted together with the correſponding parts of the wings. The ſides of the keel agree with the wings in form, and nearly in ſituation, except in being interior to them, and ſomewhat lower. The outline of this petal, conſtituting the actual keel, extends half way in a ſtraight line, then it gradually aſcends, in a ſegment of a circle; but the margin, or upper edge, is ſtraight to the end, where it unites in a blunt angle with the other.

Stamens for the moſt part united, in two ſets; their *filaments* of different ſhapes; one inferior, embracing the piſtil; the other ſuperior, lying upon that part.

The inferior *filament*, ſheathing the germen, is in its lower half membranous, cylindrical, with a longitudinal ſlit above; the upper portion conſiſts of nine awl-ſhaped diviſions, having the ſame length and curvature as the keel of the corolla which incloſes them, the intermediate or lower ones longer than the others in alternate pairs.

The ſuperior *filament* is of a ſlender awl-ſhaped figure, lying over, and covering, the fiſſure in the former, to which it anſwers in ſituation, being ſimple, and rather leſs permanent, ſo that, ſeparating at its baſe from the former, it allows of the eſcape of the honey at each ſide.

Anthers ſmall, equal, terminal, ten in all; one upon the upper filament; nine on the reſpective diviſions of the lower.

Pistil one, ſuperior.

Germen oblong, ſomewhat cylindrical, ſlightly compreſſed, ſtraight, the length of the cylinder, formed by the inferior filament, by which it is embraced.

Style awl-ſhaped, ſlender, aſcending, the length and poſition of the ſegments of the lower filament, among which it is ſtationed, withering.

Stigma downy, at the upper part, immediately beneath the anthers.

Pericarp an oblong, compreſſed, obtuſe *legume*, of two valves, having a longitudinal ſuture above as well as below, both ſtraight, except that the upper ſlopes downwards towards the baſe, and the lower upwards near the extremity; it burſts finally along the upper ſuture.

Seeds ſeveral, roundiſh, ſmooth, fleſhy, pendulous, marked with the ſlightly prominent embryo, near the inſertion of the ſcar. In germination the cotyledons retain the form of the two halves of the ſeed, (but do not always riſe above ground.)

Receptacles of the ſeeds minute, very ſhort, taper at the baſe, attached to the ſeeds by an obtuſe oblong diſk, all inſerted along the upper ſuture only, but in an alternate order, ſo that when the valves are ſeparated they adhere alternately to each valve."

Such is the character of the diadelphous papilionaceous flowers, compoſing the third order of the 17th claſs in the Linnæan ſyſtem; ſee DIADELPHIA. There are however many papilionaceous genera which have flowers with ten ſeparate and diſtinct ſtamens, and which therefore range in the claſs DECANDRIA; ſee that article. Of the plants ſo circumſtanced Linnæus knew but few, chiefly his *Sophora*, *Anagyris* and *Cercis*; but recent diſcoveries, eſpecially in New Holland, have greatly added to the liſt; ſee DAVIESIA, DILLWYNIA, GOMPHOLOBIUM, MIRBELIA, PULTENÆA. Neither are the *ſtamens* of the diadelphous tribe uniformly conſtructed in the preciſe manner above deſcribed. Some few, like *Smithia*, have them in two equal ſets, five anthers to each; in others five of the anthers are occaſionally imperfect. The *corolla* itſelf is liable to exceptions. In *Amorpha* it conſiſts of a ſtandard only, the wings and keel being deficient; in ſome ſpecies of *Erythrina* the wings are ſcarcely diſcernible, however conſpicuous the other petals. In *Trifolium* the *corolla* is often really monopetalous, the ſtandard, wings, and keel, though retaining much of the form and aſpect proper to papilionaceous flowers, being all firmly united below into a tube. So in many genera of the *Diadelphia Decandria*, the two ſets of *ſtamens* are really united into one, by a tubular baſe; thus becoming properly monadelphous. Yet the reſt of their ſtructure is ſuch, as to evince their inſeparable affinity with the others, like which they are to all appearance perfectly diadelphous.

Linnæus thought too much ſtreſs had been laid upon the figure of the *legume*, in characterizing the genera of this tribe, and he recommends the *calyx* as leading to very ſolid diſtinctions. He has alſo recourſe to the *ſtigma*, which is certainly, in many caſes, a very important part. He recommends, in his Gen. Pl. 360, according to the uſual principles which juſtly guided him, that the foliage ſhould not be reſorted to for generic characters; yet in his Syſtema Vegetabilium he very commodiouſly indicates certain diſtinctions in the habit of the claſs *Diadelphia*, by which the genera differ from each other; ſome having twining ſtems, as *Phaſeolus*, *Dolichos*, *Clitoria* and *Glycine*; ſome abruptly pinnate leaves, as *Orobus*, *Piſum*, *Lathyrus*, *Vicia*, *Ervum*, *Arachis* and *Abrus*; while in others the leaves are pinnate with an odd leaflet, as *Biſerrula*, *Aſtragalus*, *Phaca*, *Hedyſarum*, *Glycyrrhiza*, *Indigofera*, *Galega*, *Colutea*, *Amorpha*, &c. and in a third tribe the leaves are ternate, as *Trifolium*, *Lotus*, *Medicago*, *Erythrina*, *Geniſta*, *Cytiſus*, *Ononis*, *Trigonella*, and moſt of the climbing genera. Yet ſome ſpecies of *Hedyſarum* have ſimple, others pinnate leaves, and ſeveral *Geniſtæ* have ſimple ones.

PAPILLÆ, in *Anatomy*, ſmall prominences on various organs of the body, particularly the ſkin and tongue. (See INTEGUMENTS and TONGUE.) The word papilla is alſo applied technically to the nipple of the breaſt.

PAPILLARIS, in *Botany*, a name uſed by ſome authors for the common *lampſana*, or nipple-wort.

PAPILLARY, PAPILLARIS, in *Anatomy*. See PAPILLÆ.

PAPILLARY *Proceſſes*, is a name which the ancients gave to the olfactory nerves, from the place of their origin, to the os cribroſum. See NERVOUS *Syſtem*.

PAPILLON, PHILIBERT, in *Biography*, an induſtrious man of letters, the ſon of an eminent advocate at Dijon, where he was born in 1666. He was brought up to the profeſſion of the law, but he afterwards embraced the eccleſiaſtical ſtate, and received prieſts' orders in 1694. Previouſly to this he had obtained a canonry of no great revenue, but ſufficient for his wants, ſince his great ambition was to be poſſeſſed of a good library, in order that he might devote himſelf to the cultivation of literature. His reſearches went chiefly to literary hiſtory, eſpecially that of his own province, and the works of ſeveral other writers were enriched by his collections. He ſupplied P. Le Long with memoirs inſerted in his "Bibliotheque des Hiſtoriens de France," and alſo with materials for his "Bibliotheque Sacrée." To M. P. Deſmolets he communicated a number of critical and biographical articles for the uſe of his "Mémoires d'Hiſtoire et de Literature;" and in Niceron's memoirs, the lives of Peter Abelard and James Amyot are by his hand. The principal work of the abbé Papillon was his "Bibliotheque des Auteurs de Bourgogne," which appeared after his death in two volumes folio. He died at Dijon in the year 1738. He was endeared to all his acquaintance by his modeſt, frank, and amiable diſpoſition. Moreri.

PAPILLOSUM FOLIUM, in *Botany*, is a leaf covered with ſoft ſucculent tubercles or granulations, of which the Ice Plant, *Meſembryanthemum cryſtallinum*, is a ſtriking example; ſee LEAF. *Papuloſum* is nearly equivalent, and is ſometimes uſed by Linnæus for the ſame thing, though he errs in ever making it ſynonymous with *verrucoſum*. The latter character conſiſts in hard cartilaginous warts, equally perceptible in the dried ſpecimen and in the living one; the former, depending on ſucculency, changes its appearance greatly by drying, yet is clearly diſcernible to an experienced eye, even in that ſtate, in the foliage of many ſpecies of *Meſem-*

Meſembryanthemum, on which it then forms minute orbicular depreſſions.

PAPIMOUAGON, in *Geography*, a lake of Canada, 70 miles N.N.E. of Quebec. N. lat. 50°. W. long. 69° 20′.

PAPIN, Denys, in *Biography*, an ingenious phyſician, the ſon of Nicholas Papin, alſo a phyſician, was born at Blois. He took the degree of doctor, and travelled to England, where he was elected a fellow of the Royal Society, in December 1680. He paſſed the following year in London, and publiſhed an account of a machine which he had invented, and which ſtill bears his name; this was "The New Digeſter, or Engine for the ſoftening of Bones," 4to. 1681. It ſoon appeared in French, with the title of "La Manière d'Amollir les Os, et de faire cuire toutes ſortes de Viandes en peu de tems et à peu de fraix." Paris 1682. The machine conſiſts of a very ſtrong metal boiler, with an air-tight cover ſcrewed down with great force; hence the contained matter, being incapable of eſcaping either by evaporation or by burſting the machine, may be heated to a degree far beyond that of boiling water, ſo as to diſſolve the gluten of bones and cartilages. He afterwards improved this digeſter, and it has ſince been much employed in chemical and philoſophical experiments. He aſſiſted Boyle in various experiments, of which an account is given in the hiſtory of the Royal Society. Papin was a Calviniſt, and was therefore prevented from returning home by the revocation of the edict of Nantes. He afterwards reſided at Marpurg, where he taught the mathematics, and publiſhed a "Faſciculus Diſſertationum de quibuſdam Machinis Phyſicis," 12mo. 1696; and in 1707, he publiſhed at Francfort an account of a machine which he had invented for raiſing water by the action of fire, entitled "Ars nova ad aquam ignis adminiculo efficaciſſimè elevandam."

His father, Nicholas Papin, was author of ſeveral works, which, however, are nearly forgotten. Two of them related to the powder of Sympathy, which he defended; and one to the diſcovery of Harvey, which he oppoſed. Eloy Dict. Hiſt. de la Med. Gen. Biog.

PAPINACHOIS, in *Geography*, a river of Canada, which runs into the Saguenay; N. lat. 48° 24′. W. long. 70° 50′.—Alſo, Indians of Canada, ſo named from the river. N. lat. 50° to 51°. W. long. 69° to 71°.

PAPINIANUS, in *Biography*, a celebrated Roman lawyer, who attained to the rank of pretorian prefect under the emperor Severus, in the year 194. His profound knowledge of the law, and his incorruptible integrity, gave him great influence during this reign, the rigours of which he ſoftened by his counſels as much as lay in his power. On his death-bed, Severus recommended his ſons Caracalla and Geta to the care and protection of this faithful ſervant; and he accordingly uſed all his efforts to preſerve that fraternal union between them, which ſoon appeared in danger of diſſolution. Caracalla deprived the prefect of his poſt, but did not baniſh him from his perſon, and when he had perpetrated the execrable murder of his brother, he earneſtly ſolicited him to compoſe a paper in juſtification of it, to which he replied, that it was eaſier to commit a murder than to defend, and that it was a ſecond murder to vilify the memory of the innocent. A man ſo honeſt was not likely to exiſt long, he was probably ſacrificed to the emperor's reſentment, in 212. Papinianus compoſed a great number of works, and formed ſeveral illuſtrious diſciples. His authority as a lawyer roſe beyond that of any of his predeceſſors; the emperor Valentinian III. made a decree, that in caſes in which the opinions of judges ſhould be divided, the preponderance ſhould be given to that which ſhould have the ſupport of Papinianus.

PAPIO, Papiones, in *Zoology*, the name of thoſe ſpecies of monkies which we call *baboons*; which ſee.

Theſe are all ſpecies of the *ſimia* in the Linnæan ſyſtem. See Simia.

PAPIRA, or Papyra, in *Ancient Geography*, a town of Aſia, in Galatia, upon the route from Paſſinuntum to Ancyra, between Vindia and Ancyra; according to the Itinerary of Antonine.

PAPIRE-MASSON, John, in *Biography*, an hiſtorian, was born, in 1544, at Saint-Germain-Laval, in Forez. He was brought up among the Jeſuits, and for ſome time taught in their ſeminaries in Italy and France. He afterwards quitted the ſociety, ſtudied the law at Angers, and was admitted an advocate in the parliament of Paris; it was on this occaſion he changed his family name of Maſſon into Papire-Maſſon. His works are "Annalium, lib. iv." relating to the hiſtory of France: "Notitia Epiſcoporum Galliæ:" "Vita Joannis Calvini:" "Elogia Virorum Illuſtrium:" "De Epiſcopis Urbis Romæ:" "Deſcriptio Fluminum Galliæ:" "Agobardi, Epiſcopi Lugdunenſis, Opera." All his works are ſaid to diſplay conſiderable learning and reſearch, but they are not ſo well eſteemed with regard to accuracy. He diſtinguiſhed himſelf by his learning and integrity, and obtained the poſt of ſubſtitute to the procureur-general. He died in 1611, much regretted by men of letters, of whom the principal were his particular friends. His life was compoſed by De Thou. Moreri.

PAPIRIA, in *Botany*, a name originally given by Thunberg, in the Lund Tranſactions, to the genus which he and all other botaniſts have ſubſequently called Gethyllis; ſee that article.

PAPIRIAN Code, a collection of imperial conſtitutions, &c. made by a private lawyer, whoſe name was Papirius. See Code.

PAPIRIUS Cursor, the elder, in *Biography*, an eminent Roman commander, was maſter of the horſe to Papirius Craſſus, when dictator, in the year 339 B. C. He was conſul for the firſt time in the year 333 B. C., and was nominated dictator in the war with the Samnites B. C. 324. Having appointed Quintus Fabius Rullianus to be his maſter of the horſe, he marched againſt the enemy, ſtrictly enjoining Fabius not to engage during his abſence. A favourable opportunity, however, occurred, and his maſter of the horſe diſobeyed the injunction, and gave the Samnites a total defeat, for which breach of diſcipline he was condemned to death by the dictator, but the ſentence was not executed. Papirius, during the remainder of the campaign, applied himſelf to the recovering of the affections of his ſoldiers, which had been alienated by his ſeverity, and then he attacked the enemy, who were reduced to ſue for peace. He was choſen conſul a ſecond time in the year 320: and again a third time in the following year, when he reduced Satricum, which had revolted, and put all the Samnite garriſon to the ſword. For his exploits in this and the preceding campaign, triumphal honours were decreed him. In the conſulate of Fabius Rullianus and Marcius Rutillus, B. C. 310, the latter having ſuſtained great loſs in an engagement with the Samnites, it was determined again to raiſe Papirius to the dictatorſhip, as the commander moſt to be relied on in the public danger. A decree was accordingly paſſed, enjoining Fabius to nominate Papirius to that high office. He was again ſucceſsful, and received a third triumph. This was probably his laſt public ſervice, as his name occurs no more in hiſtory. He ſurpaſſed all his contemporaries in military talents. In perſon he was tall and majeſtic, of great bodily ſtrength and vigour, and ſo ſwift of ſoot, that he obtained the ſurname from that circumſtance. He kept his troops, as well as himſelf, in conſtant exerciſe, and maintained ſtrict diſcipline. Univer. Hiſt. Livy.

Papirius Cursor, the younger, ſon of the preceding, was created conſul B. C. 293, in conjunction with Spurius Carvilius. In his conteſts with the Samnites he was very ſucceſsful, and gave a proof of ſuperiority to that ſuperſtition which was ſo prevalent among the early Romans. Being informed, as he was about to advance to battle, that the keeper of the ſacred chickens had ſalſely given a favourable report of the augury derived from their eating, and that in fact the preſage was inauſpicious; he replied, that he ſhould underſtand the report as it was given, and that if the keeper had deceived him, the vengeance of the gods would fall on him alone. He therefore placed the man in the front of the battle, where he was killed by an unknown hand before the armies came to a cloſe engagement. The battle terminated in favour of the Romans: the Samnites were not only totally defeated, but loſt their camp. For this and ſome ſubſequent ſucceſs he obtained a triumph at the end of the campaign. Papirius, in his ſecond conſulate with the ſame colleague, was equally ſucceſsful againſt the ſame people, which put an end to a war that had laſted for ſeventy-two years. The conſuls next ſubdued the Lucanians and Bruttians, and proceeding to Tarentum, inveſted that city which had been the firſt to invite Pyrrhus into Italy. Papirius, by the offer of favourable terms, gained poſſeſſion of the citadel, and the town ſoon ſurrendered, and became tributary. From this period nothing more occurs relating to this valiant commander. Univer. Hiſt.

Papirius, in *Botany*, ſee Papyrius; alſo the miſprinted name Brousonnetra.

PAPIST. Under this head, we ſhall preſent the reader, I. *With an account of the difference between Papiſts, reputed Papiſts, Popiſh Recuſants, and Popiſh Recuſants Convict*, in the legal acceptation of thoſe words. II. *With a ſhort view of the tenets of the Roman Catholic religion*, as diſtinguiſhable, 1ſt, into thoſe which they conſider as articles of their faith; 2dly, thoſe which regulate their diſcipline; and, 3dly, the opinions of their private divines. III. *The laws enacted againſt them*, 1ſt, for the exerciſe of their own religious worſhip; 2dly, for not conforming to the religious worſhip of the ſtate; 3dly, for their refuſal to take the oath of ſupremacy; 4thly, for their refuſal to take the ſacrament of our Lord's ſupper; 5thly, for their refuſal to take the declaration againſt tranſubſtantiation; 6thly, for their refuſal to take the declaration againſt popery; and, 7thly, the laws which affect their landed property. IV. The partial repeal of thoſe acts, 1ſt, by act of the 18th; and, 2dly, by the act of the 31ſt of his preſent majeſty. And, V. We ſhall cloſe the article by a ſhort mention of the penal laws, the effect of which is felt by the Roman Catholics, but the effect of which is not felt by the Proteſtant diſſenters.

I. The word *Papiſt* came into uſe ſoon after the Reformation. From that time, the word "Proteſtant" was uſed to denote all deſcriptions of Chriſtians, who were not in communion with the church of Rome; and the word "Papiſt" was uſed to denote that deſcription of Chriſtians, which remained in communion with her. It is to be obſerved, that, before the laws paſſed in the preſent reign, to repeal the principal penal laws in force againſt the Roman Catholics, the word "Papiſt" had a very extenſive ſignification. In the language of the law, Papiſts are divided into five claſſes: *the mere Papiſt* was a perſon who had done thoſe acts, which amounted to legal evidence of Papiſtry; *the reputed Papiſt* was a perſon generally conſidered to have done ſuch acts; *the Popiſh recuſant* was a Papiſt, who abſented himſelf from the Proteſtant church; *the Popiſh recuſant convict* was a Papiſt legally convicted of ſuch abſence. Several ſtatutes inflicted the penalties, legally incident to Popiſh recuſancy, on the commiſſion of certain acts, and the omiſſion of others, into which the religious principles of Roman Catholics frequently led them; and thus conſtituted an *indirect recuſancy*, the fifth and laſt ſpecies of Papiſtry, if it can be juſtly called by that name. But "Papiſt" was the general appellation given to the particular denomination of Chriſtians, who are the ſubject of the preſent article. It was always conſidered by them to be a term of reproach, and they affected the appellation of Roman Catholics. In the oath, which paſſed in the year 1791, for the relief of the Roman Catholics, the perſon who takes it is made to ſay, "I, A. B., do hereby declare, that I do profeſs the Roman Catholic religion." Since the paſſing of that act, the name of Roman Catholic has been generally given them, and it now ſeems to be their proper legal appellation.

II. We ſhall now preſent the reader with a ſhort view of the *tenets of the Roman Catholic religion*. They are diſtinguiſhable into, 1ſt, thoſe which Roman Catholics conſider to be the articles of their faith; 2dly, thoſe which regulate their general diſcipline; and, 3dly, the opinions of their private divines.

All of them are thus ſtated and explained by the Rev. Joſeph Berrington, a Roman Catholic prieſt, in his "State and Behaviour of the Engliſh Catholics, from the Reformation to the year 1780."

II. 1. "The following rule," ſays this intelligent writer, "is the grand criterion by which each article of our faith may be diſtinctly aſcertained.

"This rule is:—All that, and only that, belong to Catholic belief, which is revealed in the word of God, and which is propoſed by the Catholic church to all its members, to be believed with divine faith.

"Guided by this certain criterion, we profeſs to believe,

1. "That Chriſt has eſtabliſhed a church upon earth; and that this church is that which holds communion with the ſee of Rome, being one, holy, Catholic, and apoſtolical.

2. "That we are obliged to hear this church; and therefore, that ſhe is infallible, by the guidance of Almighty God, in her deciſions regarding faith.

3. "That St. Peter, by divine commiſſion, was appointed the head of this church, under Chriſt its founder; and that the pope or biſhop of Rome, as ſucceſſor to St. Peter, has always been, and is at preſent, by divine right, head of this church.

4. "That the canon of the Old and New Teſtament, as propoſed to us by this church, is the word of God; as alſo ſuch traditions, belonging to faith and morals, which, being originally delivered by Chriſt to his apoſtles, have been preſerved, by conſtant ſucceſſion, in the Catholic church.

5. "That honour and veneration are due to the angels of God, and his ſaints; that they offer up prayers to God for us; that it is good and profitable to have recourſe to their interceſſion; and that the relics or earthly remains of God's particular ſervants are to be held in reſpect.

6. "That no ſins ever were, or can be remitted, unleſs by the mercy of God, through Jeſus Chriſt; and, therefore, that man's juſtification is the work of divine grace.

7. "That the good works which we do, receive their

whole value from the grace of God; and that by ſuch works we not only comply with the precepts of the divine law, but that we thereby likewiſe merit eternal life.

8. "That by works done in the ſpirit of penance, we can make ſatisfaction to God for the temporal puniſhment, which often remains due, after our ſins, by the divine goodneſs, have been forgiven us.

9. "That Chriſt has left to his church power of granting indulgencies; that is, a relaxation from ſuch temporal chaſtiſements only, as remain due after the divine pardon of ſin; and that the uſe of ſuch indulgencies is profitable to ſinners.

10. "That there is a Purgatory, or middle ſtate; and that the ſouls of imperfect Chriſtians, therein detained, are helped by the prayers of the faithful.

11. "That there are ſeven ſacraments, all inſtituted by Chriſt: baptiſm. confirmation, euchariſt, penance, extreme unction, holy orders, matrimony.

12. "That in the moſt holy ſacrament of the euchariſt, there is truly, really, and ſubſtantially, the body and blood, together with the ſoul and the divinity of our Lord Jeſus Chriſt.

13. "That in this ſacrament there is, by the omnipotence of God, a converſion or change of the whole ſubſtance of the bread into the body of Chriſt, and of the whole ſubſtance of the wine into his blood: which change we call tranſubſtantiation.

14. "That, under either kind, Chriſt is received whole and entire.

15. "That in the maſs or ſacrifice of the altar is offered to God a true, proper, and propitiatory ſacrifice for the living and the dead.

16. "That by the ſacrament of penance, the ſins we fall into, after baptiſm, are by the divine mercy forgiven us.

"Theſe are the great points of Catholic belief, by which we are diſtinguiſhed from other Chriſtian ſocieties; and theſe only are the real and eſſential tenets of our religion. We admit alſo of the other grand articles of revealed and natural religion, which the goſpel and the light of reaſon have maniſeſted to us. To theſe we ſubmit, as men and as Chriſtians; and to the former, as obedient children of the Catholic church.

II. 2. "There are *points of diſcipline* alſo, which regulate conduct, and to which we pay obedience; as faſting on particular days, communion in one kind, celibacy of churchmen, uſe of the Latin language in public ſervice, and other ſimilar practices. But as theſe vary, and may be either altered or ſuppreſſed by due authority, they belong not to what is properly ſtyled the faith of Catholics.

III. 3. "*Opinions* alſo, whether regarding belief or practice, of particular ſchools, or of particular divines, conſtitute a diſtinct and ſeparate object. Great latitude in the forming ſuch opinions is allowed, and conſequently it will be often abuſed. It has been in the power of ſome men to give an undue weight to ſuch opinions, whereby Catholics themſelves have been too often impoſed on.

"They have ignorantly confounded the inventions of fallible men with the unerring declarations of heaven. Of this circumſtance our enemies have many times taken an unfair advantage, and the faith of Catholics has ſuffered from the falſe repreſentation. Some opinions may deſerve reſpect, but others ſhould be deſpiſed and reprobated.

"And it ſhould be noticed, that moſt of the charges brought againſt us are founded on this falſe ſuppoſition, that the opinions of private men, or of whole ſocieties, are as much a part of our real creed, as the articles I have mentioned. When all this extraneous matter, whether of diſcipline or of opinion, is brought to a proper teſt, by the rule of faith I ſo much inſiſt on, it will ſoon appear in what light it is to be conſidered. Were I to reject every opinion, hitherto diſcovered, and ſolely adhere to the articles of doctrine as above ſtated, I ſhould be a Catholic in the ſtrict and accurate acceptation of the word. Divines might cenſure me, caſuiſts might defame me, and the pope might deny me the name of Papiſt; but my faith would ſtill be pure, unimpaired, and Catholic."

Thus far Mr. Berrington.—We truſt that the paſſage which we have cited from his work, gives a correct view of the religious creed and opinions of the Roman Catholics. Thoſe, who wiſh to be more fully acquainted with them, ſhould peruſe Boſſuet's "Expoſition of the Catholic Faith," and the Rev. Mr. Gother's "Papiſt miſrepreſented and repreſented on a twofold Character of Popery." The laſt work was firſt publiſhed in 1685: it is become ſcarce; but an abridgment of it, now in its 17th edition, is very common, and is generally referred to by Roman Catholics, as an excellent epitome of their religious tenets, and a complete expoſure of the miſrepreſentations of them.

III. The hiſtory of the Engliſh Catholics, as a diſtinct body of Diſſenters, begins with the reign of Elizabeth. In the courſe of her reign many oppreſſive, and even ſanguinary laws were enacted againſt them. The juſtice and policy of thoſe laws ſcarcely find at this time a ſingle advocate. But when they were enacted they found their defenders; and none among them, none more able than lord treaſurer Burleigh, who publiſhed, or rather cauſed to be publiſhed, in their defence, a book entitled "The Execution of Juſtice," in which he attempted to ſhew, that the Catholic prieſts, executed in the reign of queen Elizabeth, were not executed for their religion, but for treaſonable practices. In anſwer to it cardinal Allen publiſhed his true modeſt "Defence of the Engliſh Catholics." The ſubject was revived in our times by Dr. Sturges' "Reflections on Popery." To thoſe, Dr. Milner oppoſed his "Letters to a Prebendary;" one of the moſt ſucceſsful works that has appeared in defence of the Roman Catholics. A diſcuſſion of this controverſy would be miſplaced in a work like the preſent. We ſhall only mention that, by a ſucceſſion of legiſlative enactments during the reigns of queen Elizabeth, of the three firſt Stuart monarchs, and of the three monarchs who filled the throne from the abdication of king James II. to the acceſſion of king George II. the Catholics were ſubjected to the heavieſt pains, penalties, and diſabilities. The laws by which they were inflicted may be reduced under five heads.

III. 1. The firſt are thoſe which ſubjected them to penalties and puniſhments for exerciſing their religious worſhip; under which head may be ranked the laws reſpecting their education, and the miniſters of their church. By theſe laws, if an Engliſh prieſt of the church of Rome, born in the dominions of the crown of England, came to England from beyond the ſeas, or tarried in England three days without conforming to the church, he was guilty of high treaſon; and thoſe incurred the guilt of high treaſon, who were reconciled to the ſee of Rome, or procured others to be reconciled to it. By theſe laws alſo, Papiſts were totally diſabled from giving their children any education in their own religion; for if they educated their children at home; then, for maintaining the ſchool-maſter, if he did not repair to church, or was not allowed by the biſhop of the dioceſe, they were liable to forfeit 10*l.* a-month, and the ſchool-maſter was liable to forfeit 40*s.* a-day. And if they ſent their children for education to any ſchool of their perſuaſion abroad, they were liable to forfeit 100*l.* and the children, ſo ſent, were diſabled from inheriting, purchaſing, or enjoying any lands, profits, goods, debts, duties, legacies or ſums of money. Saying maſs was puniſhable by a forfeiture of 200 marks: hearing it by a forfeiture of 100. See 1 Eliz. c. 2. 23 Eliz. c. 1. 27 Eliz. c. 2. 29 Eliz. c. 6. 35 Eliz. c. 2. 2 Jac. I. c. 4. 3 Jac. I. c. 4, 5. 7 Jac. I. c. 6. 3 Car. I. c. 2. 25 Car. II. c. 2. 7 & 8 W. 3. c. 27. 1 Geo. I. c. 13.

III. 2. Under the ſecond head, were thoſe laws which puniſhed the Engliſh communicants with the church of Rome, for not conforming to the eſtabliſhed church. Theſe are generally called the Statutes of Recuſancy. It ſhould be obſerved, that abſence from church alone, and unaccompanied by any other act, conſtituted recuſancy, in the true ſenſe of that word. Till the ſtatute of 35 Eliz. c. 2, all nonconformiſts were conſidered as recuſants, and were all equally ſubject to the penalties of recuſancy. That ſtatute was the firſt penal ſtatute made againſt Popiſh recuſants by that name, and as diſtinguiſhed from other recuſants. From that ſtatute aroſe the diſtinction between Proteſtant and Popiſh recuſants; the former were ſubject to ſuch ſtatutes of recuſancy as preceded that of the 35th of queen Elizabeth, and to ſome ſtatutes againſt recuſancy made ſubſequently to that time; but they were relieved from them all by the Act of Toleration in the firſt year of king William's reign. From 35 Eliz. c. 2, aroſe alſo the diſtinction between Papiſts, and perſons profeſſing the Popiſh religion, and Popiſh recuſants, and Popiſh recuſants convict.

By the ſtatutes againſt Popiſh recuſants convict, they were puniſhable by the cenſures of the church, and by a fine of 20*l.* for every month, during which they abſented themſelves from church; they were diſabled from keeping arms in their houſes; from maintaining actions, or ſuits at law, or in equity; from being executors or guardians; from preſenting to advowſons; from practiſing in the law, or phyſic; and from holding offices, civil or military; they were ſubject to the penalties attending excommunication; were not permitted to travel five miles from home, unleſs by licence, upon pain of forfeiting all their goods; and might not come to court under pain of 100*l.* A married woman, when convicted of recuſancy, was liable to forfeit two-thirds of her dower or jointure: ſhe could not be executrix or adminiſtratrix to her huſband, or have any part of his goods, and during her marriage ſhe might be kept in priſon, unleſs her huſband redeemed her at the rate of 10*l.* a-month, or the third part of his lands. Popiſh recuſants convict were, within three months after conviction, either to ſubmit and renounce their religious opinions, or, if required by four juſtices, to abjure the realm; and, if they did not depart, or if they returned without a licence, they were guilty of felony, and were to ſuffer death as felons. See the ſtatutes referred to under the former head.

III. 3. As to the penalties or diſabilities attending *the refuſal of Roman Catholics to take the oath of ſupremacy, the declaration againſt tranſubſtantiation, and the declaration* againſt Popery; it muſt be premiſed, that the Roman Catholics make no objection to take the oath of allegiance (1 Geo. II. c. 13.), or the oath of abjuration (6 Geo. III. c. 53.) With reſpect to the oath of ſupremacy, by 1 Eliz. c. 1, the perſons therein mentioned were made compellable to take the oath of ſupremacy, contained in that act. By the third of king James I. c. 4, another oath was preſcribed to be taken, commonly called the "Oath of Allegiance and Obedience." Theſe oaths were abrogated by the firſt of king William and queen Mary ſeſſ. 1. c. 8, and a new oath of allegiance, and a new oath of ſupremacy, were introduced and required to be taken in their ſtead. The ſtatute made in the ſecond ſeſſion of the firſt year of king George I. c. 13. contains an oath of ſupremacy, in the ſame words as the oath of ſupremacy, required to be taken by the firſt of king William and queen Mary. By that oath perſons are made to ſwear, "That no foreign prince, perſon, prelate, ſtate, or potentate, hath, or ought to have, any juriſdiction, power, ſupremacy, pre-eminence or authority, eccleſiaſtical or ſpiritual, within the realm." It was required to be taken by the perſons therein named; it might be tendered to any perſon, by any two juſtices of the peace, and perſons refuſing the oath ſo tendered, were adjudged to be Popiſh recuſants convict, and to forfeit and be proceeded againſt, as ſuch. This was the conſtructive recuſancy referred to above. It was not the offence itſelf of recuſancy, which, as we have already obſerved, conſiſted merely in the party's abſenting himſelf from church; it was the offence of not taking the oath of ſupremacy, and the other oaths preſcribed by the act of 1 Geo. I. the refuſal of which was, by that ſtatute, placed on the ſame footing as a legal conviction on the ſtatutes of recuſancy, and ſubjected the party refuſing to the penalties of thoſe ſtatutes. This was the moſt ſevere of all the laws againſt Papiſts.

The puniſhment of recuſancy was penal in the extreme; and the perſons objecting to the oath in queſtion, might be ſubjected to all the penalties of recuſancy, merely by their refuſing the oath when tendered to them. It added to the penal nature of theſe laws, that the oath in queſtion might be tendered at the mere will of two juſtices of peace, without any previous information or complaint before a magiſtrate or any other perſon. Thus, by refuſing to take the oath of ſupremacy, when tendered to them, they became liable to all the penalties of recuſancy; and the ſame refuſal, by 7 & 8 W. III. c. 4. and 1 Geo. I. ſt. 2. c. 13, reſtrained them from practiſing the law as advocates, barriſters, ſolicitors, attornies, notaries, or proctors, and from voting at elections.

III. 4. With reſpect to *receiving the ſacrament of our Lord's ſupper*; by 13 Car. II. (commonly called the Corporation Act,) no perſon can be legally elected to any office relating to the government of any city or corporation, unleſs, within a twelvemonth before, he has received the ſacrament of the Lord's ſupper according to the rites of the church of England; and he is alſo enjoined to take the oaths of allegiance and ſupremacy, at the ſame time that he takes the oath of office, or in default of either of theſe requiſites ſuch election ſhall be void.

III. 5. As to the *declaration againſt tranſubſtantiation*, by 25 Car. II. c. 2. (commonly called the Teſt Act,) all officers, civil or military, are directed to take the oath, and make the declaration againſt tranſubſtantiation, in the court of King's Bench or Chancery, the next term or at the next quarter ſeſſions, or, (by ſubſequent ſtatutes,) within ſix months after their admiſſion; and alſo, within the ſame time, to receive the ſacrament of the Lord's ſupper, according to the uſage of the church of England, in ſome public church immediately after divine ſervice and ſermon; and to deliver into court a certificate thereof, ſigned by the miniſter and churchwardens, and alſo to prove the ſame by two credible witneſſes, upon forfeiture of 500*l.* and diſability to hold the office.

III. 6. With reſpect to the *declaration againſt Popery;* the act paſſed in the 30th year of Car. II. ſtat. 2. c. 1. contains the declaration, and preſcribes it to be made by members of either houſe of parliament, before they take their ſeats; by it they declare their diſbelief of the doctrine of tranſubſtantiation; and their belief that the invocation of ſaints and the ſacrifice of the maſs are idolatrous.

III. 7. With reſpect to the *laws affecting their landed property*. How this was affected by the laws againſt recuſancy has been already mentioned. By the 11 & 12 W. III. c. 4. it was enacted that a perſon educated in the Popiſh religion, or profeſſing the ſame, who did not, in ſix months after the age of ſixteen, take the oaths of allegiance and ſupremacy, and ſubſcribe the declaration of 30 Car. II., ſhould, in reſpect of himſelf only, and not of his heirs, or poſterity, be diſabled to inherit or take lands by deſcent, deviſe, or limitation, in poſſeſſion, reverſion, or remainder: and that during his life, till he took the oaths, and ſubſcribed the declaration againſt popery, his next of kin, who was a Proteſtant, ſhould enjoy the lands without accounting for the profits, and ſhould be incapable of purchaſing; and that all eſtates, terms, intereſts, or profits, out of lands, made, done, or ſuffered, to his uſe, or in truſt for him, ſhould be void. By 3 Jac. I. c. 5. 1 W. & M. c. 26. 12 Anne ſtat. 2. c. 14. 11 Geo. II. c. 17. Papiſts, or perſons profeſſing the Popiſh religion, were diſabled from preſenting to advowſons, and other eccleſiaſtical benefices, and to hoſpitals and other charitable eſtabliſhments. By annual acts of the legiſlature, Papiſts, being of the age of eighteen years, and not having taken the oaths of allegiance and ſupremacy, were ſubjected to the burthen of the double land tax.

By a ſtatute made in the ſecond ſeſſion of the firſt year of Geo. I. c. 55, they were required to regiſter their names and eſtates in the manner and under the penalties therein mentioned; and by 3 Geo. I. c. 18. continued by ſeveral ſubſequent ſtatutes, an obligation of enrolling their deeds and wills was impoſed on them. Such were the principal penal laws againſt Roman Catholics, "immenſus aliarum ſuper alias acervatarum legum cumulus," (Liv. 3. 34.), at the time of the acceſſion of the houſe of Brunſwick.

IV. To the enlightened and humane temper of the times during the reign of his preſent majeſty, his Roman Catholic ſubjects are wholly indebted for any repeal of this large and grievous code. *Two acts have been already paſſed for their relief.*

IV. 1. *The firſt of thoſe acts was paſſed in the 18th year of his majeſty's reign.* It enacted, that ſo much of the 11 & 12 W. III. as related to the proſecution of Popiſh prieſts and Jeſuits, and impriſoning Papiſts who keep ſchools, or to diſable Papiſts from taking by deſcent or purchaſe, ſhould be repealed as to all Papiſts, or perſons profeſſing the Popiſh religion, who, within ſix months after the paſſing of the act, or their coming of age, ſhould take the oath preſcribed by the act.

This act was an eſſential benefit to Roman Catholics; but its beſt effect in their regard, was its operation on the public mind, by leſſening the prejudices generally entertained againſt them, and bringing them and their fellow-ſubjects into habits of ſocial intercourſe and amity, which the penal code had too much interrupted. It can only be conceived by thoſe who witneſſed it, what a ſudden and extenſive effect, in this regard, was produced by this ſingle act of parliament.

IV. 2. A more extenſive relief from the penal laws was granted to the Engliſh Roman Catholics by an act of the 31ſt year of the reign of his preſent majeſty. The extent and the conditions of this relief will be ſtated under the article TOLERATION.

V. It remains to give ſome account of the penal laws, the effect of which is felt by Roman Catholics, but the effect of which is not felt by Proteſtant diſſenters.

V. 1. It has been already ſhewn, how the law ſtands on the Corporation and Teſt Acts. The ſtatute of the 1ſt William and Mary, (commonly called the Toleration Act), exempts all Diſſenters, except Papiſts, and ſuch as deny the Trinity, (with regard to whom an alteration has lately taken place, ſee TRINITY,) from all penal laws relating to religion, provided they take the oaths of allegiance and ſupremacy, and ſubſcribe the declaration againſt popery, and repair to ſome congregation regiſtered in the biſhop's court or at the ſeſſions. But there is nothing in this act which diſpenſes, either with the Teſt Act or the Corporation Act, ſo far as they impoſe the obligation of receiving the Lord's ſupper on perſons ſerving in offices, or elected to ſerve in corporations. With reſpect, therefore, to the Teſt Act and the Corporation Act, theſe are the only acts which ſubject the Proteſtant diſſenters to any penalties or diſabilities. To theſe the Roman Catholics are ſubject, equally with the Proteſtant diſſenters. There is, therefore, no penalty or diſability that affects the Proteſtant diſſenters, to which Roman Catholics are not ſubject equally; but there ſtill remain ſeveral penal laws, the effect of which is moſt ſeverely felt by Roman Catholics, but the effect of which is not, in any manner, felt by Proteſtant diſſenters.

V. 2. The firſt of theſe is the 30th Car. II. ſtat. 2. c. 1. which provides that no perſon ſhould ſit or vote in the houſe of peers, or be a member of, or ſit or vote in the houſe of commons, till he has taken the oaths of allegiance and ſupremacy, and made and ſigned the declaration againſt popery.

V. 3. By the 7th and 8th of W. III. c. 27, thoſe, who refuſe to take the oath of ſupremacy, tendered to them at the requiſition of a candidate, are diſabled from voting at elections.

V. 4. By ſeveral ſtatutes, Roman Catholics are diſabled from preſenting to advowſons. This diſability is peculiar to them; Quakers, and even Jews, having the full enjoyment of the right of preſentation.

V. 5. Laſtly, Roman Catholics alone feel the penal operation of 1 Geo. I. ſtat. 2. c. 13, which requires all perſons, bearing offices, civil or military, or holding command or place of truſt, or receiving pay or wages, by reaſon of any patent or grant from his majeſty, to take the oath of ſupremacy under the penalty of 500*l.* and under other penalties.

Such are the penal laws under which the Roman Catholics of England ſtill labour. They have preſented petitions to both houſes of parliament for their repeal, and we wiſh them ſucceſs: but we ſtill more anxiouſly wiſh for that time, when the imperial parliament of the united empire will ſee the injuſtice and impolicy of every reſtriction on religious opinion, and at once aboliſh the whole religious penal code.

The Declaration and Proteſtation ſigned by the Engliſh Catholics in 1789.

We, whoſe Names are hereunto ſubſcribed, CATHOLICS *of* ENGLAND, *do freely, voluntarily, and of our own accord, make the following ſolemn* DECLARATION *and* PROTESTATION.

Whereas ſentiments unfavourable to *us*, as citizens and ſubjects, have been entertained by Engliſh Proteſtants, on account of principles which are aſſerted to be maintained by *us* and other Catholics, and which principles are dangerous to ſociety, and totally repugnant to political and civil liberty; — it is a duty that *we*, the Engliſh Catholics, owe to our country as well as to ourſelves, to proteſt, in a formal and ſolemn manner, againſt doctrines that *we* condemn, and that conſtitute no part whatever of our principles, religion, or belief.

We are the more anxious to free ourſelves from ſuch imputations, becauſe divers Proteſtants, who profeſs themſelves to be real friends to liberty of conſcience, have, nevertheleſs, avowed themſelves hoſtile to *us*, on account of certain opinions which *we* are ſuppoſed to hold. And we do not blame theſe Proteſtants for their hoſtility, if it proceeds (as we hope it does) not from an intolerant ſpirit in matters of religion, but from their being miſinformed as to matters of fact.

If it were true, that *we*, the Engliſh Catholics, had adopted the maxims that are erroneouſly imputed to us, we acknowledge that *we* ſhould merit the reproach of being dangerous enemies to the ſtate; but, *we* deteſt thoſe unchriſtianlike and execrable maxims: and *we* ſeverally claim, in common with men of all other religions, as a matter of natural juſtice, that *we*, the Engliſh Catholics, ought not to ſuffer for or on account of any wicked or erroneous doctrines that may be held by any other Catholics, which doctrines *we* publicly diſclaim, any more than Britiſh Proteſtants ought to be rendered reſponſible for any dangerous doctrines that may be held by any other Proteſtants, which doctrines they, the Britiſh Proteſtants, diſavow.

Firſt, We have been accuſed of holding, as a principle of our religion, that princes excommunicated by the pope and council, or by authority of the ſee of Rome, may be depoſed or murdered by their ſubjects, or other perſons.

But, ſo far is the above mentioned unchriſtian-like and abominable poſition from being a principle that we hold, that *we* reject, abhor, and deteſt it, and every part thereof, as execrable and impious: and *we* do ſolemnly declare, that neither the pope, either with or without a general council, nor any prelate, nor any prieſt, nor any aſſembly of prelates or prieſts, nor any eccleſiaſtical power whatever, can abſolve the ſubjects of this realm, or any of them, from their allegiance to his majeſty king George the Third, who is, by authority of parliament, the lawful king of this realm, and of all the dominions thereunto belonging.

Second, We have alſo been accuſed of holding, as a principle of our religion, that implicit obedience is due from us to the orders and decrees of popes and general councils; and that therefore if the pope, or any general council, ſhould, for the good of the church, command us to take up arms againſt government, or by any means to ſubvert the laws and liberties of this country, or to exterminate perſons of a different perſuaſion from us, *we* (it is aſſerted by our accuſers) hold ourſelves bound to obey ſuch orders or decrees, on pain of eternal fire:

Whereas, *we* poſitively deny that *we* owe any ſuch obedience to the pope and general council, or to either of them; and *we* believe that no act that is in itſelf immoral or diſhoneſt can ever be juſtified by or under colour that it is done either for the good of the church, or in obedience to any eccleſiaſtical power whatever. *We* acknowledge no infallibility in the pope; and *we* neither apprehend nor believe that our diſobedience to any ſuch orders or decrees (ſhould any ſuch be given or made) could ſubject us to any puniſhment whatever. And *we* hold and inſiſt, that the Catholic church has no power that can, directly or indirectly, prejudice the rights of Proteſtants, inaſmuch as it is ſtrictly confined to the refuſing to them a participation in her ſacraments and other religious privileges of her communion, which no church (as we conceive) can be expected to give to thoſe out of her pale, and which no perſon out of her pale will, we ſuppoſe, ever require.

And *we* do ſolemnly declare, that no church, nor any prelate, nor any prieſt, nor any aſſembly of prelates or prieſts, nor any eccleſiaſtical power whatever, hath, have, or ought to have, any juriſdiction or authority whatſoever within this realm, that can, directly or indirectly, affect or interfere with the independence, ſovereignty, laws, conſtitution, or government thereof; or the rights, liberties, perſons, or properties of the people of the ſaid realm, or of any of them, ſave only and except by the authority of parliament; and that any ſuch aſſumption of power would be an uſurpation.

Third, We have likewiſe been accuſed of holding, as a principle of our religion, that the pope, by virtue of his ſpiritual power, can diſpenſe with the obligations of any compact or oath taken or entered into by a Catholic: that therefore no oath of allegiance, or other oath, can bind *us*; and, conſequently, that *we* can give no ſecurity for our allegiance to any government.

There can be no doubt but that this concluſion would be juſt, if the original propoſition upon which it is founded were true; but, *we* poſitively deny that *we* do hold any ſuch principle. And *we* do ſolemnly declare, that neither the pope, nor any prelate, nor any prieſt, nor any aſſembly of prelates or prieſts, nor any eccleſiaſtical power whatever, can abſolve *us*, or any of *us*, from, or diſpenſe with, the obligations of any compact or oath whatſoever.

Fourth, We have alſo been accuſed of holding, as a principle of our religion, that not only the pope, but even a Catholic prieſt, has power to pardon the ſins of Catholics at his will and pleaſure; and therefore, that no Catholic can poſſibly give any ſecurity for his allegiance to any government, inaſmuch as the pope, or a prieſt, can pardon perjury, rebellion, and high treaſon.

We acknowledge alſo the juſtneſs of this concluſion, if the propoſition upon which it is founded were not totally falſe. But, *we* do ſolemnly declare, that, on the contrary, *we* believe that no ſin whatever can be forgiven at the will of any pope, or of any prieſt, or of any perſon whomſoever; but that a ſincere ſorrow for paſt ſin, a firm reſolution to avoid future guilt, and every poſſible atonement to God and the injured neighbour, are the previous and indiſpenſable requiſites to eſtabliſh a well-founded expectation of forgiveneſs.

Fifth, And *we* have alſo been accuſed of holding, as a principle of our religion, that ‘no faith is to be kept with heretics;’ ſo that no government which is not Catholic can have any ſecurity from *us* for our allegiance and peaceable behaviour.

This doctrine, that ‘faith is not to be kept with heretics,’ *we* reject, reprobate, and abhor, as being contrary to religion, morality, and common honeſty: — and *we* do hold and ſolemnly declare, that no breach of faith with any perſon whomſoever can ever be juſtified by reaſon of or under pretence that ſuch perſon is an heretic or an infidel.

And *we* further ſolemnly declare, that *we* do make this Declaration and Proteſtation, and every part thereof, in the plain and ordinary ſenſe of the words of the ſame, without any evaſion, equivocation, or mental reſervation whatſoever.

And we appeal to the juſtice and candour of our fellow citizens, whether *we*, the Engliſh Catholics, who thus ſolemnly diſclaim, and from our hearts abhor, the above mentioned abominable and unchriſtian-like principles, ought to be put on a level with any other men who may hold and profeſs thoſe principles?

The above Declaration and Proteſtation was ſigned by one thouſand ſeven hundred and forty perſons; including ſeveral peers, and two hundred and forty-one clergymen of the Catholic religion.

PAPIUCHI, in *Geography*, a town of Mexico, in the province of Mayo; 150 miles N. of Santa Cruz.

PAPLAH, a town of Aſia, and capital of a ſmall country, dependent upon Thibet; governed by a rajah; 90 miles N. of Fyzabad. N. lat. 28° 10'. E. long. 82° 53'.

PAPOUL, St., a town of France, in the department of the Aude, before the revolution the ſee of a biſhop; four miles E. of Caſtelnaudary. N. lat. 43° 20'. E. long. 2° 7'.

PAPOZZE', a town of Italy, in the department of the Lower Po; 22 miles N.E. of Ferrara.

PAPPAW, a town of Pruſſia, in the palatinate of Culm; 10 miles S.E. of Culm.

PAPPENBURG, a ſea-port town of Eaſt Frieſland, on a canal which communicates with the Ems. Although it has been lately erected, it contains 19 yards for ſhip-building, 2 churches, 400 houſes, and 3000 inhabitants. To this port belong 160 veſſels, the largeſt of which carry 160 laſts, with about 100 ſmall craft; 20 miles S. of Emden. N. lat. 53°. E. long. 7° 28'.

PAPPENHEIM, a town of Bavaria, and capital of a county, in the biſhopric of Aichſtatt, on the Altmuhl. The eſtabliſhed and univerſal religion is Lutheraniſm; 12 miles N.W. of Aichſtatt.

PAPPON, John Peter, in *Biography*, was born in the year 1736, at Pujef, near Nice. He entered while he was young into the congregation of the Oratory, and became a diſtinguiſhed member. He paſſed life in tranquillity, exempt from ambition and intrigue, and his ſpirits were ſcarcely affected by the loſs of penſion, which conſtituted his chief ſupport, at the commencement of the revolution. During the reign of the infamous Robeſpierre, he took refuge in the department of the Puy-de-Dôme, whence he afterwards returned to Paris. He died in 1801, in the ſixty-fifth year of his age. His principal works are as follow; "An Ode to Death," inſerted in the collection of the Floral Games of Toulouſe: "L'Art du Poete et de l'Orateur:" "Voyage de Provence," 2 vols. 12mo.: "Hiſtoire de Provence," 4 vols. 4to. He wrote ſome pieces relative to the French revolution, and a work entitled "Epoques memorables de la Peſte," in two vols. 8vo. To the hiſtory of Provence many ancient documents were annexed; and for the purpoſe of diſcovering new authorities the author took a journey to Naples, and procured, among other pieces, the Quittance given by queen Joan to pope Clement VI. for the price of Avignon, which ſhe ſold him.

PAPPOPHORUM, in *Botany*, a genus firſt eſtabliſhed by Schreber, and named by him from παππος, *thiſtle down*, and φερω, *to bear*, in alluſion to the peculiar reſemblance of the fine aggregate awns of this graſs, to the ſeed-down of many Syngeneſious plants. Schreb. 787. Willd. Sp. Pl. v. 1. 458. Mart. Mill. Dict. v. 3. Brown Prodr. Nov. Holl. v. 1. 184. Lamarck Dict. v. 5. 3. Claſs and order, *Triandria Digynia*. Nat. Ord. *Gramina*.

Gen. Ch. *Cal.* Glume of two long, linear, ſomewhat compreſſed, very thin, pointed, awnleſs valves, containing two florets; the outermoſt valve a little the ſhorteſt. *One floret* below the other, larger, ſeſſile, bearded at the baſe, perfect; the *ſecond* raiſed upon a ſhort ſtalk, ſmaller, preſſed cloſe to the back of the former, beardleſs, neuter; above theſe is the rudiment of a third, ſometimes of a fourth. *Cor.* Glume of two valves, ſhorter than the calyx; the outermoſt ovate, ſwelling, angular, terminated by numerous, nine to thirteen, very long, ſtraight, unequal, feathery or rough, ſpreading awns, its edges embracing the inner glume, which is lanceolate, acute, rather longer and narrrower than the outer. Nectary minute, of two linear leaves. *Stam.* Filaments three, capillary; anthers oblong. *Piſt.* Germen ovate, ſuperior; ſtyles two, ſhort; ſtigmas villous. *Peric.* none, except the corolla, which encloſes the ſeed, but is not united to it. *Seed* ſolitary, ovate, compreſſed, pellucid.

Eſſ. Ch. Calyx of two linear, nearly equal, valves, containing two florets, with the rudiments of more. Corolla of two valves, the outermoſt with numerous awns.

Obſ. The outer glume of the lowermoſt floret is villous at the back and ſides; the inner glume is hollowed out at the back, for the reception of the upper, or neuter, floret. The awns have the appearance of the down of the ſeeds of ſyngeneſious flowers. *Schreb.*

1. P. *alopecuroideum*. Vahl. Symb. v. 3. 10. t. 51. (Saccharum pappiſerum; Lamarck Illuſtr. v. 1. 155.)—Awns thirteen, minutely toothed.—Native of South America. *Root* perennial. *Stem* branched, three or four feet high, ſmooth. *Leaves* convoluted, acute, ſtriated, ſhorter than the ſtem. *Panicle* or *ſpike* erect, compound, eighteen inches long, reſembling that of *Agroſtis panicea*, Willd. Sp. Pl. v. 1. 363. Engl. Bot. t. 1704. *Willd.* The *calyx*, according to Vahl, contains ſometimes four *florets*, though only one is perfect.

2. P. *nigricans*. Brown n. 1.—Awns nine, feathery. Spike compound, ſomewhat cylindrical, with imbricated lobes. Glumes very finely downy. Leaves and ſheaths naked, roughiſh. Gathered by Mr. Brown, in the tropical as well as ſouthern parts of New Holland, and at Port Jackſon.

3. P. *pallidum*. Br. n. 2.—Awns nine, feathery. Spike compound, ſomewhat cylindrical, with imbricated lobes. Glumes and leaves villous.—Native of the tropical part of New Holland, as well as the two following, Mr. Brown having gathered them all in that country.

4. P. *purpuraſcens*. Br. n. 3.—Awns nine, feathery, coloured. Spike lanceolate, lobed; its branches alternate, racemoſe. Glumes and leaves downy.

5. P. *gracile*. Br. n. 4.—Awns nine, feathery. Spike divided in the lower part; ſimple above. Glumes downy. Leaves involute, ſmooth, as well as the ſtems.

We have taken the ſpecific characters of all the five ſpecies from Mr. Brown, having ſeen no ſpecimen of any of them.

PAPPOSE Plants, in *Gardening*, are all thoſe which have a downy kind of flowers, or a ſort of feathery crown of the ſame nature, which adheres to the ſeeds of many of them, as are exemplified in the lettuce, the dandelion, the ſow-thiſtle, groundſel, and ſome other ſorts. A great many of theſe kinds of plants alſo produce compound flowers, the ſeeds of which are furniſhed with a portion of this downy ſubſtance adhering to the top part of each, ſo as in ſome degree to reſemble a ſhuttle-cock, being naturally framed for flying, in order to ſpread and diſſeminate the ſeed, and tranſport it to conſiderable diſtances by the wind, ſo that it may be ſown and depoſited in different ſoils and ſituations, inſtead of being confined to a ſingle ſpot.

Among this claſs of plants are ſome of the moſt troubleſome weeds, the ſeeds of which are, by the means which they thus poſſeſs, carried and ſcattered in the gardens and fields, to the great inconvenience and trouble of the gardener and farmer.

Theſe are likewiſe frequently called winged ſeeds. See the following article, and Weeds.

PAPPUS, in *Botany* and *Vegetable Phyſiology*, Seed-down; the hairy or feathery, ſometimes chaffy, radiating crown of the ſeed, in the natural order of Compound Flowers, or Syngeneſious claſs, ſuch being the true claſſical acceptation of this Latin word, as well as of the Greek παππος, from whence it comes. The uſe of this part is to waft the ſeed to a diſtance, in dry and windy weather, when the *pappus* is moſt light and expanded; by which means ſuch plants are widely diſperſed. Finally it either ſlips off, by the drying and contraction of the ſummit of the ſeed, as in Thiſtles; or the ſeed having fixed itſelf in the earth, the down is broken off by the wind, or ſome other accidental cauſe; in either caſe the ſeed is left behind, to germinate without further diſturbance. The down, having fulfilled its primary deſtination, often ſerves a ſecondary purpoſe in the economy of nature; being hoarded up by birds, and the ſmaller quadrupeds, to compoſe or to line their neſts, or winter retreats. Its texture is not ſuch as to render it fit for being woven, by human art, for any uſe.

Gærtner properly reſtrains the term *pappus* to compound flowers; though Linnæus and others uſe it indiſcriminately for ſuch, and for the hairy appendages to the top, ſides, or baſe, of other ſeeds, even when they are encloſed in a capſule; witneſs *Epilobium*, *Aſclepias*, and many others of the *Contortæ*, *Salix*, *Eriophorum*, &c. Gærtner uſes the word *Coma*, when ſuch an appendage is ſituated at the top of the ſeed; *Pubes* when it originates from the baſe or ſides, as in *Goſſypium*, the Cotton plant.

The proper *Pappus* of ſyngeneſious compound flowers is either ſtalked, as in the Common Dandelion, or ſeſſile, as in the Thiſtle; in both which examples its rays are of a feathery ſtructure. In *Hieracium* the rays are, or ought to be, ſimple; but ſuch a ſtructure is very rare, what are ſo deſcribed being for the moſt part rough or toothed, at leaſt, if not more or leſs branched or feathery. In *Cichorium*, and ſeveral other genera, the *pappus* conſiſts of dilated chaffy teeth, or leaflets, either ſeparate or combined at their baſe, which clearly ſhews the affinity of the part to a calyx. This more ſtrikingly appears in *Scabioſa*, in which the term is admitted, even by Gærtner, that genus having compound, though not ſyngeneſious, flowers. Here the *pappus* is double, very variouſly and curiouſly conſtructed in the different ſpecies. *Bidens* has a *pappus* of two, three, or four rigid barbed briſtles, evidently contrived ſo for the purpoſe of attaching the ſeeds to the coats of animals, or to any thing elſe that may come in the way, in order to aid in their diſperſion by that means, inſtead of their being wafted on the wings of a light feathery ſeed-down. The variety of ſtructure in the part in queſtion is indeed highly curious, ſome plants having two ſorts of pappus to the different florets of the ſame flower; ſee HEDYPNOIS. A judicious, but not indiſcriminate, attention to its differences, affords one of the beſt clues to a knowledge of the ſyngeneſious genera; but in this as well as other caſes no difference muſt be conſidered as abſolute; the genus always being required to give the character, not the character the genus.

PAPPUS, in *Biography*, a very eminent Greek mathematician of Alexandria, who flouriſhed in the fourth century, during the reign of Theodoſius the Great, who preſided over the empire from the year 379 to 395. Such of his works as are ſtill extant, prove that he was profoundly ſkilled in the mathematical ſciences: the greater part of his productions are probably loſt, among which are a "Commentary upon Ptolemy's Almageſt;" "A Deſcription of the Rivers of Lybia;" "An Univerſal Chorography;" a treatiſe "On Military Engines;" "Commentaries upon Ariſtarchus of Samos, concerning the Magnitude and Diſtance of the Sun and Moon." Reference is made by Marinus, a diſciple of Proclus, to his "Mathematical Collections," in eight books, of which the laſt ſix, and part of the ſecond remain. They were among the manuſcripts preſented by ſir Henry Saville to the Bodleian library at Oxford. To this work, Marcus Meibomius annexed ſome *lemmata*, from the ſeventh book, in Greek, with a verſion of his own, to his "Dialogue on Proportions," publiſhed at Copenhagen in the year 1665; and Dr. Wallis printed the laſt twelve propoſitions in Greek, from the Savilian MS. with a Latin verſion and notes at the end of his edition of Ariſtarchus' treatiſe "On the Magnitude and Diſtance of the Sun and Moon;" and alſo in the third volume of his "Mathematical Works." In the year 1703, Dr. David Gregory gave part of the preface to the ſeventh book, in which the author treats of the geometrical analyſis of the ancients, &c. in Greek, accompanied with the Latin verſion of Commandini, in the Prolegomena to his edition of Euclid; and in 1706 Dr. Edmund Halley printed the whole preface, in Greek and Latin, in the Prolegomena to his edition of the Conics of Apollonius. And, to mention no other inſtances of a like kind, we may obſerve, that the whole of what remains of the "Mathematical Collections," was publiſhed at Bologna in 1660. For an analyſis of theſe collections, we refer to Hutton's dictionary, art. *Pappus*.

PAPRA, in *Geography*, a town on the W. coaſt of Siam. N. lat. 8° 10′. E. long. 98° 30′.

PAPREMIS, or PAPRIMIS, in *Ancient Geography*, a town of Egypt, and the capital of the Papremite nome. In this place the hippopotamus was regarded as a ſacred animal; and Mars was honoured with a ſingular ceremony. Upon the feſtival appropriated to this deity, the prieſts bore upon a four-wheeled chariot the ſtatue of the god, which was encloſed in a ſmall chapel of gilt wood; and while they endeavoured to force the chariot and ſtatue into the temple of that divinity, men armed with clubs ſtood in the way to hinder it; and as the prieſts who accompanied the proceſſion had likewiſe arms, there enſued an engagement, when naturally many people muſt have loſt their lives. The Egyptians, however, maintained that nobody died of the wounds they received upon that occaſion.

PAPS, in *Geography*, the two remarkable mountains of the county of Kerry, Ireland, about eight miles E. by S. from Killarney.—Alſo, two remarkable hills of Upper Canada, on the N. ſhore of lake Superior.

PAPUA. See *New* GUINEA.

PAPUDA BAY, a bay on the coaſt of Chili, in the South Pacific ocean, five leagues N. of the ſhoals of Quintaro and four from port Liga; the water is deep, the anchorage good, and the entrance ſafe.

PAPULA, in *Medicine*, a diminutive of *papa*, the *nipple*, ſignifies a ſmall, hard, and acuminated elevation of the ſurface of the ſkin, which has an inflamed baſe, but ſeldom contains a fluid, or tends to ſuppurate. It is ſynonimous with the Engliſh term *pimple*.

This appellation has been applied by medical writers to a conſiderable variety of eruptions; but, in the more accurate nomenclature of cutaneous diſeaſes, adopted by the late Dr. Willan, its ſignification is limited, as above, to a minute tumour, which appears to originate in an inflammation of the papillæ of the ſkin, by which theſe are enlarged, elevated, and indurated, and made to aſſume more or leſs of a red colour; they do not end in ſuppuration like puſtules, but commonly terminate in a ſcurfy exfoliation of the cuticle. The moſt accurate noſologiſts, indeed, ſeem to have agreed in reſtricting the meaning of the word to this ſenſe. Thus Sauvages defines *papula*, "Phyma parvulum, deſquamari ſolitum." (Noſol. Method. claſs i. Synopſ. ord. ii. 6. See alſo Linnæi, Gen. Morbor. claſs xi. ord. 4.) Among the ancients, Celſus ſeems to have underſtood the term in the ſame acceptation, although he applies it generically, apparently to the lichen. De Medicinâ, lib. v. cap. 28.

The *papular* eruptions conſtitute the firſt order in Dr. Willan's ingenious claſſification of diſeaſes of the ſkin; and of theſe he has deſcribed three diſtinct genera; namely, the STROPHULUS, *red-gum*, or *tooth raſh*, of children; the LICHEN,

CHEN, and the PRURIGO, which ſee reſpectively. See alſo Willan on Cutaneous Diſeaſes; and Bateman's Practical Synopſis of Cutaneous Diſeaſes, p. xx.

PAPULARIA, in *Botany*, ſo termed by Forſkall, in his Fl. Ægypt. Arab. 69, on account of the cryſtalline ſoft granulations ſprinkled over its leaves, is no other than *Trianthema monogyna*. See PAPILLOSUM *folium*, and TRIANTHEMA.

PAPYRIUS, from *papyrus*, Lamarck Illuſtr. t. 762, a name given by that author to the Paper Mulberry, in alluſion to the uſe made of its bark, from which moſt of the Eaſt Indian, Japaneſe, and Chineſe paper is prepared, as well as the cloth of Otaheite, &c. This plant, confounded by Linnæus under *Morus*, was ſeparated from thence, as a diſtinct genus, by l'Heritier, who called it *Brouſſonetia*, in honour of his friend P. M. Auguſtus Brouſſonet, M. D. an excellent botaniſt and ichthyologiſt, who firſt introduced this valuable tree alive into the French gardens. He was alſo one of the moſt zealous diſciples of the Linnæan ſchool in that country, and an undiſguiſed opponent of thoſe, who, from envy or prejudice, depreciated the merits of the great naturaliſt of Sweden. Hence it ſeems that Lamarck was not inclined to adopt the name l'Heritier had propoſed, if he was actually acquainted therewith, and he retaliated that ſort of neglect or oppoſition which he had, in many inſtances, received from his rival. Ventenat, however, and Willdenow, have reſtored *Brouſſonetia*, which has every claim to preference, and it is adopted in this country, where the merits and amiable character of Dr. Brouſſonet are well known to ſeveral, who have ſincerely deplored the misfortunes which, like many good Frenchmen, he experienced under Robeſpierre, and his ſubſequent untimely death. One of our predeceſſors has paſſed over this name; ſee BROUSONNETRA, as it is very erroneouſly printed. We beg leave here to aſſert its juſt claims, though out of its alphabetical place.

BROUSSONETIA. L'Herit. MSS.—Venten. Tabl. v. 3. 547 Andr. Repoſ. v. 7. 488 Willd. Sp. Pl v. 4 (Papyrius; Lam. Illuſtr. t. 762. Poiret in Lam. Dict. v. 5. 3.)—Claſs and order, *Diœcia Tetrandria*. Nat. Ord. *Scabridæ*, Linn. *Urticæ*, Juſſ.

Gen. Ch. Male, *Cal.* Perianth in four deep, ovate, concave ſegments. *Cor.* none. *Stam.* Filaments four, awl-ſhaped, erect, much longer than the calyx, oppoſite to its ſegments; anthers oval, of two cells.

Female, on a ſeparate plant, *Cal.* Perianth inferior, tubular, of one leaf, with four, rarely but three, ſegments, permanent. *Cor.* none. *Piſt.* Germen ſomewhat ſtalked, ovate, compreſſed; ſtyle lateral, awl-ſhaped, elongated, permanent; ſtigma ſimple. *Peric.* none, except the elongated, pulpy, coloured, forked, club-ſhaped receptacle, on which the ſeed is elevated as on a ſtalk, and encloſed between its points. *Seed* ſolitary, ovate, partly covered by the forks of its pulpy ſupporter, and accompanied by the capillary withered ſtyle. *Common receptacle* globoſe, very denſely covered with flowers ſpreading every way, and interſperſed briſtly permanent ſcales.

Eff. Ch. Male, Calyx in four deep ſegments. Corolla none.

Female, Calyx tubular, in four ſegments. Corolla none. Style one, lateral. Seed ſolitary, elevated on a pulpy, club-ſhaped, forked receptacle. Common receptacle globoſe, briſtly.

1. B. *papyrifera*. Paper Mulberry. Andr. Repoſ. t. 488. (Morus papyrifera; Linn. Sp. Pl. 1399. M. ſativa, foliis urticæ mortuæ, cortice papyriferâ; Kæmpf. Am. Exot. 471. t. 472.)—Native of Japan; probably alſo of China, and the South Sea iſlands. At leaſt it is cultivated in all thoſe countries. It appears from Miller to have been introduced into England before the year 1759, by the late duke of Northumberland. Dr. Brouſſonet ſaw the female tree in fruit at London, and poſſibly, as Poiret indicates, at Edinburgh, in 1782, and carried it with him to Paris, where the male only had previouſly been known, and conſequently no ſuſpicion could have ariſen of its not being, as Linnæus ſuppoſed, a *Morus*, though diœcious. (See MORUS.) It there bore fruit, which it continually does at Kew, and in other gardens, being quite hardy, and bloſſoming all ſummer long. This is a deciduous *tree*, of a moderate ſize, with the aſpect of a mulberry, or rather of ſome arboreſcent *Urticæ*. *Branches* alternate, round, downy, leafy at the extremities. *Leaves* alternate, ſtalked, ovate or ſomewhat heart-ſhaped, acute, ſerrated, deeply lobed and ſinuated without any regularity, ſo that ſcarcely two can be found preciſely alike; their upper ſide of a dull hoary green, very rough with minute cartilaginous tubercles; the under paler and downy, with numerous veins. *Stipulas* in pairs, ovate, pointed, downy. *Flowers* axillary, ſtalked; the *male* in very denſe, cylindrical, blunt, drooping, greyiſh *ſpikes*, which have the aſpect of catkins; *female* on a diſtinct tree, in equally denſe, green, globular heads, about an inch in diameter. As the *fruit* advances, numerous ſcarlet, juicy, club-ſhaped, incurved bodies are protruded, in every direction, in whoſe ſummits the *ſeed* is lodged. Theſe have a ſweet flavour, but are not of conſequence ſufficient to render the fruit an object of cultivation, though it is not deſtitute of beauty.

The chief importance of this tree, conſiſts in the uſes made of its bark. The clothing of the inhabitants of the South Sea iſlands, in their primeval ſimplicity, was almoſt entirely prepared from it, ſeveral layers of the bark being laid over each other, and incorporated by beating, aided with ſome ſlight cement; and ſo elegantly coloured with the natural productions of the country, as to excite the admiration of our moſt intelligent voyagers. Kæmpfer gives a particular account of the preparation of the Japaneſe paper from this bark. For this purpoſe the branches of the preſent year, after the leaves are fallen, in December, are choſen, and being cut into pieces about a yard long, are boiled, till the bark ſhrinks, and is eaſily ſeparable from the wood, which is then thrown away. The bark being dried, is preſerved till it is wanted. In order to make paper, it is ſoaked for three or four hours in water, after which the external ſkin, and the green internal coat, are ſcraped off. At the ſame time the ſtronger and firmer pieces are ſelected, the produce of the youngeſt ſhoots being of an inferior quality. If any very old portions preſent themſelves, they are, on the other hand, rejected as too coarſe. All knotty parts, and every thing which might impair the beauty of the paper, is alſo removed. The choſen bark is boiled in a lixivium, till its downy fibres can be ſeparated by a touch of the finger. The pulp ſo produced is then agitated in water, till it reſembles tufts of tow. If not ſufficiently boiled, the paper will be coarſe, though ſtrong; if too much, it will be white indeed, but deficient in ſtrength and ſolidity. Upon the various degrees and modes of waſhing the pulp, much alſo depends, as to the quality and beauty of the paper. Mucilage obtained from boiling rice, or from a root called *Oreni*, Kæmpf. 474, one of the mallow tribe, is afterwards added to the pulp. The paper is finiſhed much after the European mode, except that ſtalks of ruſhes are uſed inſtead of braſs wires. See PAPER.

PAPYRUS. See CYPERUS.

PAQUASHE Lake, in *Geography*, a lake of North America. N. lat. 50° 48′. W. long. 93° 30′.

PAQUILIGASTA, a town of South America, in the province of Tucuman; 40 miles S.S.W. of S. Miguel de Tucuman.

PAR, a term of nobility. See Peer.

Par, Catherine, in *Biography*, ſixth wife of Henry VIII. was daughter of ſir Thomas Par, and received, according to the cuſtom of the age, a learned education. She was known to be friendly to the reformation, and on that account biſhop Gardiner, and others, whoſe zeal and bigotry were ever diſplayed againſt the reformers, endeavoured to effect her ruin, but by her prudence ſhe preſerved the king's favour till his death. In the year 1544 ſhe was ſo much in the confidence of her royal ſpouſe, that he made her regent while he went with a great army into France. After this ſhe had a narrow eſcape from impeachment, of which Mr. Hume has given an intereſting account. Immediately after the death of the monarch ſhe married lord Seymour: the ceremony was, indeed, performed with ſo much haſte, that the hiſtorian already quoted, ſays, "had ſhe ſoon proved pregnant, it might have been doubtful to which huſband the child belonged." She was extremely ill-treated by this ſecond huſband, which ſo much affected her, that ſhe died in child-bed in the year after her marriage. Hume, vol. iv. Walpole's Royal and Noble Authors.

Par *of Exchange*. This ſubject, which is ſo very familiar in the mouths of commercial men, yet ſo little underſtood, has been already incidentally noticed under the article Exchange; but as what was ſaid of it there refers more to its practical nature, than to the general principles on which it is founded, and by a knowledge of which alone it can be ſatisfactorily and fully aſcertained, we ſhall enter more regularly and ſyſtematically into the diſcuſſion of it in this article. Moſt of the difficulties, and much of the obſcurity, which encompaſs that part of the ſcience of political economy, which relates to the commerce between nations, would be removed, if we were to conſider this commerce as exactly the ſame in its nature, operations and effects, as the trade that is carried on between different parts of the ſame kingdom, or even between two individuals: by bringing the ſubject thus within a narrower compaſs, and placing it in a point of view more familiar and more within the reach of our obſervation and experience, we ſhould be enabled to examine it more attentively, and to render ourſelves acquainted with it more accurately, not only in its general principles, but in its minute and complicated details. Theſe remarks will apply with peculiar force and propriety to the ſubject which we are about to diſcuſs: in entering upon it, if we take our illuſtrations and examples, not from what paſſes in the commercial intercourſe of two diſtinct nations, the denomination and value of whoſe currency differs, but from what occurs in the commercial tranſactions that are carried on between different parts of the ſame kingdom, we ſhall clear the way ſo completely, as to be enabled to proceed without impediment, confuſion, or difficulty.

Let us take, as an example, the commercial intercourſe between London and York; and ſuppoſe that in the former city, there are merchants who owe to their correſpondents in London the ſum of 2000*l*, and merchants who have demands on their correſpondents in London to the ſame amount. The obvious and natural mode of ſettling theſe claims, would be for the merchants who have money to pay in London, to pay the amount to the merchants who have money to receive in London: by this mode the York merchants, ſo far as they alone were concerned, would have their buſineſs ſettled; but there would yet remain to be arranged the pecuniary buſineſs of the London merchants, who either were indebted to the York merchants, or had money to receive from them: the mode of adjuſting their buſineſs would be equally obvious and natural. The York merchant who had received the 2000*l.* from his brother merchant in the ſame city, as a ſettlement of the debt to that amount due to him in London, would in return give him an order for that ſum on the London merchant his debtor; which order, tranſmitted to London, would ſerve to diſcharge the debt that the York merchant owed in the capital. It is eaſy to perceive what trouble and expence are ſaved by this arrangement: were it not adopted, the York merchant who owed 2000*l.* in London, muſt have been at the expence of tranſmitting this ſum to London; and a ſimilar expence muſt have been incurred by the other York merchant, or by his debtor in London, in tranſmitting the 2000*l.* from London to York. When the general plan of adjuſting the debts in this mode was once arranged, there would be no difficulty in carrying it into execution, as the currency in York and London were exactly the ſame; but the caſe, in this reſpect, would be altered, if Dublin and London were concerned, inſtead of York and London. The currencies of England and Ireland differ in real value, though they are exactly the ſame in denomination. Let us now ſuppoſe that a merchant in London owes 2000*l.* in Dublin, and another merchant has 2000*l.* to receive in London. They would reſpectively ſave the freight and inſurance of this ſum, if in London they could adjuſt what they have reſpectively to receive or pay in Dublin: had the currencies of Ireland and England been exactly the ſame in real value, as they are in denominative value, there could not be the ſlighteſt difficulty in making this arrangement; but as there is a difference in the real value of the currencies of theſe two countries, this difference muſt be ſatisfactorily and exactly aſcertained before any arrangement can take place. When this difference in the real value is determined, the par of exchange is ſaid to be fixed; or in other words, the ſums in the currencies of the two countries, which contain exactly the ſame quantity of the precious metals, are aſcertained. In the caſe we are now ſuppoſing, *viz.* that between England and Ireland, the currency of the latter country is about eight *per cent.* worſe than the currency of England; or in other words, the denominative value of the currency of the two countries being the ſame, there is about eight *per cent.* loſs of the precious metals in the coins of Ireland of the ſame denomination as thoſe of England: a debt of 2000*l.* in Ireland, therefore, could be diſcharged for eight *per cent.* leſs of real value, than the ſame nominal debt could be diſcharged for in England: on this account the Engliſh merchant, who owes this ſum in Ireland, and who wiſhes to diſcharge his debt by paying a ſum of money to the other Engliſh merchant, who has owing to him 2000*l.* in Ireland, will only pay to the latter 2000*l.* *minus* eight *per cent.*; and the latter, if he receives this ſum, will receive the full amount of his debt. It may perhaps be thought that the latter will refuſe to accede to this mode of ſettling his debt: but a little reflection will convince us that in this, as in the former caſe between York and London, both merchants are accommodated in an equal degree by this arrangement; for let us ſee how they muſt proceed, if they did not accede to it. The merchant who owed the 2000*l.* in Ireland would be obliged to tranſmit there as much bullion as would be equal in value to 2000*l.* Iriſh currency; and the merchant, who had money to that amount to receive from Ireland, could get from that country only as much bullion, as that ſum of Iriſh currency would purchaſe: hence, as the expence of freight, inſurance, &c. would be the ſame in each caſe, it would evidently be for their mutual advantage to ſettle their debts and payments in the manner which has been deſcribed.

The general rules, therefore, in fixing the par of exchange between any two countries, is by aſcertaining the real value of the coin of theſe countries: if the ſame quantity of gold or ſilver is contained in two coins of two countries, theſe coins are equal in value to each other; if there is more gold or ſilver contained in the coin of one country, than in the coin compared with it of the other country, the values are not equal, but proportional: and theſe proportions can always be accurately expreſſed by the ſmaller coins, of which the larger ones that are compared are compoſed. Thus, let us ſuppoſe that the ruble of Ruſſia, and the half-crown piece of Britain, contain exactly the ſame quantity of ſilver of the ſame fineneſs: then the par of exchange between Britain and Ruſſia will be the ruble and the half-crown piece; but as the intrinſic value of either or both of them may be changed, though their denominations remain the ſame, the par is more commonly expreſſed by the ſmaller coins which form them, as in the caſe of the half-crown, by the pence which compoſe it: and the par of exchange between England and Ruſſia, is ſaid to be, when the ruble of the latter country is at thirty pence. Again, let us ſuppoſe that the crown piece of Great Britain and the dollar of Spain are compared, and that it is found that the former contains more ſilver of the ſame purity than the latter: the difference can eaſily be aſcertained, and as the crown piece is divided into, or compoſed of, ſmaller coins, this difference, when aſcertained, can as eaſily be expreſſed. The crown piece is equal to ſixty pence: the dollar, we ſhall ſuppoſe, contains one-tenth leſs ſilver than the crown piece; if the par between Spain and England, therefore, is meaſured by a reference to theſe two coins, it will be expreſſed, by ſtating it at four ſhillings and ſixpence Britiſh for the Spaniſh dollar. The advantage, and even neceſſity, of ſuppoſing the coins thus compared divided into their component parts, will be further illuſtrated when we come to conſider the circumſtances that affect the real or nominal par of exchange.

It may ſeem ſuperfluous to enquire upon what principle equal quantities of the precious metals are ſuppoſed to be of equal value in different countries; yet this requires inveſtigation. Let us ſuppoſe that a merchant of London, who owes 2000*l.* in Dublin, is not able to obtain a bill on that city, and has no other mode of diſcharging his debt but by tranſmitting the money. Let us farther ſuppoſe, that for this purpoſe he cannot tranſmit Engliſh money to Ireland: how is he to proceed? The only mode he can adopt, is to purchaſe in London as much bullion as will ſell for, or may be coined into, 2000*l.* in Dublin; he cannot diſcharge his debt by the mere bullion he tranſmits; could he do this in all caſes, the principle, that equal weights of bullion were always of equal value in all countries, would be without exception, and would be a fundamental principle, beyond which we could not proceed in illuſtrating the doctrine of the par of exchange. But if caſes may occur, in which the bullion and the mint value of the precious metals differ, then, in theſe caſes, we muſt look beyond this principle, for a principle more ſteady on which to ground the doctrine of the par of exchange. Let us ſuppoſe that the merchant who owes 2000*l.* in Dublin, being perfectly well acquainted with the quantity of the precious metals contained in this ſum of Iriſh currency, purchaſes that quantity in London, and tranſmits it to Dublin: in the mean time, a difference has taken place in this city, between the bullion and the mint value of the precious metals; the bullion value has fallen, ſo that the quantity of bullion tranſmitted will not ſell for 2000*l.* Iriſh currency. In this caſe we perceive, that by fixing the par merely by a reference to the quantity of the precious metals in the coins of any two countries, we ſhould fix it inaccurately; it may, indeed, be alleged, that the bullion and mint value of the metals can never differ much, nor for a long continuance; but as they may, and do differ, though to ever ſo trifling an amount, and for ever ſo ſhort a time, we muſt correct the principle on which the par of exchange is fixed: thus corrected, it will ſtand thus;—the par of exchange muſt be eſtimated, not by a compariſon between the quantities of bullion contained in the coins of any two countries, but by a compariſon between the quantities of bullion which theſe coins will purchaſe: this is the accurate principle; but as in moſt caſes the bullion and mint value are equal; and as, where an inequality does exiſt, it is very trifling, and continues but for a very ſhort period, the uſual manner of computing the par of exchange is, in moſt inſtances, ſufficiently juſt and accurate.

It muſt, however, be obſerved, that the compariſon of the coins of different countries has not been made with all that ſkill and attention which ought to have been employed upon it: indeed the par ſeems to have been fixed at a time when the art of aſſaying metals and determining their poſitive and relative purity was comparatively but little known.

But the looſe and inaccurate mode in which the par of exchange has been fixed, as well as the unſoundneſs of the principle, which would infer an equality of value in the coins of two countries from the circumſtance of their containing the ſame quantity of the precious metals, will be further confirmed and illuſtrated by a reference to the coinage of France before the revolution. At that time a duty, or ſeignorage of eight *per cent.* was paid on all bullion brought to the mint for the purpoſe of being coined. Let us ſuppoſe that a Louis d'or, and an Engliſh guinea, contained each the ſame quantity of gold, of the ſame purity, and that that quantity was a quarter of an ounce, according to the principle that we are examining, the exchange between England and France would be ſaid to be at par, when a guinea in London purchaſed a bill on Paris for one Louis d'or, ſince, in this caſe, a quarter of an ounce of gold in London purchaſed neither more nor leſs than a quarter of an ounce of gold in Paris. But a little reflection will ſerve to convince us, that when a guinea in London purchaſed a bill for a Louis in Paris, the exchange, inſtead of being at par, was in fact favourable to England eight *per cent.*: for, let us ſuppoſe that the merchant who had to pay the Louis in Paris could not obtain a bill in London, but was obliged to ſend bullion to Paris to diſcharge his debt; how much bullion muſt he ſend for that purpoſe? if a quarter of an ounce of gold would ſerve to diſcharge his debt; then, on the ſuppoſition that he procured a bill, and paid for it only a guinea, or a quarter of an ounce of gold, the exchange would be at par; but he would find, if he ſent only a quarter of an ounce of gold to Paris, that it would not diſcharge his debt of a Louis. When his gold is brought to Paris, it muſt either be coined, or ſold, before the debt can be diſcharged: if it is taken to the mint, eight *per cent.* will be kept to pay the expences of coinage; conſequently, when converted into money, it will not diſcharge his debt by eight *per cent.*: if the gold is ſold, it will not procure a Louis, or a coin of a quarter of an ounce of the ſame metal, by eight *per cent.*; for no perſon will give the ſame weight of coined gold for uncoined gold, when the coinage coſt eight *per cent.* The merchant in London, therefore, who has a Louis to pay in Paris, muſt pay for a bill to that amount the quantity of bullion contained in a Louis, and eight *per cent.* more; or, in other words, he muſt pay a guinea, and eight *per cent.* more; and by purchaſing a bill on Paris at this rate, he loſes nothing, nor does the perſon who ſells the bill gain any thing by the tranſaction; for let us ſuppoſe that he can find no merchant to take his bill, but is obliged to get the money due to him in Paris, or in the beſt manner he is able: with the Louis due to him there, he purchaſes bullion; and as coined gold is eight *per cent.* more valuable in Paris than uncoined, he gets for his Louis, (all along ſuppoſed to weigh an ounce,) an ounce and one-eighth of uncoined gold, which, when brought to England and taken to the mint, will procure him a guinea, and one-eighth *per cent.* On the ſuppoſitions, therefore, which we have proceeded upon, that a guinea and a Louis contained the ſame quantity of gold, and that the duty on coinage in France was eight *per cent.*, the par of exchange between England and France would not be a guinea for a Louis, but a guinea and one-eighth *per cent.* for a Louis; or, in other words, a bill for an ounce of coined gold in Paris, would be worth in London an ounce of gold, and one-eighth *per cent.* Hence it is obvious, that the par of exchange ought not to be fixed by a reference merely to the quantity of the precious metals contained in the coins of two countries; and that the exchange between any two countries is actually at par, when no more is paid for a bill on one of theſe countries, than would be neceſſary to procure the bullion that could be ſold for, or coined into the ſum expreſſed in the bill, though the ſum paid, and the bullion it could procure, were really greater than the ſum expreſſed in the bill.

There is yet another caſe, which will require to be conſidered, before we proceed to ſtate and examine thoſe circumſtances which affect the nominal and real par of exchange. The currency of almoſt all countries conſiſts of two different kinds of metals, gold and ſilver, (for copper, though forming part of the currency, need not enter into our inveſtigation.) The gold and ſilver currency of all countries is fixed by the proportionate value of theſe two metals: let us ſuppoſe the proportional value of gold and ſilver to be as 1 to 15, *i. e.* that one ounce of gold is worth fifteen ounces of ſilver. There may be ſome little difference in this proportionate value in different countries; but the great bullion market of the world keeps it nearly the ſame, and generally pretty ſteady. What would be the effect on the par of exchange, on the ſuppoſition, that in one of two countries which trade with each other, the proportionate value changed; let us ſuppoſe, for inſtance, that in England the proportionate value continued as ſtated above, 1 to 15, while in France ſilver became ſo much more abundant, that the proportionate value was 1 to 16. Would the par of exchange be affected by this circumſtance? and if it were affected, in what mode, and to what extent would it be affected? In the caſe ſuppoſed, the price of ſilver would fall in France while it continued ſteady in England; or, in other words, if we ſuppoſe no duty on coinage to exiſt in either of theſe countries, the bullion price of ſilver in France would fall below its mint price, and ſilver bullion would exchange for leſs gold bullion than it did before; but the proportionate value between coined gold and ſilver would remain the ſame. It might, at firſt ſight, appear, that a merchant in London, who had a debt to diſcharge in Paris, would be benefited by this circumſtance; as, it may be ſaid, he might tranſmit gold bullion, which, in Paris, would command a larger quantity of ſilver than formerly: undoubtedly this would be the caſe, for every ounce of gold tranſmitted to Paris, he would get ſixteen ounces of ſilver inſtead of fifteen, as formerly; and if his object were to bring this ſilver to England, and there exchange it for gold, he would profit by the alteration in the proportionate value of the two metals, ſince in England he would obtain an ounce of gold for fifteen ounces of ſilver, and thus have a profit of one ounce of ſilver in the tranſaction; but in the caſe here ſuppoſed, that he has a debt to diſcharge in Paris, he would not be benefited by the alteration in the proportionate value of the two metals, unleſs he took the ſixteen ounces of ſilver to the mint, for if he ſold the ſilver bullion, he would get as much leſs for it as its value had fallen in proportion to gold: if, however, he took ſixteen ounces, inſtead of fifteen, to the mint, it is obvious that he would get more ſilver coin, and conſequently that his ounce of gold, by this variation in the proportionate value of the two metals, would enable him to diſcharge his debt on eaſier terms, provided it could be diſcharged in ſilver. But if the amount of the debt were very great, payment of it in ſilver could not legally be enforced. This circumſtance, joined to the conſideration that the proportionate value of the gold and ſilver currency of any country muſt always be kept as nearly as poſſible the ſame as the proportionate value of gold and ſilver bullion in that country, will always prevent the par of exchange being much, or for any length of time, affected by a change in the relative value of gold and ſilver in any two countries. On the contrary ſuppoſition, that gold falls and ſilver riſes, ſo that, for inſtance, one ounce of the former metal is worth only fourteen ounces of the latter, it is obvious that the comparatively greater expence of the freight of ſilver will prevent a merchant from taking advantage of this circumſtance, and conſequently will keep it from having any material influence on the exchange.

In treating on this ſubject, it is of the utmoſt importance to diſtinguiſh accurately and clearly between the nominal and the real par of exchange: they are often confounded both in theoretical and practical writings. The cauſe of this confuſion will be beſt explained by a conſideration of the circumſtances that affect the nominal par of exchange as ſeparate and diſtinct from thoſe circumſtances which affect the real par of exchange. The moſt obvious circumſtance that has influence on the nominal par of exchange, is the depreciation of the currency of a country, or a diminution of its real and intrinſic value; as the denomination of the currency continues the ſame, though its real and intrinſic value is leſſened, the par of exchange will alſo continue the ſame. Thus, let us ſuppoſe, that when the par between Ruſſia and England was fixed, the ruble of the former country, and the half-crown of the latter country, each contained exactly the ſame quantity of ſilver, of the ſame purity, and that that quantity was half an ounce. When, therefore, a ruble, exchanged for half a crown, the exchange was at par: let us now ſuppoſe, that the ruble of Ruſſia, though ſtill retaining that denomination, no longer contains half an ounce of ſilver, but only a quarter of an ounce of that metal. In this caſe it will not exchange for half a crown, or thirty pence, but only for half that ſum, or fifteen pence; but the par between the two countries being ſtill conſidered as fixed at thirty pence the ruble, the rate of exchange will appear to be very much againſt Ruſſia, when the ruble is quoted as only worth fifteen pence, whereas, in fact, when the ruble will purchaſe a bill on England for fifteen pence, it purchaſes its full value: all this is very clear and obvious; but the mode in which this difference in the power of the ruble over Britiſh currency takes place, requires ſome illuſtration; and this illuſtration will confirm the poſition we laid down, that in conſidering the par of exchange between the two countries, we ought to look beyond the quantity of the precious metals contained in the coins of theſe countries to the power of the metals over theſe coins, when ſold for them. Inſtead of ſuppoſing that the ruble was all at once lowered ſo much, as to contain only a quarter of an ounce of ſilver, inſtead of half an ounce, let us ſuppoſe that the diminution in the quantity of ſilver contained in this coin was very trifling, and did not produce a correſpondent riſe in the nominal price of ſilver or bullion; or, in other words, that a ruble, though leſs by one, two, or three *per cent.* than half an ounce of ſilver, ſtill would purchaſe half an ounce of ſilver bullion. In this caſe, would the nominal par of exchange between England and Ruſſia be changed? We apprehend not; and for this reaſon, if a merchant in London, who wiſhed to purchaſe a bill on Peterſburg, refuſed to give at the rate of half a crown a ruble, on the ground that the ruble no longer contained the ſame quantity of ſilver as half a crown, that is, half an ounce, and not being able to obtain the bill on lower terms, determined to tranſmit bullion, he would ſoon be convinced, that to diſcharge his debt, he muſt pay as much as if he had bought the bill at the rate of half a crown the ruble; for, on the ſuppoſition made, that the nominal price of ſilver in Peterſburg had not riſen in proportion to the debaſement of the ruble, but that this coin, though containing one, two, or three *per cent.* leſs ſilver, ſtill purchaſed as much ſilver bullion, he would be obliged to tranſmit as many half ounces of ſilver as he had rubles to pay, and conſequently it would have been more advantageous for him to have purchaſed the bill on Peterſburg, at the rate of half a crown the ruble.

Thus, we perceive, that unleſs the power of the coin of any country over bullion is diminiſhed, the mere circumſtance of the diminution of the intrinſic value of that coin will not affect its exchangeable value, with the unaltered coin of another country, for ſo long as it can purchaſe the ſame quantity of bullion as formerly, it will exchange on equal terms with the ſame foreign coin as formerly. It may, indeed, be objected, that the coined precious metals will always purchaſe, neither more nor leſs, than the ſame quantity of the uncoined metal, which they reſpectively contain; and conſequently, if they contain leſs than formerly, they will purchaſe leſs than formerly: but this, though undoubtedly true in general, is not true univerſally. Where confidence and credit are great in any country, and where the coin has its intrinſic value ſlowly and gradually diminiſhed, merely by the circumſtance of its being worn, the nominal value of bullion will not always correſpond with the actual depreciation in the value of the coin. Indeed, ſetting aſide the conſideration of confidence and credit, there is a great difference between coin worn by uſe, and coin reduced in the ſame degree, when it firſt comes from the mint: in the latter caſe, no perſon in poſſeſſion of bullion will ſell it for the ſame number of coined pieces of gold or ſilver, as he did before their debaſement, becauſe, by taking his bullion to the mint, he can get a greater number of coined pieces out of it; he will, therefore, no longer ſell his ſilver at five ſhillings *per* ounce, if theſe five ſhillings contain only half an ounce of ſilver, becauſe at the mint he can get his ounce of ſilver coined into ten ſhillings; this price, therefore, he will aſk for his ſilver *per* ounce; and, as has been often remarked, if the price of bullion riſes in nominal value, the nominal rate of exchange will riſe in the ſame proportion; ſo that a foreign coin, containing an ounce of ſilver, will exchange for ten ſhillings, inſtead of five, and thus the exchange will appear to be unfavourable, when, in fact, it is not ſo, no more being given for the foreign coin than would be neceſſary to purchaſe the ſilver that would ſell for it. But it is different, when the coin of a country has undergone a ſlow and gradual diminution by wear; in this caſe, if the bullion merchant refuſes to ſell his bullion at the old price, what alternative has he: he refuſes, for inſtance, to take five worn ſhillings for an ounce of ſilver: but if he carries his ounce of ſilver to the mint, he gets from it, when coined, only five ſhillings, which, in the purchaſe of commodities, are of no more value than the five worn ſhillings that he refuſed for his ounce of bullion. In this caſe, the rate of exchange cannot be even nominally altered; ſince the coin, though worn, will ſtill ſell for as much bullion as formerly, and conſequently a debt to be paid in that coin will require as much bullion to diſcharge it as formerly.

Hitherto we have confined our remarks and illuſtrations entirely to thoſe caſes, in which the metallic currency of a country is ſuppoſed to be debaſed or worn; we ſhall now examine what effect on the par of exchange will be produced by a paper currency. So long as this paper currency is not depreciated, the nominal par of exchange will be preciſely the ſame as the real one: this poſition will eaſily be made out. Let us ſuppoſe, as formerly, that the ruble of Ruſſia is the par of the half-crown of England; and that in the former country a paper currency is iſſued, and that paper rubles circulate as well as metallic ones: ſo long as theſe paper rubles are equivalent to the metallic ones, ſo long will the real and nominal par of exchange be preciſely the ſame. For, as we have already explained, the metallic ruble of Ruſſia is deemed the par of the half crown of England, not (ſtrictly ſpeaking) becauſe each coin contains the ſame quantity of ſilver of the ſame ſtandard, but becauſe the one coin will purchaſe as much ſilver, as if ſold, or coined, will be equivalent to the other coin; while, therefore, the paper ruble will exchange for the ſilver ruble, it muſt have the ſame command over ſilver bullion as the ſilver ruble, and conſequently muſt indirectly have the ſame command over the half-crown of England. Let us now ſuppoſe that the paper currency of Ruſſia is depreciated, from whatever cauſe: and that, in conſequence of this depreciation, a paper ruble will no longer exchange for a ſilver ruble, nor purchaſe the quantity of ſilver bullion contained in a ſilver ruble. In this caſe the nominal par of exchange will no longer coincide with the real par of exchange, but will riſe above it in the ſame ratio preciſely as the paper ruble has fallen in value below the metallic ruble: if it require a paper ruble, and one-tenth of a ruble, to purchaſe the ſilver contained in a ſilver ruble, or if a ſilver ruble, by the depreciation of paper currency, become equivalent to one paper ruble, and one-tenth of a paper ruble, then the real par between England and Ruſſia will be a half-crown of the former country for a paper ruble and one-tenth of a paper ruble of the latter country. This will be the real par of exchange; but as the par is ſtill ſuppoſed to continue as it was, that is, a half-crown of England for a ruble of Ruſſia, the exchange will appear to be conformable to Ruſſia, when in fact it is at par.

From theſe remarks and illuſtrations, it is ſufficienly evident, that the real par of exchange between two countries muſt be aſcertained by the following proceſs: the object of the merchant who has a debt to diſcharge in a foreign country, is to pay no more, in his own country, for the means of diſcharging that debt, than it would coſt him to effect it in the foreign country. If he were obliged to pay the debt in the foreign country, he muſt of courſe procure the coin of that country; and, therefore, for the purpoſe of diſcharging it in his own country, he muſt conſent to give as much as would be neceſſary to procure the ſum which he owes. If, in the foreign country, the precious metals in bullion and in coin are exactly of the ſame value, he could diſcharge his debt there by tranſmitting the preciſe quantity of bullion contained in the ſum he owed; but if, as was the caſe in

France before the revolution, the precious metals in bullion were not equivalent to the precious metals when coined, he would be obliged to tranſmit as much more bullion as was neceſſary to make them equivalent, and conſequently, if in his own country he paid no more than the price of this bullion for a bill to diſcharge his foreign debt, he, in fact, bought his bill at par. The ſame general illuſtration might be purſued with reſpect to a bill bought with a depreciated paper currency; if no more were given for the bill, than would have been ſufficient to have purchaſed the bullion neceſſary to diſcharge the debt; the bill, in this caſe, was bought at par, though nominally much more was given for it.

There is only one other caſe, in which the nominal and real rate of exchange can differ; and this caſe is thus explained by Smith in his Wealth of Nations: we ſhall give his explanation, and then offer ſome remarks on it, as at firſt ſight the fact which it unfolds may ſeem to militate againſt the doctrine we have laid down on this ſubject.

"In ſome places, as at Amſterdam, Hamburgh, Venice, &c. foreign bills of exchange are paid in what they call bank money; while in others, as at London, Liſbon, Antwerp, Leghorn, &c. they are paid in the common currency of the country. What is called bank money is always of more value than the ſame nominal ſum of common currency. A thouſand guilders, of the bank of Amſterdam, for example, are of more value, than a thouſand guilders of the bank of Amſterdam currency. The difference between them is called the agio of the bank, which at Amſterdam is generally about five *per cent.* Suppoſing the current money of the two countries equally near to the ſtandard of their reſpective mints, and that the one pays foreign bills in this common currency, while the other pays them in bank money, it is evident that the computed exchange may be in favour of that which pays in bank money, though the real exchange ſhould be in favour of that which pays in current money; for the ſame reaſon that the computed exchange may be in favour of that which pays in better money, or in money nearer to its own ſtandard, though the real exchange ſhould be in favour of that which pays in worſe. The computed exchange before the late reformation of the gold coin, was generally againſt London with Amſterdam, Hamburgh, Venice, and, I believe, with all other places which pay in what is called bank money. It will by no means follow, however, that the real exchange was againſt it. Since the reformation of the gold coin, it has been in favour of London, even with thoſe places. The computed exchange has generally been in favour of London, with Liſbon, Antwerp, Leghorn, and if you except France, I believe with moſt other parts of Europe that pay in common currency, and it is not improbable that the real exchange was ſo too."

The cauſe of this difference between bank money and the common currency of Amſterdam, &c. is explained by Smith himſelf, in his digreſſion concerning banks of depoſit. In Amſterdam, &c. the coin in circulation conſiſted of the currency of different countries; and conſequently differed very much in its intrinſic value, and was alſo liable to great variations of value. Hence, even if there had been no banks of depoſit, theſe various coins muſt have paſſed in exchange for bullion, not according to their denominative, but according to their real value, and, as we have already explained, the rate of exchange is fixed by the command which the reſpective currencies of two countries, that trade with each other, poſſeſſes over bullion. This difference between the bullion and the mint value of the various coins circulated in Amſterdam, would be confirmed by the circumſtance, that the bank of depoſit, when a ſum of money in theſe coins was paid into it, gave credit only for the actual quantity of bullion which they contained. A merchant in London, therefore, who gave five *per cent.* above the nominal par for a bill on Amſterdam, to be paid in bank money, gave no more than the real value of the bullion which he was to receive, and conſequently, in fact, bought his bill at par.

Having thus conſidered, at ſufficient length, the different circumſtances which affect the nominal rate of exchange, we ſhall now advert to thoſe circumſtances which have a tendency to raiſe or lower the rate of exchange, actually, above or below par.

Let us ſuppoſe that the merchants in London have bought goods in Paris to the amount of 2000 Louis d'ors; while other merchants in London have ſold goods in Paris to the ſame amount: the latter draw bills for that ſum, and the former become purchaſers of theſe bills. At what rate will theſe bills be purchaſed? Undoubtedly at the real par of exchange, whatever that may be, ſince the ſupply and demand are exactly equal. If, therefore, the par of exchange be a guinea for a Louis, the merchants who have drawn bills upon Paris to the amount of 2000 Louis, will receive for them 2000 guineas; and thus each party will be accommodated, and ſave the expence of freight and inſurance in tranſmitting or receiving what they owe, or what is owing to them. Let us now ſuppoſe that the bills in London on Paris are ſtill for 2000 Louis, but that, owing to the London merchants having purchaſed fewer goods in Paris, there is a demand for bills on Paris only to the amount of 1500 Louis: in this caſe it is evident that the price of bills on Paris will fall, as the proportion between the demand and the ſupply is altered; the ſupply is the ſame, but the demand is become leſs; hence a bill on Paris for a certain number of Louis, will no longer command in the London market the ſame number of guineas; that is, it will no longer be ſold at par; but at two, three, or five *per cent.* below par. In this caſe the exchange is ſaid to be unfavourable to France, becauſe French money in the London market, or what is the ſame thing, a bill for French money, will no longer bring its real and intrinſic value. On the other hand, let us ſuppoſe the amount of the bills in London on Paris to be ſtill 2000 Louis, but the demand for theſe bills increaſed from 2000 to 2500 Louis; on this ſuppoſition it is equally plain that the exchange between London and Paris will riſe above par; or, in other words, that for a bill for a certain number of Louis, more than the ſame number of guineas will be paid. In this caſe the exchange is ſaid to be favourable to Paris, and unfavourable to London, becauſe for French money, or a bill for French money in London, more than its equivalent in Britiſh money is paid.

There are ſeveral points to be inveſtigated, connected with a *real* variation in the rate of exchange between two countries; in the firſt place, to what amount can the exchange become unfavourable to any country; in the ſecond place, what effects does a favourable or unfavourable exchange produce on the commercial tranſactions of two countries; thirdly, by what proceſs is the exchange, when it varies from the real par, brought back to that par; and, laſtly, can the exchange between any given country, and all the other countries with which it trades, be, on an average, for any length of time, either above or below the real par.

In the firſt place, to what amount can the exchange become really unfavourable to any country? Let us ſuppoſe that a merchant in London wiſhes to purchaſe a bill on Paris for 500 Louis, but that owing to the ſmall ſupply of ſuch bills, or the great demand for them, he finds he muſt pay for it ten *per cent.* above par. He will, before he agrees to theſe terms, enquire whether he cannot diſcharge his debt in Paris at a cheaper rate; the moſt obvious and ſimple mode is by the purchaſe and tranſmiſſion of bullion; and if he finds that he can purchaſe bullion at the mint price, and can ſend it over to Paris at a cheaper rate than ten *per cent.*, he will naturally prefer this mode of ſettling his debt, to giving ſuch a high premium for a bill on Paris. In fact, therefore, the exchange can never become unfavourable to any country, to a greater amount *per cent.* than will pay for the tranſmiſſion of bullion: it may, indeed, be alleged that where the price of bullion has riſen, the exchange may become unfavourable to the amount of that riſe, added to the amount of the charges of tranſmiſſion; but from what has been already ſaid reſpecting the nominal rate of exchange, it will be ſufficiently apparent, that the rate *per cent.* above the computed par, which is paid for a bill, muſt not be conſidered as indicating or meaſuring a really unfavourable exchange, but that this muſt be conſidered as indicated and meaſured ſolely by the amount of the ſum paid for the bill above the price of the bullion which it would purchaſe. It is not eaſy to fix the rate *per cent.* which the tranſmiſſion of bullion to any particular country would coſt; it muſt vary from the different cauſes. In the circumſtances of Europe, ſince the French revolutionary wars, the difficulty and riſk of tranſmitting bullion to any part of the continent, ſubject or expoſed to the French arms, muſt have been greatly increaſed; and conſequently, from this cauſe, independently of the operation of other cauſes affecting the nominal rate of exchange, the real rate of exchange between Great Britain and the continent may have become unfavourable to a greater degree than it would otherwiſe have been.

In the ſecond place, what effects does a favourable or unfavourable exchange produce on the commercial tranſactions of two countries trading with each other? It is abundantly clear and evident, that if the exchange between England and France is unfavourable to the former country, ſhe muſt pay a higher price for all the commodities ſhe imports from France. The Britiſh merchant indeed purchaſes them in France at the ſame rate as formerly: he gives, we will ſuppoſe, ten Louis for a pipe of wine; but let us conſider what in fact he will pay for this wine, when the exchange is at par, and when it is unfavourable to England. In the former caſe, he will pay for a bill for ten Louis, exactly ten guineas (on the ſuppoſition that a guinea and a Louis form the *real* par), while, in the latter caſe, he muſt pay for a bill for ten Louis, ten guineas, and one, two, or three *per cent.* more, according as the exchange is more or leſs unfavourable to England; conſequently, though he purchaſes the wine at the ſame rate in Paris, it coſts him more in London, French money, or a bill for French money, being there worth more than its real and intrinſic value; or, in other words, the demand for theſe bills being greater, or the ſupply of them leſs, than formerly.—Let us now reverſe the caſe, and ſuppoſe that the exchange is favourable to England; that in the London market there are more bills than formerly on Paris, while the demand for them is the ſame; under theſe circumſtances, bills on Paris may be purchaſed under par; and conſequently the price of wine ſtill continuing the ſame in that city, the Engliſh merchant, by purchaſing bills under par, will in reality purchaſe it at a cheaper rate. The general concluſion is, that when the exchange between London and Paris is favourable to the former city, *i. e.* when a certain ſum of Engliſh money is worth more than its *par*, in the purchaſe of bills on Paris, then, in this caſe, French goods may be brought into England at a cheaper rate; whereas, if bills in London on Paris are above par, or in other words, if the exchange is unfavourable to England, ſo that for a bill for a certain ſum on Paris, more than its par in Engliſh money is given, then, in this caſe, French goods will be bought at a dearer rate.

We are now, in the third place, to examine by what proceſs the exchange, when it varies from the real par, is brought back to it: what we have unfolded and illuſtrated under the ſecond head, will, in ſome degree, explain this proceſs. Let us ſuppoſe that the exchange between London and Paris is unfavourable to the former place one, two, or three *per cent.*, or that one, two, or three *per cent.* muſt be given in London, as a premium for a bill on Paris. It is abundantly evident that in this caſe, the ſupply of bills is not equal to the demand; this is indicated by the riſe in the price of them above par; but it is well known, what takes place when the demand for any commodity, becoming greater than the ſupply of it, raiſes its price: capital and induſtry are withdrawn from other ſources of employment, and directed to the commodity, of which there is an inadequate ſupply. The ſame will take place with reſpect to bills of exchange; as it has become a profitable concern to deal in them, more of them will be brought into the market, but it is evident that no man can draw a bill of exchange, unleſs he has property or credit in the country on which the bill is drawn. Bullion, therefore, or goods, will be ſent into France from England, when bills on France bear a premium in England; and though they ſell in the former country for no more than they would have done when the exchange was at par, yet as a bill for the ſum at which they are ſold bears a premium, that premium ſecures a profit to the exporter of the bullion or merchandize. By this exportation more bills on France are preſented in the London market, and the price of them is reduced, till it reaches par. On the other hand, let us ſuppoſe that there are more bills on France in the London market than there is a demand for; or, in other words, that the exchange is favourable to London; in this caſe, by what proceſs will the exchange be brought to par? The quick-ſighted intereſt of commercial men will ſoon effect this: in the firſt place, the Engliſh merchant, finding that his bills are at a diſcount, will leſſen his exports to France; and in the ſecond place, as has been already ſtated and explained, the low price of bills on France will act as a motive to the importation of more French commodities, which, of courſe, will create a demand for more bills, and thus bring the exchange back to par.

Hitherto we have conſidered the unfavourable exchange, or (to ſpeak more correctly) the exchange, when either above or below par, as brought back to par, ſolely by the tranſactions of merchants, and by the actual tranſmiſſion of commodities; but perhaps it is more frequently brought back to par by other means. There are, in all commercial countries, merchants who deal principally in bullion and bills of exchange: a correſpondence is kept up among theſe merchants; and they accommodate and benefit each other, according as the rate of exchange riſes or falls in their reſpective countries. Thus, let us ſuppoſe that two merchants, one in Paris and the other in London, have entered into a correſpondence of this nature; and that in London, bills on Paris bear a large premium. In this caſe, the London merchant draws bills on his Paris correſpondent, which are duly honoured; and the latter divides the premium or profit on them with the former. If, on the contrary, bills in Paris on London bear a premium, the Paris merchant draws on his London correſpondent, who in his turn duly honours them, and divides the profit. Thus it is evident, that an unfavourable exchange may be brought back to par, without the tranſmiſſion of bullion or goods, and ſolely, as we obſerved, by credit: but it is alſo evident, that if the exchange continues unfavourable to England, for example, for a conſiderable length of time, the kind of tranſaction we have been deſcribing cannot go on, without the tranſmiſſion of bullion or commodities.

There is another mode by which, when the exchange deviates from par, it is brought back to it. Let us ſuppoſe that bills in London on Paris bear a high premium, and that bills in America on Paris are at a conſiderable diſcount. In this caſe, bills, like all other commodities under ſimilar circumſtances, will leave the place where they are cheap, and ſeek the place where they are dear; or, in other words, the American merchant will bring his bill on Paris to the London market. He will be the more induced to do this, if, in addition to the circumſtances that bills on Paris are cheap in America and dear in London, it ſhould happen that bills in America on London are dear; and this was exactly the caſe during the earlier years of the ſecond French revolutionary war. England imported more from France than ſhe exported to it; America exported more to France than ſhe imported from it, and imported more from England than ſhe exported to it: the conſequence was, that in London bills on Paris bore a premium, while bills on Paris in America were at a diſcount, and bills in America on London at a premium. Under theſe circumſtances, let us ſuppoſe an American merchant who had imported goods from England: he wiſhes to purchaſe a bill in America on England, to pay for theſe goods; but he finds that for it he muſt pay a premium, while, at the ſame time, bills in America on Paris are at a diſcount: he therefore purchaſes a bill on Paris, inſtead of a bill on England; and this bill, which he purchaſes at a diſcount in America. he ſells at a premium in London; thus diſcharging his Engliſh debt for leſs than its real value; whereas, if he had diſcharged it by purchaſing in America a bill on England, he muſt have diſcharged it for more than its real value. Let us now conſider the effect of this tranſaction on the rate of exchange in America and England. In the former country, the exchange with England was unfavourable, or, in other words, there was a greater demand for bills than could be ſupplied; conſequently they were at a premium, or the exchange was below par: but the American merchant, by purchaſing a bill on Paris, inſtead of a bill on England, leſſens the demand, and thus brings the exchange nearer to par. By the ſame operation, he increaſes the demand for bills on Paris, which before were in too large a ſupply, and conſequently at a diſcount; or, in other words, the exchange between America and Paris was above par, or favourable to the former. Thus we perceive that in America, by a very ſimple proceſs, a proceſs to which intereſt will always be a ſufficient motive and guide, the rate of exchange with two diſtinct countries is brought back to par. Let us now follow the effects of the ſame tranſaction in England: the American merchant pays his Engliſh debts with a bill on Paris, and conſequently, by increaſing the ſupply of theſe bills, reduces the premium on them; or, in other words, reduces the exchange between England and France nearer to par.

The concluding inquiry is, whether the exchange between any given country, and all the other countries with which it trades, can, on an average, for any length of time, be above or below the real par? This queſtion is one of more importance than difficulty; and we ſhall probably arrive at its true and ſatisfactory ſolution, by the following conſiderations.

In the firſt place, it has been abundantly ſhewn, that the intereſt of the merchant prompts him to take advantage, either of a favourable or unfavourable rate of exchange, in ſuch a manner as moſt certainly, and in no long ſpace of time, to reduce it to par. If it were, therefore, even poſſible for any nation to have an unfavourable rate of exchange with all the other nations with which it trades, this would ſoon be rectified by the commercial tranſactions of its merchants.

But in the ſecond place, ſuch an event could not take place at all, even for the ſhorteſt ſpace of time: for let us conſider what it implies, and would produce. It implies that the nation, ſuppoſed to be ſo circumſtanced, purchaſes more commodities than it ſells. Let us even for a moment ſuppoſe this to be the caſe: the overplus of its purchaſes muſt be paid for; but by the hypotheſis, only its bullion and coin can be employed for that purpoſe; and if they are exported, commodities muſt become cheap; if commodities become cheap, buyers will flock into it, or, in other words, its exports will increaſe, and conſequently the rate of exchange will be reſtored to par, or perhaps raiſed above it.

In the whole of this diſcuſſion, and in moſt diſcuſſions on the par of exchange, it is ſuppoſed to be affected only when the trade between any two countries is not balanced or equal; that is to ſay, when one country imports more commodities from the other country than it exports to it. But there are ſeveral other circumſtances which affect the par of exchange, though it was not neceſſary, in diſcuſſion, and explaining the general principles of this ſubject, to enter upon them: the moſt material and common of them may, however, be noticed.

In the firſt place, beſides the merchants who require bills on any particular country, to pay for the commodities they may have purchaſed there, government has frequently occaſion for theſe bills, for the purpoſes of ſubſidy, civil and military expenditure, &c. The hiſtory of the preſent and of the laſt war affords many ſtriking inſtances of this fact, and of the conſequences produced on the rate of exchange, by the increaſed demand for foreign bills on the part of government.

In the ſecond place, all perſons who are leaving the country to ſettle abroad, or who have money to tranſmit abroad, though not for mercantile purpoſes, naturally prefer purchaſing bills of exchange; and conſequently, from this cauſe, the rate of exchange is affected.

Laſtly, another ſource of demand for bills of exchange ariſes in England from the dividends on the ſtock held by foreigners, as theſe dividends are uſually tranſmitted by means of bills of exchange.

When, therefore, the rate of exchange is unfavourable to a country, it by no means follows that that country is importing goods to a greater amount than it exports. If bills of exchange were ſought after, and employed ſolely to pay for goods imported, this would be a legitimate inference; but as they are employed for other purpoſes, ſuch a concluſion is erroneous.

We have thus endeavoured to illuſtrate the doctrine of commercial exchanges, on the general principles of political economy; and if, in ſome parts of this article, we may ſeem to have been too minute, and to have deſcended to details too familiar, our apology muſt be derived from the anxiety we felt not to leave obſcure any part of the ſubject, and from our conviction that political economy, more than any other ſcience, requires ample and familiar illuſtration.

Par, in *Geography*, a river of Bavaria, which runs into the Danube, four miles below Ingoldſtadt.

Par *Vagum*, in *Anatomy*, the eighth pair of nerves. See Nervous *Syſtem*.

PARA, in *Commerce*, a ſmall Turkey coin, 40 of which are equal to a piaſtre, and contains three aſpers.

Para, *Grand Para*, in *Geography*, the moſt northern of the colonies or governments of Braſil, in South America. This government comprehends that part of Guiana which belongs to the Portugueſe, on the north ſide of the river Amazons, extending from the union of the river Madeira to the Atlantic, about 600 miles from eaſt to weſt, and 200 from north to ſouth. It produces abundance of cotton, ſugar, vanilla, chocolate, coffee: a fleet laden with theſe articles has uſually ſailed every year for Liſbon. The climate is extremely hot; and the woods abound with valuable timber of great ſolidity and brilliant colours, and ſome trees that yield odorous balſams. (See Balsam.) The capital Para, ſituated at the mouth of the great river Tocantin, which receives that called dos Bocas, into which a natural canal from the Maranon (called Tagipuru) has been opened by the violent tides. This is a rich and handſome town, with two pariſh churches, and a college. Beſides a citadel, it has a fortreſs, with a ſtrong train of artillery, and a garriſon of four companies. S. lat. 1° 45′. W. long. 50 .

Para, a large river of Braſil, formed by the union of the Tocantin and the Guanapa, which runs about 120 miles in a north-eaſterly direction, ſeparating the iſland of Marajo from the continent, and diſcharging itſelf into the Atlantic, about 20 miles S. of the Line.—Alſo, a river of Braſil, which riſes about 150 miles W. of Villarica, and runs into the S. Franciſco, S. lat. 16 50′.—Alſo, a town of Turkiſh Armenia; 90 miles N.N.E. of Cars.

Para *Hotun*, a town of Chineſe Tartary, on the river Kerlon. N. lat. 48° 6′. E. long. 113° 14′.

Para, in *Mythology*, is the name of the Hindoo goddeſs Parvati, in her character of *Prakriti*; which ſee. It means firſt, or greateſt.

PARABITTA, in *Geography*, a town of Naples, in the province of Otranto; 10 miles N.W. of Aleſſano.

PARABLE, παραϐολη, formed from παραϐαλλειν, *to oppoſe*, or *compare*, a fable, or allegorical inſtruction, founded on ſomething real, or apparent, in nature, or hiſtory; from which a moral is drawn, by comparing it with ſome other thing, wherein the people are more immediately concerned. (See Alegory.) Or, it is that figure of ſentences, which illuſtrates a thing by comparing it with ſome other, to which it bears a reſemblance.

Such are thoſe parables of the ten virgins, of Dives and Lazarus, of the prodigal ſon, &c. in the New Teſtament.

Ariſtotle defines parable, a ſimilitude drawn from form to form. Cicero calls it a collation, others a ſimile. F. de Colonia calls it a rational fable.

The Hebrews call it משל, from a word which ſignifies either *to predominate*, or *to aſſimilate*: the Proverbs of Solomon are by them alſo called משלים, *parables*, or *proverbs*.

Glaſſius defines parable a ſimile, by which a fictitious thing is related as real, and compared with ſome ſpiritual thing, or accommodated to ſignify it.

Some make parable differ from fable; Grotius and others uſe the two terms promiſcuouſly. Kircher derives the uſe of parables from the Egyptians.

Parable, according to the eminently learned biſhop Lowth, (Lectures on the Sacred Poetry of the Hebrews,) is that kind of allegory which conſiſts of a continued narration of a fictitious event, applied by way of ſimile to the illuſtration of ſome important truth. The Greeks call theſe allegories αινοι (or apologues,) the Latins fabulæ, or fables: and the writings of the Phrygian ſage, or thoſe compoſed in imitation of him, have acquired the greateſt celebrity. Nor has our Saviour himſelf diſdained to adopt the ſame method of inſtruction, of whoſe parables it is doubtful, whether they excel moſt in wiſdom and utility, or in ſweetneſs, elegance, and perſpicuity. As the appellation of parable has been applied to his diſcourſes of this kind, the term is now reſtricted from its former extenſive ſignification to a more confined ſenſe. This ſpecies of compoſition occurs very frequently in the prophetic poetry, and particularly in that of Ezekiel. If to us they ſhould ſometimes appear obſcure, we muſt remember, that in thoſe early times, when the prophetical writings were indited, it was univerſally the mode throughout all the eaſtern nations, to convey ſacred truths under myſterious figures and repreſentations. In order to our forming a more certain judgment upon this ſubject, Dr. Lowth has briefly explained ſome of the primary qualities of the poetic parables; ſo that, by conſidering the general nature of them, we may decide more accurately on the merits of particular examples.

It is the firſt excellence of a parable to turn upon an image well known and applicable to the ſubject, the meaning of which is clear and definite; for this circumſtance will give it perſpicuity, which is eſſential to every ſpecies of allegory. If the parables of the ſacred prophets are examined by this rule, they will not be found deficient. They are in general founded upon ſuch imagery as is frequently uſed, and ſimilarly applied by way of metaphor and compariſon in the Hebrew poetry. Examples of this kind occur in the parable of the deceitful vineyard (Iſa. v. 1—7.), and of the uſeleſs vine (Ezek. xv. and xix. 10—14.); for under this imagery the ungrateful people of God are more than once deſcribed. (See alſo Ezek. xix. 1—9. Ezek. xxxi. Ezek. xvi. and xxiii.) Moreover, the image muſt not only be apt and familiar: but it muſt be alſo elegant and beautiful in itſelf; ſince it is the purpoſe of a poetic parable, not only to explain more perfectly ſome propoſition, but frequently to give it ſome animation and ſplendour. As the imagery from natural objects is in this reſpect ſuperior to all others, the parables of the ſacred poets conſiſt chiefly of this kind of imagery. It is alſo eſſential to the elegance of a parable, that the imagery ſhould not only be apt and beautiful, but that all its parts and appendages ſhould be perſpicuous and pertinent. Of all theſe excellencies, there cannot be more perfect examples than the parables that have been juſt ſpecified: to which we may add the well-known parable of Nathan (2 Sam. xii. 1—4.) although written in proſe, as well as that of Jotham (Jud. ix. 7—15.) which appears to be the moſt ancient extant, and approaches ſomewhat nearer to the poetical form. It is alſo the criterion of a parable, that it be conſiſtent throughout, and that the literal be never confounded with the figurative ſenſe: and in this reſpect it materially differs from that ſpecies of allegory, called the continued metaphor. (See Iſaiah, v. 1—7.) It ſhould be conſidered that the continued metaphor and the parable have a very different view. The ſole intention of the former is to embelliſh a ſubject, to repreſent it more magnificently, or at the moſt to illuſtrate it; that, by deſcribing it in more elevated language, it may ſtrike the mind more forcibly; but the intent of the latter is to withdraw the truth for a moment from our ſight, in order to conceal whatever it may contain ungraceful or diſguſting, and to enable it ſecretly to inſinuate itſelf, and obtain an aſcendancy as it were by ſtealth. There is, however, a ſpecies of parable, the intent of which is only to illuſtrate the ſubject; ſuch is that remarkable one of Ezekiel (chap. xxxi.), of the cedar of Lebanon; than which, if we conſider the imagery itſelf, none was ever more apt or more beautiful: of the deſcription and colouring, none was ever more elegant or ſplendid; in which, however, the poet has occaſionally allowed himſelf to blend the figurative with the literal deſcription. (ſee ver. 11, 14—17.): whether he has done this becauſe the peculiar nature of this kind of parable required it, or whether his own fervid imagination alone, which diſdained the ſtricter rules of compoſition, was his guide, our learned author can ſcarcely preſume to determine.

In the New Teſtament, the word parable is uſed variouſly. In Luke, iv. 23. for a proverb, or adage: in Matt. xv. 15. for a thing darkly and figuratively expreſſed: in Heb. ix. 9, &c. for a type: in Luke, xiv. 7, &c. for a ſpecial inſtruction: Matt. xxiv. 32. for a ſimilitude or compariſon.

Parables, or ſimilitudes, are of two ſorts, ſimple and compound. Thoſe are called ſimple, in which one thing only is likened or compared to another in this manner: as ſwallows appear in ſummer, but in winter retreat; ſo falſe friends ſhew themſelves in proſperity, but fly all away, when adverſity approaches. Compound ſimilitudes are ſuch wherein one thing is likened or compared to ſeveral others, as thus: what light is to the world, phyſic to the ſick, water to the thirſty, and reſt to the weary; that is knowledge to the mind. The more exact the agreement is between the things compared, they give the greater beauty and grace to the figure. Ward's Orat. vol. ii. p. 76.

PARABOLA, in *Geometry*, is a curve line made by the common interſection of a conic ſurface and a plane which cuts it, and is parallel to another plane that touches the ſame conic ſurface.

A conic ſection made by a plane ever ſo little inclined to the parabola on the one ſide, is an ellipſe; and a ſection made by a plane inclined ever ſo little on the other ſide, is an hyperbola: thus the parabola is the limit between theſe two curves, to which they both continually approach, while their tranſverſe axes increaſe more and more; being, as it were, the paſſage from one of them to the other.

While all the planets move round the ſun in orbits of a ſmall, or a moderate degree of excentricity, the comets deſcribe ellipſes ſo aſtoniſhingly excentric, that they cannot be diſtinguiſhed from parabolas during the ſhort time thoſe bodies continue viſible.

If a heavy body be projected from the earth's ſurface, and if we abſtract from the reſiſtance of the air, and ſuppoſe gravity to act in parallel directions, the path deſcribed by the projectile will be a parabola.

Again, if we wiſh to collect parallel rays of light in a ſingle point by reflecting them from a curve ſurface; we muſt employ for this purpoſe the concave curve generated by the revolution of a parabola about its axis, which will reflect all the parallel rays incident upon it to the focus of the generating parabola.

On all theſe accounts the parabola merits much attention. We have already treated of it along with the other conic ſections; and it only remains that we add here thoſe properties deſerving notice which are peculiar to this curve.

Prop. I. Ordinates drawn to two diameters of a parabola from one another's vertices, will caſt off equal abſciſſas. See *Plate of Conics*, (*Parabola*), *fig* 1.

Let A E be an ordinate to the diameter whoſe vertex is B, and B D an ordinate to the diameter whoſe vertex is A: then the abſciſſas A D and B E will be equal. Draw the tangents A F and B F meeting in F; join A B; draw F K, cutting the curve in H, parallel to A D and B E; alſo draw H M and K N parallel to B D.

Then (Cor. 31. Conics)

$$HM^2 : BD^2 :: AM : AD;$$

but on account of the ſimilar triangles K A N, B A D,

$$KN^2, \text{ or } HM^2 : BD^2 :: AN^2 : AD^2;$$

therefore (11. 5. E.)

$$AM : AD :: AN^2 : AD^2;$$

conſequently A D is a third proportional to A M and A N; or to F H and H K.

And in like manner it may be ſhewn that B E is a third proportional to F H and F K;

therefore $AD = BE$.

Prop. II. The part of the diameter of a parabola intercepted between an ordinate (*fig.* 2.), and a tangent drawn from the ſame point in the curve, is biſected in the vertex of the diameter.

Let the ordinate M A, and the tangent M D, meet the diameter, whoſe vertex is V: then $AV = DV$. Draw V L parallel to M D to meet the diameter paſſing through M: then V L will be an ordinate of that diameter (19. Conics); therefore (1) $ML = DV = VA$.

Prop. III. A diameter of a parabola drawn through the interſection of two tangents will biſect the chord that joins the two points of contact.

Let T P and T Q (*fig.* 3.) be two tangents of a parabola; then T K, a diameter drawn through their interſection, will biſect the line drawn between the points of contact. Let P M be an ordinate drawn to the diameter which paſſes through Q, and let P T meet the ſame diameter in L. Then (2) $MQ = QL$; but T Q is parallel to P M (Conics, 19.): therefore alſo $PT = TL$, and $PK = KQ$.

Prop. IV. A tangent of a parabola makes equal angles with a diameter and a ſtraight line drawn from the point of contact to the focus.

Let M P (*fig.* 4.) touch a parabola in M, it will make equal angles with a diameter M K, and the line M F drawn to the focus from the point of contact. Let K G be the directrix of the parabola, M K perpendicular to K G, M Q perpendicular to the axis, and let the tangent meet the axis in P. Then (Conics, Def. 24.) $GV = VF$; and (2) $VP = VQ$; therefore $PF = GQ = MK =$ (Conics, 43.) M F: therefore (5. 1. E.) the angle F M P = the angle F P M = the angle P M K.

Prop. V. A ſtraight line drawn from the interſection of two tangents of a parabola to the focus, will biſect the angle contained by two lines drawn from the focus to the points of contact of the tangents.

Let T P and T Q (*fig.* 5.) be two tangents of a parabola, having its focus at F: then, having drawn T F, P F, Q F, the angle P F T will be equal to the angle T F Q. Draw P M and Q N perpendicular to the directrix, and join T M, T N. In the two triangles T P M, T P F, T P is common; P M is equal to P F (Conics, 43.); and (4) the angle T P M is = the angle T P F: therefore (4. 1. E.) $TM = TF$, and the angle T M P = the angle T F P. In like manner, the two triangles Q T N, Q T F, have Q T common; $QN = QF$; and the angle T Q N = angle T Q F: therefore $TN = TF$, and the angle T F Q = T N Q. And becauſe $TM = TF$, and $TN = TF$; therefore $TM = TN$, and the angle T M N = T N M (5. 1. E.) Now it was ſhewn that T F Q = T N Q = complement of T N M; and T F P = T M P

= T M P = complement of T M N ; therefore T F Q = T F P.

Cor.—If a diameter, O R, be drawn through T, that diameter, and the line T F, will make equal angles with the tangents T P and T Q. For the triangle N T Q, having been proved equal to the triangle Q T F ; and the triangle M P T equal to the triangle F P T ; therefore 2 N T Q + 2 P T F + N T M = four right angles (Cor. 2. 15. 1. E.) : but, N T M being an iſoſceles triangle, R O, perpendicular to the baſe M N, will biſect the vertical angle N T M : therefore 2 N T Q + 2 P T F + 2 N T O = four right angles, conſequently N T Q + P T F + N T O = two right angles. But N T Q + Q T R + N T O = two right angles : conſequently Q T R = P T F, and P T R = Q T F.

Cor. 2.—If two tangents of a parabola (*fig.* 6.), drawn from the extremities of a chord paſſing through the focus, interſect in T ; then T F is perpendicular to the chord P Q. For the angles Q F T and P F T being in all caſes equal, they will become right angles when Q F and F P are in one ſtraight line.

Prop. VI.—If from a point in a parabola there be drawn an ordinate to the axis, and likewiſe a perpendicular to the line touching the curve at that point, the part of the axis which thoſe lines intercept will be equal to half the parameter of the axis.

Let P M (*fig.* 7.) be an ordinate to the axis of a parabola, and P N a perpendicular to the tangent P Q ; then M N = $\frac{1}{2}$ parameter of the axis. For (Def. 20. Conics) $PM^2 = VM \times$ param.; but (Cor. 8. 6. E.) $PM = QM \times MN$ now $QM = 2\,VM$: therefore $PM^2 = 2\,VM \times MN = VM \times$ param. Conſequently $MN = \frac{1}{2}$ param.

Prop. VII.—If M N (*fig.* 8.) be any chord drawn through the focus of a parabola, and P Q likewiſe drawn through the focus be ordinately applied to the axis : then four times the rectangle $MF \times FN$ will be equal to the rectangle $MN \times PQ$.

Draw M H, N K perpendicular to the axis, and M L, N R Q O perpendicular to the directrix : then the triangles F M H, F N K are equiangular ; conſequently,

$$MF : FN :: FH : FK.$$

Now G F = F Q = Q O, H G = L M = M F, and G K = N R = N F ; therefore, F H = F Q − M F ; and F K = N F − F Q. Conſequently, the proportion above will become

$$MF : FN :: FQ - MF : NF - FQ.$$

$$\text{Therefore } 2\,MF \times FN = MN \times FQ;$$

$$\text{and } 4\,MF \times FN = MN \times PQ.$$

Prop. VIII.—The ſquare of the perpendicular drawn to a tangent of a parabola from the focus, is equal to a rectangle under one-fourth of the parameter of the axis, and the line drawn from the focus to the point of contact of the tangent.

Let F P (*fig.* 9.) be drawn from the focus of a parabola, perpendicular to a tangent, and M F to the point of contact. Then $FP^2 = MF \times FV$, F V being one-fourth part the parameter of the axis. Let the tangent M P meet the axis in R ; draw M S an ordinate of the axis ; join P V, and make P G perpendicular to M F ; draw M O parallel to the axis. Then (4) the angle O M P = F M P = F R P ; therefore M F R is an iſoſceles triangle, and F P, a perpendicular from the vertex upon the baſe, will biſect the baſe M R : but R S is alſo biſected in V (2) : therefore P V is parallel to M S (2. 6. E.), perpendicular to the axis, and a tangent of the curve at V : therefore P F will biſect the angle M F V (5) : hence it is plain, that the right-angled triangles P V G and P F G are equal in all reſpects, and that F G = F V. Now $PF^2 = MF \times FG = MF \times FV$ (8. 6. E).

Of the Deſcription of a Parabola in Plano.—1. When the parameter of the axis is given, any number of points in the curve may be found as follows. Let A B (*fig.* 10.) be the parameter ; continue it indefinitely towards B, and draw a perpendicular from B, which prolong indefinitely ; biſect A B in C ; then if a ſeries of points, 1, 2, 3, &c. be aſſumed on the ſame ſide of C with B, and from theſe points, as centres, circles be deſcribed through A, to cut the perpendicular in the points N, N′, N″, &c. and the prolongation of A B, in D, D′, D″, &c.; the perpendiculars B N, B N′, B N″, &c. will be the ordinates of the parabola that belong to the abſciſſes B D, B D′, B D″, &c.; which is manifeſt, ſince, from the nature of the circle, we have, $BN^2 = AB \times BD$; $BN'^2 = AB \times BD'$, &c. Hence, if we complete the parallelograms B M, B M′, B M″, &c. the ſeveral points M, M′, M″, &c. will be in the curve of the parabola.

2. When the directrix A B (*fig.* 11.), and the focus are given, the curve may be deſcribed by finding points in the following manner. Through F draw G P perpendicular to the directrix, then G P will be the axis of the parabola : through any point P of the axis, draw M *m* parallel to A B, and from the centre F, with the diſtance G P, deſcribe a circle to interſect M *m* in the points M and *m* ; then will M and *m* be points of the curve. (Conics, 43).

3. When the directrix and the focus are given (*fig.* 12.), the curve may be thus deſcribed by a continued motion. Let the ruler E D H be ſo applied, that the edge E D may be upon the directrix A B, and the edge D H, which is perpendicular to E D, on the ſame ſide of A B with the focus F : take a thread or ſtring, exactly equal in length to the part of the ruler D H, and fix one end of it in the focus F, and the other end to the extremity of the ruler H : then if a pencil is kept upon the edge D H, ſo as to ſtretch the thread tight, while the edge E D is made to ſlide along the directrix, the pencil will deſcribe a parabola. (Conics, 43.)

But although the curve of a parabola cannot be conſtructed by very convenient or very ſimple means ; yet it is expreſſed by an equation of a more ſimple form than any other curve. If we denote by y the ordinate which correſponds to the abſciſs x in a parabola, having p for the parameter of its axis ; then the equation of the parabola will be $y^2 = p\,x$. This equation is leſs complicated than even that of the circle, which curve is on a footing in this reſpect with the ellipſis and hyperbola. If then the circle be admitted into elementary geometry, while the kindred curves of the conic ſections are claſſed as a higher branch of that ſcience ; the reaſon of this preference of the circle in the conſtruction of geometrical problems is to be ſought for in the more eaſy and ſimple deſcription of the curve, not in the nature of its equation. But this is a point ſo well diſcuſſed by the admirable ſir Iſaac Newton, in his " Arithmetica Univerſalis," when treating of the linear conſtruction of equations, that we muſt refer our readers to that work.

Quadrature of the Parabola.—The quadrature of the parabola is a diſcovery that will always be intereſting to geometers. It is ſtill the moſt remarkable inſtance in the hiſtory of mathematical learning, of the exact equality of a curvilineal to a rectilineal ſpace. We are indebted for it to Archimedes, the moſt inventive geometer of antiquity. The original work in which this diſcovery is contained, has happily been preſerved ; and it is the moſt curious monument extant of the power of inventive genius to employ in the ſearch of truth means the moſt unconnected with the ſubject in contemplation,

templation, and the leaſt likely to be ſucceſsful. The treatiſe of Archimedes on the quadrature of the parabola conſiſts of two parts: in the firſt part the author details the reaſonings, founded on mechanical conſiderations, and the nature of the lever, by which his diſcovery was originally made: in the ſecond part, he demonſtrates the ſame thing more naturally from principles purely geometrical. The whole treatiſe is well worth the attention of mathematicians: but in this place we muſt confine ourſelves to demonſtrate conciſely the diſcovery of Archimedes. This we ſhall do in a manner ſtrictly rigorous, and not differing eſſentially from the mode of inveſtigation traced out by the illuſtrious inventor.

We call equidiſtant parallel lines thoſe that cut any ſtraight line that croſſes them into equal parts.

Prop. I. If a triangle A C B (*fig.* 13.) be inſcribed in a ſegment of a parabola, by drawing a diameter D C to biſect the baſe; and if a polygon A M C N B be likewiſe inſcribed in the ſame ſegment by drawing four equidiſtant diameters which will divide the baſe into four equal parts; the exceſs of the polygon above the triangle will be one-fourth part of the triangle.

At A draw a tangent of the curve to meet the diameters E M and D C in H and K. Becauſe A D is biſected in E, A C will be biſected in S; therefore H M = M S and D C = C K (2). Therefore the triangle A H S = twice the triangle A M S = the triangle A M C; but the triangle A H M = $\frac{1}{4}$ of the triangle A C K (19. 6. E.) = $\frac{1}{4}$ of the triangle A C D. For like reaſons the triangle C N B = $\frac{1}{4}$ of the triangle C D B. Therefore the ſum of the two triangles A M C and C N B, which is the exceſs of the polygon A M C N B above the triangle A C B, is equal to one-fourth part of the triangle A C B.

Prop. II. If a triangle A C B (*fig.* 14) be inſcribed in a ſegment of a parabola by drawing a diameter A B to biſect the baſe of the ſegment; the exceſs of the ſegment above the triangle will be leſs than the triangle.

Becauſe A B is ordinately applied to the diameter D C, therefore A B is parallel to F G, a tangent of the curve at C; draw A F and B G parallel to C D: then theſe lines will be diameters, and the part of each above the vertex being without the curve, the parallelogram A F G D will contain the ſegment of the parabola. Now the exceſs of the parallelogram above the triangle A C B, is exactly equal to the triangle; therefore the exceſs of the ſegment above the triangle is leſs than the triangle.

Prop. III. To inveſtigate the area of a ſegment of a parabola.

Let A C B be a ſegment of a parabola, and let the triangle A C B (*fig.* 16.) be inſcribed in it by drawing the diameter D C to biſect the baſe of the ſegment; the area of this triangle we ſhall denote by a.

Draw the diameters E N, F Q, to biſect the parts A D, B D; by which means the baſe A B will be divided into 4, or 2^2, equal parts, and a polygon A N C Q B will be inſcribed in the ſegment, the exceſs of which polygon above the triangle A C B is equal to one-fourth part of the triangle (firſt prop.); conſequently the area of the ſame polygon will be equal to

$$a + \frac{a}{4},$$

which ſpace is leſs than the ſegment. Again, the exceſs of the ſegment A N C above the triangle A N C, is leſs than the triangle A N C (2d prop.); and the exceſs of the ſegment C Q B above the triangle C Q B, is leſs than the triangle C Q B; therefore the ſum of theſe two exceſſes, which is equal to the exceſs of the ſegment A C B above the polygon A N C Q B, will be leſs than the ſum of the two triangles A N C and C Q B; that is, it will be leſs than $\frac{a}{4}$ (firſt prop.) Hence the ſpace

$$a + \frac{a}{4} + \frac{a}{4}$$

will be greater than the ſegment A C B.

And if we inſcribe another polygon A M N O C P Q R B in the ſegment, by drawing diameters to biſect the intervals between the diameters of the laſt polygon, ſo as to divide the baſe of the ſegment into 8, or 2^3, equal parts; then the exceſs of this polygon above the laſt polygon will be equal to the ſum of the triangles A M N, N O C, C Q B, Q R B; but the ſum of the triangles A M N and N O C is equal to one-fourth part of the triangle A N C; and the ſum of the triangles C P Q and Q R B is equal to one-fourth part of the triangle C Q B (firſt prop.); therefore the exceſs above-mentioned is equal to one-fourth part of the ſum of the triangles A N C and C Q B; that is, it is equal to $\frac{1}{4}$ of $\frac{a}{4}$; or to $\frac{a}{4^2}$. Therefore the area of the polygon formed by dividing the baſe into 8, or 2^3, equal parts, will be equal to

$$a + \frac{a}{4} + \frac{a}{4^2};$$

which ſpace is leſs than the ſegment A C B. Again, the exceſs of the ſegment A C B above the ſame polygon, is leſs than the ſum of the triangles A M N, N O C, C P Q, Q R B; that is, it is leſs than $\frac{a}{4^2}$; therefore the ſpace

$$a + \frac{a}{4} + \frac{a}{4^2} + \frac{a}{4^2}$$

is greater than the ſegment A C B.

In like manner, if we continue to inſcribe new polygons in the ſegment, by drawing diameters which ſhall biſect the intervals between the diameters of the preceding polygons, after n biſections, which will divide the baſe of the ſegment into 2^n equal parts, we ſhall come to an inſcribed polygon whoſe area is equal to

$$a + \frac{a}{4} + \frac{a}{4^2} + \frac{a}{4^3} \cdot \cdot \cdot \cdot \cdot \frac{a}{4^{n-1}};$$

which is therefore leſs than the ſegment A C B. But we can prove, as is done above, that the exceſs of the ſegment above the polygon is leſs than $\frac{a}{4^{n-1}}$; therefore the ſpace

$$a + \frac{a}{4} + \frac{a}{4^2} + \frac{a}{4^3} \cdot \cdot \cdot \cdot + \frac{a}{4^{n-1}} + \frac{a}{4^{n-1}}$$

will be greater than the ſegment.

Now, if from the area of the polygon, *viz.*

$$a + \frac{a}{4} + \frac{a}{4^2} + \frac{a}{4^3} \cdot \cdot \cdot \cdot + \frac{a}{4^{n-1}},$$

we ſubtract its fourth part, the three-fourths which remain will be equal to $a - \frac{a}{4^n}$; therefore the area of the polygon will be equal to $\frac{4a}{3} - \frac{1}{3} \cdot \frac{a}{4^{n-1}}$, which is leſs than the ſegment; and the ſpace proved above to be greater than the ſegment will be equal to $\frac{4a}{3} + \frac{2}{3} \cdot \frac{a}{4^{n-1}}$. Between theſe two limits the area of the parabolic ſegment is contained, how great ſoever may be the number of biſections denoted by n.

But $\frac{4a}{3}$ is the only quantity which, for every value of n, is contained between the foregoing limits, *viz.*

$$\frac{4a}{3} - \tfrac{1}{3} \cdot \frac{a}{4^{n-1}}$$

$$\frac{4a}{3} + \tfrac{2}{3} \cdot \frac{a}{4^{n-1}}.$$

For it is manifeſt that n may be taken ſo great, that the difference between the two limits ſhall be leſs than any aſſignable ſpace. Therefore the area of the ſegment of the parabola is equal to $\frac{4a}{3}$; that is, it is equal to four third parts of the triangle inſcribed in it, by drawing a diameter to biſect the baſe; or, which is the ſame thing, it is equal to four third parts of the triangle that has the ſame baſe and altitude with the ſegment.

The area of a parallelogram circumſcribed about a ſegment of a parabola (*fig.* 15.), being double of the triangle inſcribed in the ſegment; the area of the ſegment will be two-third parts of the parallelogram.

The modern analyſis furniſhes a much ſhorter way of determining the area of a parabola than the prolix though elegant method of the ancient geometers. Let p denote the parameter of a diameter of a parabola; y an ordinate; x the correſponding abſciſs; and m the ſine of the angle in which the ordinate cuts the diameter; then the fluxion of the area of the ſemi-ſegment of the parabola will be $m y \dot{x}$; but $y^2 = p x$, and $y = p^{\frac{1}{2}} x^{\frac{1}{2}}$; therefore the fluxion of the ſemi-ſegment is $m p^{\frac{1}{2}} x^{\frac{1}{2}} \dot{x}$; and the fluent, or the area itſelf, is $\frac{2}{3} m p^{\frac{1}{2}} x$; and by ſubſtituting y for $p^{\frac{1}{2}} x^{\frac{1}{2}}$, the ſemi-ſegment of the parabola is $\frac{2}{3} m y x$; and the whole ſegment is equal to $\frac{2}{3} \times 2 m y x$, that is, to two-thirds of the circumſcribing parallelogram.

Rectification of the Parabola.—About the year 1659, Van Heuraet, a Dutch mathematician, invented a method of reducing the rectification of any propoſed curve to the quadrature of another curve derived from the former by a geometrical conſtruction; and in this way he ſhewed that the rectification of the parabola could be accompliſhed by the quadrature of the hyperbola. This diſcovery is explained by the author in a letter to Francis Schooten, inſerted by that mathematician in the edition of Des Cartes' geometry, which he publiſhed in 1659. Inventions of this kind, although they might be very intereſting at the time they were firſt made known to the public, are now only objects of curioſity to ſuch as wiſh to inquire into the hiſtory of mathematical learning; we ſhall therefore proceed to inveſtigate the length of an arc of a parabola, by the general method now in uſe.

Let $4p$ denote the parameter of the axis of a parabola; y an ordinate to the axis; x the correſponding abſciſs; s the length of the arc eſtimated from the vertex; then, as is proved in the method of fluxions, $\dot{s} = \sqrt{\dot{x}^2 + \dot{y}^2}$; but the equation of the curve is $y^2 = 4 p x$; therefore $y = 2 \sqrt{p x}$; conſequently $\dot{y} = \dot{x} \sqrt{\frac{p}{x}}$; and $\dot{y}^2 = \dot{x}^2 \cdot \frac{p}{x}$; therefore, by ſubſtitution, $\dot{s} = \dot{x} \sqrt{1 + \frac{p}{x}} = \frac{x \dot{x} + p \dot{x}}{\sqrt{x^2 + p x}}$.

Suppoſe $z = \sqrt{x^2 + p x}$; then by taking the fluxions $\dot{z} = \frac{x \dot{x} + \frac{1}{2} p \dot{x}}{\sqrt{x^2 + p x}}$; hence $\dot{s} = \dot{z} + \frac{1}{2} p \cdot \frac{\dot{x}}{\sqrt{x^2 + p x}}$; and by taking the fluents, and reſtoring the value of z, we get

$$s = \sqrt{x^2 + p x} + \tfrac{1}{2} p \times \text{hyp. log.}\ \frac{x + \frac{1}{2} p + \sqrt{x^2 + p x}}{\frac{1}{2} p};$$

which is the expreſſion of the length of an arc of a parabola eſtimated from the vertex, cut off by an ordinate correſponding to the abſciſs x. I.

The area of a fruſtum, or zone, of a parabola, included by two parallel right lines, and the intercepted curves of the parabola, may be found by the following rule; *viz.* To one of the parallel ends add the quotient ariſing from the diviſion of the ſquare of the other by the ſum of the ſaid ends; multiply the ſum by the altitude of the fruſtum, or diſtance of the ends; and $\frac{2}{3}$ds of the product will be the area. Or, divide the difference of the cubes of the diameters by the difference of their ſquares, and multiply the quotient by $\frac{2}{3}$ds of the altitude. Then, $\overline{D + \frac{dd}{D + d}} \times \frac{2}{3} a$, or $\overline{d + \frac{DD}{D + d}} \times \frac{2}{3} a$, or $\frac{D^3 - d^3}{D^2 - d^2} \times \frac{2}{3} a =$ the area; D, d being the two ends and a the altitude. For by a property of the parabola,

$$DD - dd : a :: \left\{ \begin{array}{l} DD : \frac{a\,DD}{DD - dd} \\ dd : \frac{a\,dd}{DD - dd} \end{array} \right\} = \text{the altitudes}$$

of two complete ſegments, whoſe baſes are the ends D, d of the fruſtum; and conſequently their difference, or the fruſtum, is $\frac{2}{3} a \times \frac{D^3 \backsim d^3}{D^2 \backsim d^2} = \frac{2}{3} a \times \frac{DD + Dd + dd}{D + d} = \frac{2}{3} a \times \overline{D + \frac{dd}{D + d}} = \frac{2}{3} a \times \overline{d + \frac{DD}{D + d}}$. Hence a parabolic fruſtum is equal to a parabola of the ſame altitude, and whoſe baſe is equal to the end of the fruſtum, increaſed by a third proportional to the ſum of the ends and the other. Conſequently in the one end D C (*Plate* XXIII. *Miſcellany*, *fig.* 9.) produced of a parabolic fruſtum A B C D, take C E = the other end A B; raiſe E F perpendicular to E C and = C D; draw D F, and perpendicular to it F G meeting C E produced in G; then, if upon the baſe C G be deſcribed any parabola C H G, touching the line A B H, it will be equal to the fruſtum A B C D. For $CG = CE + EG = AB + EG = AB + \frac{EF^3}{DE} = AB + \frac{DC^2}{DC + AB}$. Hutton's Menſuration.

Parabola, *Quadrature of the.* See Quadrature, and the article Parabola *ſupra*.

Parabola, *Rectification of the.* See Rectification, and Parabola.

Parabola, *Centre of gravity of a.* See Center *of Gravity*.

Parabola, *Centre of oſcillation of the.* See Center *of Oſcillation*.

Parabolas *of the higher kinds*, are algebraic curves, defined by $a^{m-1} x = y^m$. *E. gr.* by $a\, x = y^3$, $a^3 x = y^4$, $a^4 x = y^5$, $a^5 x = y^6$, &c. See Curve.

Some call theſe paraboloids: more particularly, if $a^2 x = y^3$, they call it a *cubical* paraboloid. If $a^3 x = y^4$, &c. they call it a *biquadratical* paraboloid, or a *ſurſolidal* paraboloid. And in reſpect of theſe, the *parabola of the firſt kind*, above explained, they call the *Apolonian*, or *quadratic* parabola. Thoſe curves are likewiſe to be referred to parabolas, in which $a x^{m-1} = y^m$; as *e.gr.* $a x^2 = y^3$, $a x^3 = y^4$, which ſome call *ſemi-parabolas*. They are all comprehended under the common equation, $a^m \times x^n = y^r$, which alſo extends to other curves, *v.gr.* to thoſe in which $a^2 x^2 = y^4$, $a^2 x^3 = y^5$, $a^3 x^4 = y^7$.

Since in parabolas of the higher kinds, $y^m = a^{m-1} x$; if any other ſemi-ordinate be called v, and the abſciſſa correſponding to it z, we ſhall have $v^m = a^{m-1} z$, conſequently $y^m : v^m :: a^{m-1} x : a^{m-1} z$, *i.e.* $:: x : z$. It is a common property, therefore, of theſe parabolas, that the powers of the ordinates are in the ratio of the abſciſſas. But in ſemi-parabolas, $y^m : v^m :: a x^{m-1} : a z^{m-1} :: x^{m-1} : z^{m-1}$. Or the powers of the ſemi-ordinates are as the powers of the abſciſſas, one degree lower. *E.gr.* In cubical ſemi-parabolas the powers of the ordinates y^3 and v^3 are as the ſquares of the abſciſſas x^2 and z^2.

PARABOLA, *Helicoid.* See HELICOID.

PARABOLA, *Oſculatory*, in *Geometry*, is uſed particularly for that parabola which not only oſculates or meaſures the curvature of any curve at a given point, but alſo meaſures the variation of the curvature at that point. See M'Laurin's Appendix to his Algebra, p. 17. Cramer, Analyſ. des Lignes Courbes, p. 559. See alſo CURVATURE.

A curve, ſtrictly ſpeaking, may have an indefinite number of oſculatory parabolas at any of its points; but the appellation may be reſtrained to that particular parobola which meets the curve ſo cloſely, that no other parabolic arc can be drawn between them; and this parabola will meaſure the variation of curvature of the curve at that point. See VARIATION *of Curvature.*

PARABOLA, *Reſiſtance of a.* See **RESISTANCE.**

PARABOLAN, PARABOLANUS, among the *Ancients*, was a ſort of gladiator, called alſo the *confector*.

The name was given them from the Greek, παραβολος, of βαλλω, *to throw, precipitate;* becauſe they threw themſelves on danger and death.

PARABOLANI, or PARABOLARII, is alſo uſed in *Church Hiſtory*, for a ſet of people, eſpecially in Alexandria, who devoted themſelves to the ſervices of churches and hoſpitals.

The parabolani were not allowed to withdraw themſelves from their function, which was the attendance on the ſick. They made a kind of fraternity, amounting ſometimes to ſix hundred perſons, dependent on the biſhop.

The deſign of their inſtitution was that the diſeaſed, eſpecially thoſe infected with the plague, might not be without attendance.

PARABOLIC ASYMPTOTE, in *Geometry*, is uſed for a parabolic line approaching to a curve, ſo that they never meet; yet by producing both indefinitely, their diſtance from each other becomes leſs than any given line.

There may be as many different kinds of theſe aſymptotes as there are parabolas of different orders.

When a curve has a common parabola for its aſymptote, the ratio of the ſubtangent to the abſciſſa approaches continually to the ratio of two to one, when the axis of the parabola coincides with the baſe; but this ratio of the ſubtangent to the abſciſſa approaches to that of one to two, when the axis is perpendicular to the baſe. And by obſerving the limit to which the ratio of the ſubtangent and abſciſs approaches, parabolic aſymptotes of various kinds may be diſcovered. See M'Laur. Flux. art. 337. See alſo ASYMPTOTE.

PARABOLIC *Conoid*, or PARABOLOID, a ſolid figure generated by the rotation of a parabola about its axis.

The circles conceived to be the elements of this figure, are in an arithmetical proportion, decreaſing towards the vertex.

A parabolic conoid is to a cylinder of the ſame baſe and height as 1 to 2; and to a cone of the ſame baſe and height, as 1½ to 1. See CONOID.

I. The curve ſurface of a paraboloid may be found by the following rules.

Rule 1.—To the ſquare of the ordinate, or ſemi diameter of the baſe, add four times that of the axis; and the ſquare root of the ſum will be the tangent to the curve at the baſe, and intercepted by the axis produced; call this tangent t; then we ſhall have $t = \sqrt{yy + 4xx}$, x being the axis, and y the ordinate. Then by the rule at the cloſe of the article PARABOLA, find the area of the fruſtum of a parabola, whoſe parallel ends are t and y, and its altitude $= y$, and this area multiplied by 3.14159 will be the curve ſurface of the paraboloid A B C required. *Plate* XXIII. *Miſcellany, fig.* 10.

Calling the ordinate y, the abſciſs x, the curve z, and the parameter p; alſo $a = 3.14159$; the equation of the generating parabola will be $px = yy$; hence $p\dot{x} = 2y\dot{y}$, and the fluxion of the ſurface $\dot{s} = 2ay\dot{z} = 2ay\sqrt{\dot{y}^2 + \dot{x}^2} = \frac{4ay\dot{y}}{p}\sqrt{\tfrac{1}{4}pp + yy}$; and, by taking the correct fluents, the ſurface s will be

$$= \frac{4a}{3p} \times \left(\tfrac{1}{4}pp + yy\right)^{\frac{3}{2}} - \tfrac{1}{6}app = \tfrac{2}{3}ay \times \frac{(yy + 4xx)^{\frac{3}{2}} - y^3}{4xx} = \tfrac{2}{3}ay \times \frac{(yy + 4xx)^{\frac{3}{2}} - y^3}{(yy + 4xx)^{\frac{2}{2}} - y^2}$$

$$= \tfrac{2}{3}ay \times \frac{t^3 - y^3}{t^2 - y^2} = \tfrac{2}{3}ay \times \frac{tt + ty + yy}{t + y} = \tfrac{2}{3}ay \times \left(t + \frac{yy}{t + y}\right) = \tfrac{2}{3}ay \times \left(y + \frac{tt}{t + y}\right);$$

putting $t = \sqrt{yy + 4xx} = BE$, the tangent to the curve at the extremity of the ordinate, and intercepted by the axe produced. *Q. E. D.*

Corol. 1.—In C B produced take B G = the tangent B E; erect G H perpendicular to G B and equal to B D; join D H, and perpendicular to it H I, meeting B G produced in I; take B K = ⅓ B I; and upon K C deſcribe a circle meeting B L perpendicular to B C in L. And the circle whoſe radius is B L, will be equal to the curve ſurface of the paraboloid B A C.

For, by the conſtruction, $BL^2 = KB \times BC = BC \times \tfrac{1}{3}BI = \tfrac{2}{3}BD \times (BG + GI) = \tfrac{2}{3}BD \times$

$$\left(BE + \frac{GH^2}{GD}\right) = \tfrac{2}{3}BD \times \left(BE + \frac{BD^2}{BE + BD}\right) = \tfrac{2}{3}y \times \left(t + \frac{yy}{t + y}\right).$$

Corol. 2.—The curve ſurface of the paraboloid is to the area of its circular baſe, as I K is to B D.

For the baſe is $= a \times BD^2$, and the curve ſurface $= a \times \tfrac{2}{3}IB \times BD = a \times IK \times BD$.

Corol. 3.—If M be the focus of the generating parabola, and there be taken A N = M C = A D + A M, and the double ordinates P N O, Q M R be drawn; the ſurface generated by B A C, will be to the area P Q R O, as $a =$ 3.14159, to 1, or as the circumference of a circle to its diameter.

For the ſurface is $= \frac{4a}{3p} \times (\frac{1}{4}pp + yy)^{\frac{3}{2}} - \frac{1}{6}app = \frac{4a}{3p} \times (\frac{1}{4}pp + px)^{\frac{3}{2}} - \frac{1}{6}app = \frac{4}{3}a \times (\frac{1}{4}p + x) \sqrt{\frac{1}{4}pp + px} - \frac{1}{6}app = \frac{4}{3}a \times MC \sqrt{MC \times p} - \frac{1}{6}app = \frac{4}{3}a \times AN \times NO - \frac{4}{3}a \times AM \times MR = a \times (PAO - QAR) = a \times PQRO$.

Rule 2.—Divide the difference between the cube of the tangent and the cube of the ordinate, by four times the ſquare of the axis; multiply the quotient by $\frac{2}{3}$ds of the ordinate, and the product again by 3.14159 for the ſurface. Thus, $\frac{t^3 - y^3}{4xx} \times \frac{2}{3}cy =$ the ſurface; where $t = \sqrt{yy + 4xx}$ is the tangent, x the abſciſs or axis, y the ordinate or ſemi-diameter of the baſe, and $c = 3.14159$.

II. The curve ſurface of the fruſtum of a paraboloid, having its altitude and the diameters of its ends given, may be thus found.

Divide the difference of the ſquares of the ſemi-diameters of the ends, by their diſtance, or by the altitude of the fruſtum; or divide the difference of the ſquares of the whole diameters, by four times the altitude; and the quotient will be the parameter of the axis of the generating parabola.

Find the two ſums ariſing from the addition of the ſquare of the parameter and the ſquare of each diameter; multiply each ſum by its root, and divide the difference of the products by the parameter; multiply the quotient by 3.14159, and $\frac{1}{6}$th of the product will be the ſurface of the fruſtum.

That is, $\frac{(pp + DD)^{\frac{3}{2}} - (pp + dd)^{\frac{3}{2}}}{p} \times \frac{1}{6}c =$ the ſurface; D and d being the diameters of the ends, $p =$ the parameter $= \frac{DD - dd}{4a}$, $a =$ the altitude, and $c =$ 3·14159.

In the inveſtigation of rule 1. of the laſt problem, it appears that $\frac{4c}{3p} \times (\frac{1}{4}pp + yy)^{\frac{3}{2}} - \frac{1}{6}cpp$ or $\frac{c}{6p} \times (pp + DD)^{\frac{3}{2}} - \frac{1}{6}cpp$ is the ſurface of the ſegment whoſe baſe diameter is D; and $\frac{c}{6p} \times (pp + dd)^{\frac{3}{2}} - \frac{1}{6}cpp =$ that whoſe diameter is d; and, by taking the difference, $\frac{1}{6}c \times \frac{(pp + DD)^{\frac{3}{2}} - (pp + dd)^{\frac{3}{2}}}{p}$ will expreſs the ſurface of the fruſtum, the diameters of whoſe ends are D, d.

And that the parameter is $= \frac{DD - dd}{4a}$, appears thus: Since $pX = YY$, and $px = yy$, therefore $pX - px = YY - yy$, and $p = \frac{YY - yy}{X - x} = \frac{DD - dd}{4a}$.

III. The ſolidity of any ſegment of a paraboloid, whoſe baſe is either perpendicular or oblique to the axis, may be found by the following rule. For both right and oblique ſegments, multiply the baſe by half the altitude, and the product will be the content. Let b denote the baſe, a the altitude, x any variable abſciſs, or part of the diameter drawn through the middle of the baſe, and s the ſine of the angle formed by this diameter and its ordinate, to the radius 1.

Then as $a : sx :: b : \frac{bsx}{a}$ the ſection correſponding to the abſciſs x. Therefore $\frac{sx}{a} \times bs\dot{x}$ is the fluxion of the ſolid; and, by taking the fluent, the ſolid itſelf will be $\frac{bssxx}{2a}$; which, when $sx = a$, becomes $\frac{1}{2}ab$ for the whole ſolid, whoſe baſe is b and altitude a. *Q. E. D.*

Corol. 1.—A paraboloid is equal to half a priſm of the ſame baſe and altitude. Alſo a priſm, a ſemi-ſpheroid or ſemi-ſphere, a paraboloid, and a pyramid, all of equal baſes and altitudes, are to one another as the numbers 1, $\frac{2}{3}$, $\frac{1}{2}$, $\frac{1}{3}$, or as 6, 4, 3, 2; and are, therefore, in a diſcontinued geometric proportion, whoſe ratio is that of 3 to 2. Which will appear by comparing the above value of the paraboloid with thoſe of the other ſolids.

When the baſe of the paraboloid is perpendicular to the axis, or when the paraboloid is right, the ſemi-ſpheroid, or ſemi-ſphere, will alſo be right; and the priſm and pyramid will be the right or common cylinder and cone, the common baſe being a circle. But if the paraboloid be oblique, by having its baſe oblique to the axis, the common baſe of all the ſolids will be an ellipſe; the ſemi-ſpheroid will alſo be oblique, by having its baſe oblique to the axis; and the priſm and pyramid may be either right or oblique.

Corol. 2.—If upon the diameter N P = B C = the conjugate axis of the ſection A B, be deſcribed a circle; (*Plate* XXIII. *Miſcellany*, *fig.* 11.) the oblique paraboloid, or ſegment A H B, will be equal to the right paraboloid whoſe baſe is that circle, and its altitude M H. For, the diameter of the circle being the conjugate axis of the baſe of the oblique paraboloid, the circle will be to that baſe, as the conjugate is to the tranſverſe axis, that is, as C B to A B; but H K is to H M in the ſame proportion of C B to A B; conſequently H K × elliptic baſe A B will be = H M × circular baſe N P or B C.

It is alſo evident, that all ſegments, right or oblique, having the ſame vertex H, and the tranſverſe axes of whoſe baſes paſs through the ſame point M, and terminate in A C, O P, parallel to and equidiſtant from H M, will be equal to one another.

Corol. 3.—If B, b denote the two baſes, or parallel ends, of the fruſtum of a paraboloid, either right or oblique; and d the diſtance of the ends, or the altitude of the fruſtum; then $\frac{1}{2}d \times (B + b)$ will be the ſolidity of the fruſtum.

For, by this problem, $\frac{1}{2}AB$ is the ſegment whoſe baſe is B and altitude A; and $\frac{1}{2}ab$ is that whoſe baſe is b and altitude a: therefore the fruſtum, or the difference of the ſegments, is $\frac{1}{2}AB - \frac{1}{2}ab$. But, by the nature of the paraboloid, $B - b : d$ or $A - a :: B : A = \frac{Bd}{B - b}$, and $B - b : d :: b : a = \frac{bd}{B - b}$; which values of A and a being ſubſtituted for them, we obtain $\frac{1}{2}AB - \frac{1}{2}ab = \frac{dB^2 - db^2}{2B - 2b} = \frac{1}{2}d \times (B + b)$.

Corol. 4.—Let A G B b be a right fruſtum, H I the diameter to the double ordinate A B, and H K perpendicular to A B, that is, H K the altitude of the oblique ſegment A H B. Then the value of the oblique ſegment A H B is $\frac{1}{2}n \times AB \times BC \times HK$, putting $n = .785398$.

But, by the property of the figure, $DB^2 - DC^2 : DB^2 - DI^2 :: AC : HI = \frac{DB^2 - DI^2}{DB^2 - DC^2} \times AC$; hence $HM = HI - IM = HI - \frac{1}{2}AC = \frac{DB + DC}{DB - DC} \times \frac{1}{4}CA = \frac{BC \times CA}{8DI}$: and, by similar triangles, $AB : CB :: HM : HK = \frac{HM \times CB}{AB} = \frac{AC \times CB^2}{AB \times 8DI}$; therefore the oblique ſegment A H B, or $\frac{1}{2}n \times AB \times CB \times HK$, will be $\frac{CB^3}{8DI} \times \frac{1}{2}AC \times n = \frac{CB^4}{bB^2 - AG^2} \times AC \times \frac{1}{2}n$.

Or, by ſubſtituting the value of A C, *viz.* $\frac{DB^2 - DC^2}{DB^2} \times DE = \frac{CB \times 2DI}{DB^2} \times DE$, inſtead of it, the ſame ſegment A H B will be $\frac{CB^4}{8DB^2} \times DE \times n = \frac{CB^4}{bB^2} \times DE \times \frac{1}{2}n$.

Corol. 5.—If from $DE \times bB^2 \times \frac{1}{2}n$, the value of the right ſegment *b* E B, be taken the above value of the oblique ſegment A H B, there will remain $\frac{bB^4 - CB^4}{bB^2} \times DE \times \frac{1}{2}n$, or $\frac{bB^4 - CB^4}{bB^2 - AG^2} \times AC \times \frac{1}{2}n$ for the value of the greater ungula *b* A B.

Corol. 6.—And if from the ſaid value of the oblique ſegment A H B, be taken that of the right ſegment A E G, *viz.* $\frac{AG^4}{bB^2} \times DE \times \frac{1}{2}n$, or $\frac{AG^4}{bB^2 - AG^2} \times AC \times \frac{1}{2}n$, there will remain $\frac{CB^4 - AG^4}{bB^2} \times DE \times \frac{1}{2}n$, or $\frac{CB^4 - AG^4}{bB^2 - AG^2} \times AC \times \frac{1}{2}n$ for that of the leſs ungula A G B. Hutton's Menſuration.

Parabolic *Cuneus*, a ſolid figure, formed by multiplying all the D B's, (*Plate* XIII. *Analyſis*, *fig.* 3.) into the D S's: or, which amounts to the ſame, on the baſe A P B erect a priſm, whoſe altitude is A S: this will be a parabolical cuneus, which of neceſſity will be equal to the parabolical pyramidoid; inaſmuch as the component rectangles in one are ſeverally equal to all the component ſquares in the other.

Parabolic *Pyramidoid*, a ſolid figure, generated by ſuppoſing all the ſquares of the ordinate applicates in the parabola ſo placed, as that the axis ſhall paſs through all their centres at right angles; in which caſe the aggregate of the planes will form the parabolic pyramidoid.

The ſolidity of this body is had by multiplying the baſe by half the altitude; the reaſon of which is obvious; for the component planes being a ſeries of arithmetical proportionals beginning from 0, their ſum will be equal to the extremes multiplied by half the number of terms, that is, in the preſent caſe, equal to the baſe multiplied by half the height.

Parabolic *Space*, the ſpace or area contained between any entire ordinate, and the curve of the parabola.

The parabolic ſpace is to the rectangle of the ordinate into the abſciſſa, as 2 to 3: to a triangle inſcribed on the ordinate as a baſe whoſe altitude is the abſciſſa, the parabolic ſpace is as 4 to 3.

The ſegment of a parabolic ſpace, is that ſpace included between two ordinates. See Parabola.

Quadrature of a parabolical ſegment. See Quadrature, and Parabola *ſupra*.

Parabolic *Speculum* or *Mirror*. See Mirror.

Parabolic *Spindle*. See Pyramidoid and Spindle.

Parabolic *Spiral*, in *Conics*. See Helicoid *Parabola*.

PARABOLIFORM Curves, a name ſometimes given to the parabolas of a higher kind.

PARABOLOIDES, parabolas of the higher kinds. See Parabolas *of the higher kind*.

Paraboloid, *Centre of gravity of a*. See Center.

Paraboloid, *Quadratic*. *Cubical paraboloid*, *ſurſolidal paraboloid*. See Parabolas *of the higher kinds*.

PARABOSCO, Girolamo, in *Biography*, organiſt of St. Mark's cathedral at Venice, and according to Creſcembeni (Stor. del Vulg Poeſ.) a moſt admirable performer. "Whoever," ſays Ant. Fran. Doni, (Libraria Tratt. 1mo.) "is endowed by heaven with the power of receiving and communicating pleaſure, ſhould imitate Paraboſco; who, not content with that muſical excellence, with which he has given ſuch delight, both in public and private, and acquired ſuch fame, has afforded equal pleaſure by his literary and poetical talents, in the publication of works, that are as much eſteemed for their wit and learning, as originality." He then gives a liſt of his tragedies, comedies, miſcellaneous poems, and letters; adding, that "he hoped his novels would ſoon appear in print, which, for their invention and ſtyle, he thought the moſt admirable productions of the kind that he had ever read." They were afterwards publiſhed under the title of "Gli Diſporti," &c. 1586; and we purchaſed them at an extravagant price, as curioſities, at the ſale of the late Hon. Topham Beauclerc's books; but find, on peruſal, that Doni ſpoke of them as he did, perhaps, of his muſical abilities, with the partiality of a friend. Several of the motets and madrigals of Paraboſco are inſerted in the collections that were publiſhed about the middle of the ſixteenth century, ſome of which we took the trouble to ſcore, but found in them no ſubject; and but little deſign or contrivance. And if his literary character did not impoſe on his friends, and on the writers who ſpeak of his muſical productions, his fame as a compoſer muſt have been eſtabliſhed on works ſuperior to theſe, which are mere *rempliſſage*, or notes heaped on each other totally devoid of meaning with reſpect to melody.

PARABRAMA, in *Mythology*, is a name given to the firſt of the gods of India.

PARABYSTE was one of the five principal civil tribunals of Athens.

PARAC, in *Geography*, a town of the iſland of Borneo; 200 miles N. of Banjar-Maſſim.

PARACA, a town of Peru, in the audience of Lima; 12 miles S. of Piſco.

PARACELS, or Pracels, a chain of ſmall iſlands, with rocks and ſhoals, in the Chineſe ſea, parallel to, and about 60 miles E. of the coaſt of Cochinchina. This range is about 300 miles long, and 60 broad from N. lat. 11° 40′ to 16° 10′, and E. long. 110° to 111°. The navigation is dangerous, on account of ſeveral currents among them.

PARACELSISTS. See Fire *Philoſophers*.

PARACELSUS, in *Biography*, an extraordinary adventurer in chemiſtry and phyſic, in the early part of the ſixteenth century, is ſaid to have been born at Einſidlen, a little village near Zurich, in Switzerland, in 1493; and his father, called William de Hohenheim, is ſuppoſed to have been the natural ſon of a grand maſter of the Teutonic order, and a practitioner in medicine in Carinthia, in the beginning of the following century. With a view of dignifying himſelf and his family, his ſon aſſumed the names of *Philippus*, *Aureolus*, *Theophraſtus*, *Paracelſus*, *Bombaſtus de Hohenheim*. But Thomas Eraſtus affirms, that there was no family bearing any of theſe names in that part of Switzerland, either noble or ignoble; and Haller was credibly informed, that Paracelſus was a native of Gaiſs, in the canton of Appeuzel, and of an obſcure family of the name of Hochener, which was ſtill exiſting there. His father gave him early a turn for his own purſuits, and put him under the care of John Trithemius, abbot of Spanheim, at that time eminent for his knowledge of the ſpagiric art, as chemiſtry in its infancy was called. He afterwards followed another maſter of the art, Sigiſmund Fugger, and from both theſe he learned many ſecrets. If any credit is due to his own ſtatements, he received inſtructions from ſeveral other tutors, whom he has named; although in one of his treatiſes, he denies having had any inſtructors at all. He very ſoon commenced a ſort of rambling life; for he ſays, he had examined the principles of the medical art with great attention, and found them defective and erroneous in all points, and therefore he reſolved, after having viſited the ſchools of France, Italy, and Germany, to travel in purſuit of medical truth, and not only to ſearch for it among phyſicians, and other learned perſons, but among barber-ſurgeons, monks, conjurors, old women, and quacks of every deſcription. He makes a pompous diſplay of the names of all the countries which he thus viſited, during a peregrination of ſeveral years, and of the important acquiſitions in ſcience which he thus collected, with the view of impreſſing on the world the higheſt opinion of his ſuperiority; for he ſeems to have poſſeſſed the talents of impoſing and ſucceſsful quackery in an eminent degree. Even the learned Eraſmus appears to have conſulted him, eſpecially after a fortunate cure of his friend Frobenius, the celebrated printer of Baſle, in an attack of gout, (although the latter died of apoplexy a few months afterwards,) and Oporinus, an eminent citizen of that place, left his family to follow him. In the courſe of his travels he had doubtleſs collected much information concerning metallic chemiſtry; which, however, he perverted to the vain ſearch of the philoſopher's ſtone; and by the bold uſe of ſome active medicines, eſpecially mercury and opium, the adminiſtration and properties of which were not underſtood by medical men, he had certainly effected many cures, where ordinary medicine had failed; and while theſe ſucceſsful caſes were blazoned forth with the uſual exaggeration, the unſucceſsful ones, and the miſtakes were long paſſed over in ſilence. To ſuch a height, however, his reputation had been raiſed in Switzerland, that the magiſtrates of Baſle were induced to engage him, at a large ſalary, to fill the chair of medicine in their univerſity. In the years 1527 and 1528, he gave lectures daily, ſometimes in barbarous Latin, but more frequently in German; and although he at firſt acquired ſeveral enthuſiaſtic adherents, yet the barbariſm, vanity, and extravagance of his lectures at length diſguſted the ſtudents, and he was ſoon left without an audience. Indeed nothing could exceed the ridiculous pride and bombaſt, with which he aſſumed the ſupremacy, the monarchy of medicine, and the contempt which he affected towards all the teachers and univerſities in the world. Seated in his profeſſorial chair, at his firſt lecture, he publicly burnt the works of Galen and Avicenna, averring that his cap contained more knowledge than all phyſicians, and that the hair of his beard had more experience than all the univerſities. "Greeks, Romans, French, and Italians," he exclaimed; "you Avicenna, you Galen, you Rhazes, you Meſue; you doctors of Paris, you of Montpellier, you of Swabia, you of Miſnia, you of Cologne, you of Vienna; and all you throughout the countries that are waſhed by the Danube and the Rhine, and you who inhabit the iſlands of the ſea, Athenian, Greek, Arab, and Jew; you ſhall follow and obey me. I am your king, the monarchy of phyſic is mine," &c. That ſuch an extravagant enthuſiaſt ſhould not long retain his profeſſorial chair might be anticipated. A quarrel with the magiſtrates of Baſle, on account of a deciſion againſt him in reſpect to a demand of fees, which was deemed exorbitant, increaſed his diſpleaſure, and he ſuddenly quitted that place in 1528. From this time he reſided chiefly in Alſace, and in different parts of Germany, leading a life of extreme intemperance, in the loweſt company, being frequently in a ſtate of continued intoxication for many days and nights in ſucceſſion. Nevertheleſs he ſtill maintained his reputation by extraordinary cures, occaſionally effected by his powerful remedies, though his failures were equally conſpicuous. But the moſt ſignal failure of his boaſted remedies occurred in his own perſon; for after pretending to the power of extending human life to an indefinite limit, by virtue of his *elixir*, he died in 1541, at an inn at Saltzburg, in the forty-eighth year of his age, in conſequence of an attack of fever, and was buried in the hoſpital of St. Sebaſtian, to which he bequeathed the little property that he poſſeſſed.

Notwithſtanding the reputation, and the numerous eulogies beſtowed on this ſingular man, it can ſcarcely be ſaid, that either ſcientific chemiſtry or medicine is much indebted to him for its advancement. The fundamental doctrines of his chemiſtry, which reſolved every thing into three elements, ſalt, ſulphur, and mercury, and which were for a long time received, were, in fact, borrowed from his predeceſſor, Baſil Valentine. And as to his medical ſkill, it conſiſted principally in the bold adminiſtration of ſome powerful remedies, which had been heretofore thought too dangerous to be uſed. His moſt favourite medicine was opium, a drug with which, it is obvious, he would be able in many inſtances to afford great and ſpeedy relief; but with which alſo few permanent cures could be effected, and much miſchief would neceſſarily be produced, when it was miſapplied. Antimony and mercury were alſo medicines which he liberally preſcribed, and he uſed various preparations of them of the moſt active kind. He was indeed one of the firſt to employ mercury for the cure of the venereal diſeaſe, and of courſe he muſt, in this ſevere and newly diſtinguiſhed malady, have been ſucceſsful in a degree, to which none of his contemporaries, who did not reſort to that remedy, could attain: and this ſucceſs was a ſource of conſiderable emolument. In fact, he muſt be allowed to have conferred a ſubſtantial benefit on mankind, by the introduction of mercury as a cure of this malady: and in this point conſiſts his principal merit in reſpect to medicine. For his total ignorance of anatomy and rational phyſiology, his inability from want of literature to inveſtigate the doctrines of the ancients, which he ſo boldly impugned, and his employment of a barbarous jargon, as well as his infatuated notions of magic, aſtrology, geomancy, and all the other branches of myſtical impoſture, are totally adverſe to any claim on his part to the improvement of medical ſcience; and indeed he appears to have been entirely deſtitute of clear and methodical views upon any ſubject. We ſhall not pretend therefore to enter into any detail of the unintelligible jargon and abſurd hypotheſes which he employed, or to enumerate the immenſe farrago of treatiſes, which made their appearance under his name after his death, the notices of which occupy above nine quarto pages in the Bibliotheca of Haller: for the firſt we are unable to comprehend, and the latter would be a waſte of time. The moſt complete edition is that of Geneva, in three volumes folio, 1658. He publiſhed little while he lived. See Sennert. de Conſenſu et Diſſenſu Galenicorum, &c. cum Chymicis, cap. iv. De Paracelſo. Eloy Dict. Hiſt. de la Med. Gen. Biog.

PARACENTESIS, from παρακεντεω, *to make a perforation*, a term in *Surgery*, ſignifying the operation of tapping, or making an opening into the thorax, abdomen, or bladder, for the purpoſe of diſcharging the fluid confined in theſe parts in caſes of empyema, hydrothorax, aſcites, and retention of urine. Effuſed blood may alſo require an opening to be made into the cheſt. For an account of paracenteſis thoracis, in different caſes, we refer to EMPHYSEMA, EMPYEMA, EXTRAVASATION, HYDROTHORAX, and WOUNDS *of the* CHEST.

Paracenteſis of the Abdomen, or Tapping.—The belly is ſubject to two kinds of dropſy; one has received the name of *aſcites;* the other is termed *encyſted*. In the firſt, the fluid is effuſed in the general cavity of the peritoneum; in the ſecond, it is contained in a pouch, or cyſt; whence the name of the diſorder is derived. The firſt caſe is the moſt common, and affects indiſcriminately both ſexes; the ſecond is more rare, and preſents itſelf oftener in women than men.

The treatment of theſe two ſpecies of dropſy belongs to the phyſician; but when they have made conſiderable progreſs, they demand the aid of ſurgery, an operation of which may facilitate the action of the medicines exhibited, procure a degree of relief, which would be in vain expected from phyſic, and tend to prolong the life of the patient. The operations alluded to, are the puncture, or paracenteſis, which conſiſts in letting out the collected fluid, by piercing the abdomen with an inſtrument expreſsly conſtructed for the purpoſe, called a *trocar*.

In caſes of aſcites, the abdomen cannot be prudently or ſafely tapped, unleſs the quantity of water be conſiderable. By this obſervation, however, we are far from meaning to diſſuade practitioners from deferring the operation as a laſt reſource. On the contrary, we are decidedly advocates for the performance of paracenteſis at an earlier period than it is uſually done; and we would earneſtly recommend the faculty to give their patients a better chance of recovery, by having them tapped before their conſtitutional ſtrength is too much reduced. The operation is no hindrance to the trial and continuance of ſuch medicines as are likely to prove beneficial. Hence, as ſoon as paracenteſis can be done, without riſk of injuring the viſcera, or rather as ſoon as the abdomen is ſufficiently diſtended with fluid to render the introduction of the trocar ſafe, the operation appears to be adviſable.

There is much reaſon for believing that paracenteſis would in numerous inſtances be ſomething more than a palliative meaſure, if it were reſorted to at an earlier period of the diſeaſe. Le Blanc, in his "Precis d'Operations," aſſures us, that he was conſtantly in the habit of practiſing the operation immediately when he diſtinctly felt the fluctuation of the fluid in the abdomen, and that the ſucceſs of the treatment was very great. Even in the ordinary mode of practice, the operation of paracenteſis ſometimes effects a radical cure, and the fluid never accumulates again. (See Journal de Médécine, tom. lxvi.) It is highly probable, that this would be the caſe more frequently, if the operation were properly practiſed. (Fothergill in Med. Obſervations and Enquiries, vol. iv.) There appear to be two cauſes which tend to hinder the ſalutary effect of the operation. The firſt is, that if the diſeaſe recur after it has been once practiſed, all hope of radical cure is generally renounced. The ſecond cauſe is, that the operation is almoſt always repeated too late, not until the belly is again prodigiouſly diſtended. But, in order to give the beſt chance of a radical cure, the operation ſhould be repeated frequently and at ſhort intervals. Default uſed to tap dropſical patients once a week, and in many caſes, after he had performed the operation two or three times, the diſeaſe was ſtopped.

Even when the operation does not itſelf accompliſh a radical cure of aſcites, it at leaſt promotes and facilitates this deſirable event. There cannot exiſt a doubt, that it is impoſſible for the means, which the phyſician preſcribes with a view of cure, to produce their free and full effect while the abdomen is diſtended with water, and the functions of the viſcera thereby more or leſs diſturbed. Experience has proved, that medicines, which were found to be ineffectual previouſly to the operation, have frequently had the deſired effect after the water has been evacuated.

Serious and even fatal ſymptoms have ſometimes followed the operation of paracenteſis, and hence it has been conſidered by certain practitioners as a proceeding attended with danger. But the foregoing unpleaſant conſequences are not to be aſcribed to the operation; but either to the phyſician, who has recommended it to be performed too late, or at an improper period, or elſe to the ſurgeon, who has executed it without the requiſite ſkill and caution. For, how frequently it happens, that it is not undertaken until the abdomen is ſwelled with a prodigious quantity of water, and the patient is in an extreme ſtate of diſorder and debility, partly from the long duration and high degree of the diſeaſe, and partly from the effect of the large quantities of violent medicines which have been exhibited. The operation is here plainly unſeaſonable and too late. If the ſudden diſcharge of the fluid ſhould now give riſe to alarming conſequences, the occurrence would prove nothing more, than that the operation, like every other means, is not proper at every time, and under any circumſtances. In ſuch caſes the right opportunity of doing it is paſt. It ought to have been reſorted to at an earlier period. It is a certain fact, that the ſooner dropſical patients are tapped, the leſs dangerous and the more beneficial is the operation. Immediately when there is a ſufficient quantity of fluid in the abdomen to produce a manifeſt fluctuation, paracenteſis is practicable; and no ſooner do medicines begin to debilitate the patient, or become ineffectual, than the operation is indicated as a meaſure which ſhould not be deferred. But even in thoſe very inſtances in which paracenteſis has been improperly delayed, modern ſurgery is furniſhed with a method of obviating the perilous ſymptoms, which are liable to ariſe from the ſudden evacuation of the large quantity of fluid, as we ſhall preſently have occaſion to explain.

The following are the ordinary ſymptoms of aſcites. A ſmooth uniform ſwelling extending over the whole abdomen, but moſt prominent at that part which happens to be the moſt dependent. A ſhining or gloſſy appearance of the integuments, which is particularly obſervable in the early ſtage of the diſorder, and becomes obvious when the complaint has attained a high degree, and the abdomen is exceedingly tenſe and diſtended. An œdematous ſwelling of the feet and ſcrotum, eſpecially when the diſeaſe is making progreſs. Thirſt, dry ſkin, coſtive bowels, and hardened ſtools; a ſcanty ſecretion of thick dark-coloured urine; difficulty of breathing, eſpecially in the recumbent poſture; and, laſtly, the fluctuation of the fluid in the abdomen. The latter ſymptom can be diſtinctly felt by the ſurgeon, when he places the palm of one of his hands upon one ſide of the patient's belly, and taps gently with two fingers upon the oppoſite ſide.

There is one caſe, which bears conſiderable reſemblance to dropſy of the belly, and may eaſily lead a careleſs ſurgeon to commit a ſerious miſtake. We here allude to a retention of urine, that has exiſted a conſiderable time, and has attained a very high degree. In this inſtance, the bladder is ſometimes ſo enormouſly diſtended, that it produces an uniform ſwelling of the whole belly, attended with a fluctuation and protuberance at the moſt dependent part of the abdomen. As, in this caſe, the bladder has loſt its power of contraction, it always remains full and diſtended; but while the preſſure of the abdominal muſcles and viſcera reſiſts a ſtill greater expanſion of this organ, it alſo occaſions an evacuation of a certain quantity of urine every day. This circumſtance prevents the retention from proving fatal, and is apt to lead the practitioner into the error of miſtaking the caſe for dropſy.

The inſtrument with which the paracenteſis of the abdomen is performed, is called a trocar, of which there are ſeveral kinds. The celebrated Richter thinks the common one the beſt. Moſt of the modern alterations, which have been made in the conſtruction of trocars, have only tended, ſays he, to render the employment of theſe inſtruments more difficult. There is no reaſon for the ordinary objection, that the common trocar cannot be introduced without conſiderable force. If the part into which it is about to be paſſed be made tenſe, very little force will be neceſſary, eſpecially if care be taken to rotate the inſtrument gently as well as puſh it forward. Hence, all the inventions, which have originated from this ſuppoſed imperfection, are, according to Richter, entirely uſeleſs. He repreſents the trocar with a double edged point as needleſs. The propoſal of Mr. Cline, to make a puncture with a lancet firſt, and then to introduce into the opening a blunt-pointed trocar, is alleged to be ſuperfluous. Nay, theſe innovations are ſtated to be worſe than uſeleſs. A cutting inſtrument is liable to injure the blood-veſſels, and bring on a weakening degree of hemorrhage; and it is ſaid, that the wound, thus made, does not ſo readily heal as that made with a common trocar. That cutting edged inſtruments are attended with the inconvenience of being apt to wound enlarged veins, and produce a diſagreeable degree of hemorrhage, is a truth, of which the writer of this article has recently met with a convincing example. A female, who had ſtrong averſion to being tapped with a trocar, prevailed upon him to make the opening with a lancet. The puncture was made in the linea alba, about three inches below the navel. A ſtream of dark-coloured venous blood continued to run from the wound the whole time the water was flowing out of the cannula, and did not ceaſe until a compreſs was applied. The quantity of blood loſt could not be leſs than a pint, or a pint and a half. In many caſes, the loſs of ſo much blood would prove fatal to a dropſical patient, and is a thing which one muſt always feel anxious to avoid.

It was the general plan, a few years ago, to introduce the trocar at the middle of a ſtraight line drawn from the navel to the anterior ſuperior ſpinous proceſs of the os ilium, or at the central point of the ſpace between the navel, the ſpine, the criſta of the ilium, and the lower falſe ribs, and the puncture was made on the left ſide, in order to run no riſk of injuring the liver, in the event of this viſcus happening to be enlarged. In operating in the firſt of theſe ſituations, the intention of the ſurgeon was to make an opening into the abdomen at the linea ſemilunaris. Modern practitioners uſually prefer making the puncture in the linea alba, for ſeveral weighty reaſons. The firſt is, that in the old method, you are not ſure of introducing the trocar in the exact ſituation of the linea ſemilunaris, and conſequently may unneceſſarily wound the thick muſcular parietes of the abdomen, inſtead of merely a thin tendinous part. Another ſtill more important objection is, that the epigaſtric artery has ſometimes been wounded by very ſkilful men, even by profeſſed anatomiſts, in the attempt to tap in the linea ſemilunaris. In dropſical caſes, the rectus muſcle is frequently much broader than in a healthy ſubject; and as it always yields to the diſtention of the fluid in a greater proportion than the lateral layers of muſcles, the above-mentioned meaſurement is very likely to cauſe the wound to be made near the courſe of the epigaſtric artery.

When the operation is to be performed in the linea alba, (and, except in caſes of encyſted dropſy, we would always recommend this mode,) the trocar ſhould be introduced about three inches below the navel. As ſoon as the inſtrument meets with no farther reſiſtance, it is not to be puſhed more deeply, without any object, and with a poſſibility of injuring the viſcera. The cannula alone is now to be conveyed a little further into the opening, at the ſame inſtant that the ſtillet is withdrawn, in order to allow the fluid to run out.

Notwithſtanding the fluctuation of the water may be plainly felt at the part where the puncture is about to be made, the ſurgeon muſt refrain from being too bold with the trocar, leſt he wound ſome of the viſcera.. A bowel may lie very near the peritoneum, when a manifeſt fluctuation is perceptible at the part, the intervention of a very ſmall quantity of fluid ſufficing to cauſe ſuch a ſenſation to the fingers of an examiner. Caution, therefore, in this operation is a moſt prudent and neceſſary virtue.

Sometimes the ſurgeon feels a fluctuation over the whole abdomen, but in a weak and indiſtinct way. In this circumſtance, when the patient is not at the ſame time affected with anaſarca, which of courſe muſt tend to weaken the ſenſation of a fluctuation, the ſurgeon has reaſon for ſuſpecting, either that the diſeaſe may be encyſted dropſy, or that the fluid contained in the abdomen may be thick, or elſe that the tumour of the belly may be occaſioned by hydatids.

In performing paracenteſis, the practitioner ſhould always be careful to avoid wounding the cutaneous veins, which, in dropſical perſons, frequently attain a vaſt ſize, and become capable of emitting a large quantity of blood.

In dropſical patients, the navel ſwells in ſuch a manner, that it puts on the appearance of a bladder of water. In this caſe, a propoſal has been ſtarted to open the tumour of the navel with a lancet, taking care to make only a ſmall aperture, ſo that the fluid may not be all diſcharged ſuddenly, but may be ſome days in dribbling away. It is ſaid, that in performing paracenteſis in this way, there is not only no bleeding, but no riſk of any perilous ſymptoms, ſo gradually does the water make its eſcape. The alarming indiſpoſition, which often immediately ariſes from the ſudden diſcharge of the fluid in the ordinary operation, is a ſource of conſiderable uneaſineſs both to the patient and the ſurgeon; and the avoidance of it is undoubtedly a deſideratum of importance. Another advantage of the plan, which we have juſt now been ſpeaking of, is, that the little opening does not directly cloſe up, ſo that the continuance of the oozing from it prevents for ſome time any re-accumulation of fluid in the abdomen. The practitioner may the more readily make up his mind to this operation, by conſidering, that if a puncture be not made into the ſwelling of the navel, a ſpontaneous opening is in time generally produced; that when this has happened, and the fluid been thus diſcharged, no bad conſequences have enſued; and, laſtly, that the method has been already practiſed with ſucceſs. (See Sims's Obſ. in the Memoirs of the Medical Society, vol. iii.) The apprehenſion of an umbilical hernia being the conſequence, which Garengeot and others entertained, is, as Mr. Samuel Sharp conjectured, quite unfounded, eſpecially when the puncture is ſmall, as it always ought to be. (Richter's Anfangſgr. der Wundarzn. Band 5, § 143.) Sometimes the water deſcends into the empty ſac of a ſcrotal hernia, and diſtends it in a conſiderable degree. Here we may without heſitation adopt the plan of diſcharging the water from the cavity of the peritoneum, by puncturing the hernial ſac. Frequently, in the female ſubject, the fluid of aſcites preſſes upon the vagina in ſuch a manner, as to produce a kind of prolapſus of the latter part, which has the appearance of a pouch filled with water. In a caſe of this deſcription, the fluid has been evacuated from the abdomen, by puncturing the tumour of the vagina with a trocar, and the wound healed very favourably. Biſhop on Medical Communications, vols. i, ii.

The plan of tapping males from the rectum, and women from the vagina, has been ſuggeſted as one deſerving of general imitation. In 1788, Macarn, a ſurgeon at Turin, addreſſed a letter upon this ſubject to the ſecretary of the French Academy of Surgery, mentioning three examples, in which the operation had been done in the foregoing way, and requiring ſuch further information as could be given him. Allan, a member of the academy, was the only one who knew any thing about the method. He recollected having, in 1767, preſented to the ſociety a memoir, in which he diſcuſſed the queſtion, whether paracenteſis from the bladder and rectum might not have advantages. (See Sabatier's Médécine Opératoire, tom. i. p. 173.) We join Richter in the opinion, that, as a general practice, this does not deſerve recommendation, and that it ſhould only be purſued, when nature indicates it, by preſenting a tumour either in the vagina or rectum.

In the operation of paracenteſis, it is prudent to employ an aſſiſtant in compreſſing both ſides of the abdomen; by which means, the contained fluid will be urged in larger quantity towards the place where the trocar is to be introduced; the integuments will be rendered tenſe, ſo that the inſtrument will penetrate with greater eaſe; the determination of the water towards the part about to be punctured, will increaſe the diſtance between the peritoneum and the viſcera of the abdomen; and, of courſe, the likelihood of theſe being touched with the point of the trocar will be diminiſhed. As ſuch compreſſion ſhould be maintained till the end of the operation, the aſſiſtant ought to put himſelf in a poſition, in which he will be able to do what is required of him without the leaſt remiſſion.

It is cuſtomary with many operators to oil the trocar, juſt before uſing it; and this plan has come into vogue from a ſuppoſition, that the inſtrument will now pierce the fleſh with greater facility. For our own part, we have always regarded this faſhion as equally uſeleſs and harmleſs: its omiſſion is far more proper than that of many other circumſtances, which are too frequently neglected. The patient is moſtly tapped as he ſits in a chair, or upon the edge of his bed. The ſurgeon is to hold the trocar in his right hand, in ſuch a manner that the handle of the inſtrument is exactly in the hollow of the palm, while the fore-finger is applied along the cannula to within an inch and a half of the point of the trocar. The end of the finger prevents the inſtrument from piercing too far, which it would otherwiſe be apt to do in a very ſudden way.

If it be a common round trocar that is uſed, its entrance will be greatly facilitated by rotating it a little, at the moment it is puſhed forward. The ſudden ceſſation of all reſiſtance appriſes the operator of the point of the inſtrument having paſſed through the peritoneum. The trocar, or ſtillet, is now to be immediately withdrawn, care being taken to keep back the cannula with the left thumb and fore-finger. Sometimes the fluid ſuddenly ceaſes to flow, which circumſtance is generally owing to a part of the omentum, or inteſtines, having fallen againſt the inner opening of the cannula. In this caſe, the part cauſing the ſtoppage muſt be puſhed back by means of a probe, paſſed through the tube. Frequently the obſtruction is produced by membranous flakes, which the water ſometimes contains: here the introduction of a probe will alſo remove the ſtoppage.

When moſt of the fluid has been diſcharged, the viſcera often come directly into contact with the inner end of the cannula, which, if moved about, will bruiſe and injure the parts. Hence, towards the end of the operation, the tube ſhould always be held entirely motionleſs. Although it is always proper to draw off as much of the water as poſſible, yet the practitioner muſt be careful not to preſs and handle the lower part of the abdomen too forcibly, with a view of ſqueezing out the whole of the fluid, leſt he preſs the bowels againſt the cannula, and excite inflammatory ſymptoms.

Sometimes ſwooning, extreme proſtration of ſtrength, and violent pain, occur during and after the operation. Theſe evils are imputed to the ſudden evacuation of the water, the conſequent ſudden relaxation of the diſtended parts, and the copious influx of blood into the containing and contained parts of the abdomen from the reſt of the circulation. Experience has proved, that this alleged cauſe of the indiſpoſition and even danger, which are apt to take place upon the diſcharge of the water, is founded in reality. A patient died during the operation: upon examination of the body, all the veſſels of the brain were found quite empty, while thoſe of the abdomen were turgid with blood. (Richter's Anfangſgr. Band 5, p. 147.) Several plans have been ſuggeſted, with the view of preventing the dangerous conſequences under conſideration. Some writers adviſe us not to let out all the fluid at once; but, after diſcharging only a part of it, to ſtop up the cannula ſecure in its place, and let out a certain quantity of the water every day. There is too great reaſon to apprehend, however, that the cannula, being a hard extraneous body, if left long in the wound, with a portion of it in the abdomen, would rub againſt and irritate the bowels, ſo as to excite inflammation, and other dangerous effects, eſpecially when the quantity of fluid in the cavity of the peritoneum has been reduced to a ſmall quantity. Others have recommended a repetition of the operation from time to time, and diſcharging on each occaſion only a part of the fluid. The objections which have been urged againſt this plan are, that the water, which is left after the firſt performance of paracenteſis, would ooze through the puncture, ſo as to prevent it from healing; and that if the operation were to be repeated a certain number of times, the quantity of fluid would be ſo ſmall, that the abdomen could not be again punctured, without riſk of the inteſtines being wounded by the trocar.

The means, commonly reſorted to for the prevention of the bad ſymptoms apt to be produced by the operation, is making preſſure with a bandage, or towel, applied round the body, as ſoon as the fluid has been diſcharged. The method ſeems, indeed, to be a rational one, and well calculated to anſwer the end propoſed; but, unfortunately, if it be not adopted till after the fluid has been let out, it is not likely to be of much ſervice. After the water has been diſcharged, the bad ſymptoms have in general already come on. It was obſerved by Bertrandi, that a patient became faint in the operation every time the aſſiſtant remitted the preſſure of his hands on the abdomen; a fact which proves, in Richter's opinion, that, in proportion as the parts ceaſe to be compreſſed by the evacuation of the water, the blood is determined into them.

The celebrated Dr. Alexander Monro was the inventor of a ſort of belt, for making the neceſſary preſſure on the abdomen, during the operation of paracenteſis; and it is certainly well adapted to the purpoſe. It is furniſhed with ſtraps and buckles, which are faſtened behind the patient; while in front it is provided with an aperture at the place where the trocar is to paſs. It is applied before the operation, and, in proportion as the water eſcapes, the ſtraps are drawn more and more tightly; ſo that when the whole of the fluid has been let out, the abdominal viſcera are juſt as much compreſſed as they were before the performance of the operation. This belt, being applied previouſly to the puncture, the water is more particularly urged towards that point which is left uncompreſſed, namely, the place where the opening in the bandage is ſituated, and where the ſurgeon means to introduce the trocar. Here the integuments become prominent and tenſe, ſo that the inſtrument penetrates more eaſily, and without riſk of injuring any of the internal parts. When Monro's belt or girdle is not at hand, a very good way of keeping up the requiſite preſſure, during the operation, is by means of a ſheet, which is to be put round the abdomen, and to be gradually tightened by the aſſiſtants, in proportion as the fluid eſcapes. Immediately after the water has been diſcharged, a piece of lint and the emplaſtrum ſaponis are to be applied to the wound; a flannel compreſs, ſprinkled with camphorated ſpirit or brandy, is to be laid over the abdomen; and a tight flannel roller put round the body. The patient is to be got into bed as quickly as poſſible, and may take the following draught: ℞ Ammoniæ Muriat. gr. x, Miſt. Camph. ℥iſs Tinct. Opii ♏ xxx ft. hauſt.

In operating at the middle of the fore part of the abdomen, that is, at the linea alba, the ſurgeon cannot wound any artery of magnitude; though it is poſſible for him even here to have hemorrhage from a varicoſe enlarged vein, ſhould he happen to wound ſuch a veſſel. The writer of this article, as already related, had a patient, who loſt a very large quantity of blood, after being tapped in the linea alba with a lancet. But the moſt perilous kind of bleeding is that which proceeds from a wound of the epigaſtric artery, and which muſt ever be regarded as a ſerious objection to tapping at the ſide of the abdomen; becauſe, in this method, no ſurgeon can be ſure of not producing it. As the epigaſtric artery lies deeply, the blood may become extravaſated in the abdomen, and the patient die of the conſequences, without any continuance of external hemorrhage from the wound. When the wound bleeds profuſely, the preceding artery having been injured, ſurgical authors adviſe us to introduce into the opening a cylinder of wax, of ſufficient diameter to fill up completely the track of the trocar. Bellocq, a French ſurgeon, firſt adopted this plan with ſucceſs; but in withdrawing the wax, after it had anſwered its purpoſe, it broke, and the part of it left behind did not come away till ſome time afterwards. Hence this practitioner was led to give the preference to the employment of a piece of a narrow wax-candle, the wick of which would render the whole ſtronger, and more certain of being drawn out again entire. Sabatier very properly thinks a piece of a thick bougie might be ſtill better. (Sabatier, Médecine Opératoire, tom. i. p. 178.) Thus far we have been ſpeaking of paracenteſis, as performed in caſes of aſcites: it is next proper to ſay a few words on the ſubject of encyſted dropſies, and deſcribe the mode of operating for them.

Sometimes the fluid is not contained in the cavity of the peritoneum itſelf, but in a preternatural cyſtus, the diſeaſe being then termed encyſted dropſy. Various parts in the abdomen may be the ſeat of this diſorder. The left lobe of the liver has been found diſtended into a ſort of pouch, that was filled with an aqueous fluid. It is more common, however, for the omentum to be affected; but the ovaries and the cellular ſubſtance of the peritoneum are the parts, in which the diſeaſe takes place the moſt frequently of all.

Dropſy of the ovary makes its appearance firſt as a circumſcribed moveable ſwelling on one ſide of the abdomen, and, in the beginning, is not uncommonly ſuppoſed to be a ſolid tumour. In general, the ſwelling enlarges very ſlowly, and the patient ſuffers no particular inconveniences from it. At length, however, it undergoes a rapid increaſe of ſize, and diſtends equally every part of the belly, ſo that it may now be eaſily miſtaken for an ordinary caſe of aſcites. Dropſy of the ovary may be diſcriminated from the latter diſeaſe, by paying attention to the following circumſtances. Both in the early and more advanced ſtage, the feel of a fluctuation is never ſo plain as in aſcites. Sometimes the fluid is contained in a large number of cyſts, which have no communication with each other; and ſometimes it is very thick and viſcid; in which circumſtances, ſcarcely any fluctuation at all is uſually diſtinguiſhable. In particular inſtances, even when the whole abdomen appears, on a curſory view, to be every where uniformly diſtended, the prominences and inequalities cauſed by the ſeparate cyſts may be felt on more careful examination. The ſwelling of the abdomen hardly ever ſinks downward to the moſt depending part, as it does in aſcites. The urine is generally ſecreted in the ordinary quantity, and is of a natural quality. Even when the tumour has attained conſiderable magnitude, the patient has fewer complaints than in common dropſy; ſhe breathes more freely, moves about eaſily, looks better, and is leſs troubled with thirſt. In numerous inſtances, the patient ſuffers no inconveniences whatſoever, excepting ſuch as are directly produced by the ſize and weight of the ſwelling. The menſes of many patients are alſo quite regular, notwithſtanding the diſeaſe is advanced. The navel never ſwells, as it occaſionally does in aſcites.

But although theſe are the uſual ſymptoms of encyſted dropſy, the diſeaſe is ſubject to ſeveral varieties, which ſometimes facilitate the diagnoſis, ſometimes render it more difficult. For example, in certain caſes, the fluctuation is as plain as in aſcites. In others, the urine is thick, and ſecreted only in ſmall quantities, and the feet ſwell, as is common in this latter diſeaſe. The ſwelling may increaſe with great rapidity, or it may only enlarge from time to time, and at length remain a good while ſtationary. Sometimes, as the diſorder advances, pains occur in the cyſt, and the patient is afflicted with colic, conſtipation, fever with emaciation, &c.

The fluid found in a dropſical ovary is never of a bright yellow colour, and tranſparent, as the water of aſcites commonly is; but is always more or leſs diſcoloured, fœtid, and blended with matter, blood, or a thick ſediment. When, therefore, the exact nature of the caſe is not known before the operation is done, it is always aſcertained then by the quality of the diſcharged fluid. Sometimes the fluid contained in the ovary is of a gelatinous kind. In other inſtances, this viſcus is found filled with hydatids. In moſt caſes, the ovary is at the ſame time in a ſcirrhous ſtate, and the inner ſurface of the cavity which it forms is ulcerated. Numerous patients live a conſiderable time with this diſeaſe. Twenty and even thirty years have been known to elapſe, ere the diſorder proved fatal.

Dropſy of the ovary is moſtly obſerved to afflict women who have either had many children, or repeated abortions. It is generally incurable. Internal means avail little; the operation by which the fluid is let out is the only uſeful proceeding, and even this procures merely temporary relief, for, in general, the ſac ſoon becomes filled with fluid again. Sometimes, indeed, the operation proves hurtful, and haſtens the patient's diſſolution. In the firſt performance of it, a clear fluid is uſually diſcharged; but when it is repeated, the water is turbid, and mixed with blood and matter. The more frequently the operation is done, the more quickly does the water continue to accumulate again. Paracenteſis ſeems not only to promote the ulceration of the cyſt, but alſo to lower the patient, and bring her to the grave ſooner than ſhe would otherwiſe have arrived at it. Certain it is, at all events, that numerous patients, who have not been operated upon, have lived a long while with diſeaſe, while reiterated operations have in general been ſoon followed by a fatal termination.

Hence, when the ſwelling is not very large, and not productive of great inconvenience, we are adviſed by Richter to refrain from every means, and from the operation itſelf. He acknowledges, however, that there are caſes where the operation may be judiciouſly and advantageouſly practiſed; namely, when the ſwelling is exceedingly large, and attended with much inconvenience. That it may be uſefully done in certain inſtances, ſeems to be proved by examples, in which it was repeated forty-one times, (Medical Communications, vol. ii.), ſixty-five times (Mead), and even 155 times (Philoſ. Tranſact. vol. lxix.)

When it is known beforehand, that the diſeaſe is an encyſted dropſy, one ſhould chooſe rather a large trocar, becauſe the fluid is uſually thick, flaky, and viſcous, and will not readily flow out through a narrow cannula. The place for making the puncture is not ſo determinate as in caſes of aſcites. The trocar is to be introduced where the tumour is not prominent, where the fluctuation is moſt diſtinct, where there is no obvious induration, and where there is no riſk of wounding the epigaſtric artery. Dropſical enlarged ovaries are generally adherent to the peritoneum; but when they are not ſo, the performance of the operation may not be followed by any bad effects. Sometimes, both the ovaries are at the ſame time diſtended with fluid. In this caſe, after an ovary has been tapped, the operation may be practiſed on the other. When the water is contained in ſeveral different cyſts, it is ſometimes neceſſary to make no leſs than four or five punctures, in order to diſcharge a ſufficient quantity of the fluid. In particular examples the fluid is ſo gelatinous, that it will not paſs through the cannula, and, in this circumſtance, it has been uſual to dilate the puncture by an inciſion, ſo as to let out the contents of the ſwelling; but the caſes have commonly had a fatal termination. Richter decidedly recommends us not to imitate the practice, but to withdraw the cannula, and abandon all thoughts of evacuating the fluid.

Since the diſcharge of the water, by means of a trocar, as in aſcites, only palliates the diſeaſe for a ſhort time, the queſtion has been ſtarted, whether any thing can be done with a view of effecting a radical cure? With this deſign, ſeveral plans have been ſuggeſted, the merit or demerit of which can only be determined by future and repeated experience. Le Dran has adviſed us to make an inciſion into the ſwelling, ſo as to let the fluid which is daily ſecreted into the ſac, have conſtantly a ready iſſue, and to keep the diſeaſed cavity continually empty, in order that it may have an opportunity of contracting. (See Mem. de l'Acad. de Chirurgie, tom. vi.) The operation is done in two ways; *viz.* either a trocar is firſt introduced, and, after the water has been let out, and a director has been paſſed in through the cannula, the latter is taken away, and an inciſion four inches long made on the director; or elſe a trocar with a cannula having a fiſſure in it, is employed, through which fiſſure the puncture is enlarged with a biſtoury.

After the operation, emollient injections are to be employed until the matter is of good quality, and then an attempt muſt be made to promote the cloſure of the aperture with injections of an aſtringent nature. Le Dran aſſures us, that ſuch an operation has been actually practiſed with ſucceſs. In caſes where the cavity of the ovary is divided into ſeveral cyſts, or where it is filled with a gelatinous fluid, or hydatids, and where, conſequently, the palliative method is inapplicable, this operation is the only practicable undertaking.

There are ſo many things to be taken into conſideration, however, that the ſurgeon will hardly be inclined to adopt ſuch practice in ordinary caſes. The uncertainty whether the ovary is adherent to the peritoneum, is often an unpleaſant circumſtance. A dropſical ovary is alſo commonly in a ſcirrhous ſtate, a thing that muſt render the radical cure difficult, and even impoſſible. Before attempting it, we are adviſed by Le Dran always to let out the water with a trocar, and then examine whether any ſcirrhous induration can be felt, and, if it be perceptible, not to think of undertaking the radical cure. Le Dran alſo aſſures us, that ſcirrhous ſwellings, which may ſometimes be felt at firſt, frequently ſubſide during the continuance of the ſuppuration. This deſirable event Richter thinks cannot be expected to happen often, and he apprehends that after the water has been diſcharged, the indurated part of the ovary will not always admit of being felt. The ſtrongeſt argument againſt this operation, however, ariſes from the ill ſucceſs which has hitherto attended it. In general, the ſuppuration ſoon afterwards becomes more copious and degenerated, and the patient dies of a lingering fever, at an earlier period than ſhe would probably have done, had the operation not been done at all. In one example, Le Dran converted the wound into a fiſtula, by which means the patient lived a long while in a very tolerable condition.

Other practitioners, fearful of the free entrance of the air into a large inciſion, have ſuggeſted the plan of letting out the water with a trocar, and then introducing through the cannula a flexible hollow bougie, which is to be kept in the opening, until either a complete cure, or a fiſtula is produced.

Richter repreſents this operation as attended with ſeveral advantages, and no hazard. It has always been obſerved, that patients who have ſubmitted to the palliative operation, always find themſelves very well, until the fluid has accumulated again in conſiderable quantity. This laſt radical operation has at leaſt the advantage, that while it keeps the ſac empty, it alſo keeps the patient in the ſame tranquil ſtate as is generally enjoyed for ſome days after the palliative method. When an inciſion has been made, it generally heals up again very ſoon, ſo that it becomes neceſſary to introduce a cannula. Thus, even ſuppoſing a large opening were uſeful, it is only of ſhort duration. A few days after an inciſion has been made, the patient is in the ſame ſtate as if a mere puncture had been practiſed, and a neceſſity ariſes for dilating the wound to its original ſize. We have noticed, that the inciſion has been known to change into a fiſtula, with which the patient ſurvived a long while with tolerable health. By means of the puncture and flexible tube, an artificial fiſtula is immediately made. There is alſo only this difference between the inciſion and the puncture, that by the latter, the patient is at once placed in a ſtate, in which experience proves that ſhe moſtly finds herſelf well, and capable of living a conſiderable time. On the contrary, the operation by inciſion always puts the patient's life at firſt into imminent danger.

There can be no doubt that paracenteſis, and the employment of a flexible tube, will be more likely to prove ſucceſsful the ſooner they are tried. Experience ſhews, that the more frequently the water is drawn off by the palliative operation, the more blended with matter, the more bloody, and the more turbid it becomes, and the more rapidly it collects again. It appears alſo, that the repeated emptying and filling of the cyſt again, always render the patient's condition worſe, and promote ulceration within the dropſical cavity. A flexible tube ſhould always be introduced directly after the firſt palliative operation, ſo as never to ſuffer the cyſt to be filled again. The more the cyſt is dilated before it is the firſt time punctured, the more likely is it to be in a morbid ſtate, and the more improbable is the attempt at a radical cure to ſucceed: the water, therefore, ſhould always be diſcharged as early as poſſible, and a flexible tube be immediately introduced. By obſerving this rule, we may rationally expect to accompliſh in many inſtances a radical cure, and, when this ſucceſs does not attend the plan, we may reſt certain that the ſtate of the patient will at all events be meliorated, and her life prolonged. During the firſt few days, the operation is occaſionally followed by vomiting, fever, &c. which ſymptoms, however, are commonly unattended with danger, and ſoon give way to proper treatment. Richter's Anfangſgrunde, &c. band 5, kap. 6.

Some practitioners have recommended repeating the palliative operation from time to time, with a view of effecting a radical cure. Unfortunately, however, the cyſt of a dropſical ovary cannot, in general, be ſafely tapped until conſiderably diſtended, and hence the plan does not promiſe much ſucceſs; but in thoſe kinds of encyſted dropſy which lie more ſuperficially, the method may anſwer better.

The encyſted dropſy of the peritoneum is commonly ſeated in the cellular ſubſtance, between this membrane and the peritoneum. Here the cyſt, which contains the fluid, is formed of condenſed cellular ſubſtance. The prognoſis muſt evidently be more favourable than in dropſy of the ovary. The ſurgeon detects the exiſtence of the diſeaſe at an earlier period, and with greater facility, while the things to be conſidered, and the dangers to be feared in the treatment, are much fewer, and the hope of a radical cure far ſtronger than in a dropſical affection of the ovary. The cyſt may be formed at any point of the circumference of the abdomen. Sometimes ſeveral cyſts preſent themſelves at the ſame time, forming at firſt ſo many ſeparate tumours, which, as they enlarge, at length make one general ſwelling, in which, however, ſome irregularities may always be diſtinguiſhed. The appearances and gradual changes of this ſort of encyſted dropſy reſemble thoſe which accompany dropſy of the ovary, with the exception of ſuch ſymptoms as depend upon the different ſituations of the two diſeaſes. When the cyſt is ſituated at the lower and anterior part of the abdomen, the caſe may at firſt be eaſily miſtaken for pregnancy; but a little attention to the different circumſtances which characteriſe encyſted dropſy and pregnancy, will ſoon diſpel the error. In this kind of dropſy, a fluctuation may in general be more plainly felt, than in dropſy of the ovary. The ſac is ſometimes filled with hydatids, and the diſeaſe is moſt frequent in women who have had many children.

As the ſwelling is ſoon obvious, and lies under the integuments and muſcles, the palliative operation may be ſafely undertaken at a very early period, and be repeated when the cyſt becomes at all prominent again. Here there is no poſſibility of an extravaſation in the abdomen, nor of any of the viſcera being wounded. A radical cure is frequently effected, as the caſe is not complicated with any ſcirrhous induration, and the attempt may be made early, before the cyſt is of large ſize. The beſt mode of performing the operation is as follows: a puncture is firſt to be made, and a flexible tube introduced, which is to be kept in until the cavity of the cyſt is as much contracted as poſſible; the wound is then to be dilated, and the cavity allowed to ſuppurate and fill up by the granulating proceſs. Sometimes a fiſtula will after all remain, but it is attended with ſtill leſs inconvenience than ſuch a conſequence uſually is in caſes of dropſical ovaries. See Richter's Anfangſgrunde der Wundarzneykunſt, band 5, kap. 6.

Paracenteſis of the Bladder.—This operation becomes indiſpenſable, when the ſymptoms of a retention of urine are urgent, and this fluid cannot be voided through the natural channel ſo ſoon as the circumſtances of the caſe abſolutely require. The operation is proper alſo, only where all other means of promoting the evacuation of the urine have failed, and where there is reaſon to hope that the natural paſſage for this ſecretion will be in a moderate length of time re-eſtabliſhed: for it is to be regarded merely as a palliative meaſure. Such a caſe is not very frequent. The operation itſelf is not the occaſion of much danger, and the chief peril moſtly ariſes from the puncture having been too long deferred.

Although, however, it appears to us, that the operation of puncturing the bladder ought not to be long poſtponed, after milder methods have decidedly failed, we believe that theſe methods will almoſt always prove ſucceſsful under ſkilful hands, and that the operation may generally be avoided. In the opinion of Deſault, there are very few inſtances in which a ſurgeon, expert at introducing the catheter, cannot paſs this inſtrument into the bladder, and conſequently the caſes in which paracenteſis is abſolutely neceſſary, muſt be exceedingly unfrequent. This aſſertion, ſays Bichat, might be confirmed by a multitude of caſes. During the years of the time when Deſault was principal ſurgeon of the Hôtel-Dieu at Paris, where diſeaſes of the urinary paſſages, and more eſpecially obſtructions of the urethra, are conſtantly numerous, this diſtinguiſhed practitioner never had occaſion to puncture the bladder, except in one example. This caſe happened ſoon after his appointment to the hoſpital, and he uſed to declare, ſubſequently, that if he had then had as much experience, and had poſſeſſed as much ſkill in introducing the catheter as he had afterwards acquired, he might, perhaps, have extricated this individual patient from the neceſſity of ſubmitting to the operation. But, as Bichat obſerves, ſince it is not every practitioner that is ſkilful enough to make the catheter ſurmount the various obſtacles which may preſent themſelves to its paſſage, without riſk of producing a falſe paſſage, or doing other ſerious miſchief; and ſince the urethra may ſometimes be totally obſtructed, ſo that no catheter nor bougie, though introduced as far as the ſtoppage, can ſerve to give exit to the urine; the operation, in theſe circumſtances, becomes poſitively indiſpenſable, for the purpoſe of relieving the urgent ſymptoms ariſing from the retention, and in order to prevent the bladder from burſting. Œuvres Chirurg. de Deſault, par Bichat, tom. iii. p. 316.

The circumſtances in which punčturing the bladder becomes neceſſary and proper, will be hereafter noticed again. See Urine, *Retention of.*

There are three ſituations in which the ſurgeon may tap the bladder; *viz.* from the perineum; above the os pubis; and from the rectum. As the firſt mode of operating is nearly exploded, and has nothing to make it preferable to the two others, we ſhall omit a deſcription of it in this work.

Paracenteſis of the Bladder above the Pubes.—There are ſome practitioners who prefer making a perpendicular inciſion, about two inches in length, through the integuments and fat, covering the lower part of the linea alba. When this plan is followed, the wound ought not to be made, as ſome authors direct, with its loweſt part full an inch above the os pubis. There is no great reaſon for keeping ſo far from this bone, and the lower the inciſion is made, the nearer it is to that part of the bladder which is the moſt deſirable to puncture, and the further it is from the peritoneum. Hence, the lower angle of the inciſion ſhould nearly meet the upper part of the ſymphyſis pubis. A cut of the ſame length is next to be made between the pyramidal muſcles, and, this being done, the ſurgeon will be able to feel with his finger the prominent diſtended bladder. A trocar, the curvature of which forms the ſegment of a circle ſeven inches in diameter, is now to be introduced into the expoſed part of this viſcus. When this inſtrument is held with its convexity upward, that is, towards the patient's navel, it can be more conveniently introduced obliquely downward, and backward, into the bladder, in the direction of the axis of this organ, than any ſtraight trocar can poſſibly be ſet. M. Sabatier obſerves, a curved inſtrument of this kind is alſo much leſs likely to penetrate the back part of the bladder and wound the rectum, beſides having this advantage, that when the urine is diſcharged, and the bladder collapſed, the cannula will not be ſo apt, as that of a ſtraight trocar, to ſlip out of the part into which it has been introduced. De la Médécine Opératoire, tom. ii. p. 128, 129.

However, there can be no doubt, that when the bladder is certainly diſtended with urine, and the ſwelling diſtinct and prominent, it is perfectly ſafe to introduce the trocar at once into the bladder, without any preliminary diviſion of the integuments, fat, &c.

When the operator perceives, by the want of reſiſtance, that the point of the inſtrument is in the bladder, he is to take hold of the mouth of the cannula, and while he puſhes the tube further inward, he is to withdraw the ſtillet. The cannula is to be allowed to remain in the wound after the urine is evacuated. Its mouth may be cloſed with any kind of ſtopper, which cannot inſinuate itſelf into the bladder, and it may be kept from ſlipping out by means of two pieces of tape, which are to be paſſed through the two little rings at the ſides of the inſtrument.

There are ſurgeons who recommend an elaſtic gum catheter to be paſſed into the bladder through the cannula, and then taking the latter away. The advantage of this practice is not at all obvious, and, as for ourſelves, we are poſitively adverſe to the practice. An elaſtic gum catheter does not fill the wound; conſequently, the urine is diſcharged, not only through the tube, but alſo between the ſides of the wound and the circumference of the inſtrument, ſo that the chance of the urine becoming diffuſed into the cellular membrane is not guarded againſt, as it is by allowing the cannula to remain in the wound, at leaſt two or three days, until the inflammation has cloſed the interſtices of the ſurrounding cellular ſubſtance, and removed the poſſibility of the urine becoming extravaſated. It is now known, that, after the above period, the cannula may be ſafely taken out, and eaſily introduced as occaſion may require.

Another objection to introducing an elaſtic gum catheter is the length of ſuch an inſtrument, the end of which would produce irritation in the bladder. The uſe of long, ſtraight ſilver cannulæ has been known to form a communication between the bladder and rectum, in conſequence of ulceration, or ſloughing, produced by the preſſure of the points of theſe inſtruments on the back part of the bladder. Mr. Samuel Sharp mentions his having ſeen this accident. Critical Enquiry, &c. p. 127, edit. 4.

It is obvious, that the outlet made for the urine by the operation of paracenteſis, is merely deſigned as a temporary one, and that as ſoon as the impediment to the paſſage of the urine through the urethra is removed, the wound ought to be allowed to heal.

Whenever the proſtate gland is known to be very much enlarged, one would certainly prefer this mode of operating to puncturing the bladder through the rectum. The wound is made in a ſituation where there is no riſk of injuring any part of importance; but, in this method, little as the chance may be of an extravaſation of urine taking place, it is undoubtedly a poſſible event, and the opening is not made in a depending place, ſo that the whole of the urine cannot very well be voided through it.

Paracenteſis of the Bladder from the Rectum.—The patient is to be put in the poſture which is uſually choſen for the lateral operation for the ſtone. (See Lithotomy.) An aſſiſtant is to make preſſure on the abdomen, juſt above the os pubis, in order to make the prominence of the bladder plainer to the ſurgeon's finger in the rectum. A curved trocar, with its point drawn within the cannula, is to be introduced with the right hand, and conveyed upon the left fore-finger, as high as the ſurgeon can reach up the inteſtine, along the ſwelling formed by the diſtended bladder. The inſtrument ſhould be kept exactly in the central line of the front portion of the rectum, and, when conveyed ſufficiently beyond the proſtate gland, the point of the trocar is to be puſhed into the bladder, through the interior part of the inteſtine.

This operation is ſo eaſy and ſafe, that it muſt be allowed to merit a general preference. The coats of the rectum and bladder are here almoſt in immediate contact, and the inſtrument has to penetrate no thickneſs of ſubſtance. The operation is not more painful than veneſection, and the diſtended bladder is ſo diſtinctly perceptible to the finger, that no miſtake can well be made. The only chance of doing miſchief ariſes from the ſituation of the veſiculæ ſeminales; but all riſk may be avoided, by introducing the finger very high up the rectum, and making the puncture exactly in the central part of the ſwelling. The trocar muſt, of courſe, be of a length ſufficient to admit of the operation being done according to theſe principles.

The only inconvenience following the operation, is the neceſſity of keeping the cannula introduced through the anus until the urine reſumes its natural courſe. This circumſtance is not only very troubleſome when the patient is walking, or ſitting down, but is particularly incommoding when he goes to ſtool. The difficulty of voiding hardened feces, however, while the inſtrument is introduced, may always be obviated by injecting a clyſter. Whenever the patient has a motion, it is, of courſe, neceſſary for him to hold the cannula with his fingers, or elſe it would be protruded.

We have no facts on record, however, which juſtify the concluſion, that any ſerious harm would reſult from withdrawing the cannula immediately after paracenteſis of the bladder from the rectum. If the urethra were not pervious at the time, the frequent paſſage of the urine through the puncture would probably be ſufficient to keep it from becoming cloſed, and the occaſional paſſage of this fluid, through the lower part of the rectum, would be far leſs annoying, than the continual preſence of the cannula. There is one inſtance in which the cannula was inadvertently withdrawn forty-eight hours after the operation, and could not be introduced again. The urine was diſcharged into the rectum, through the puncture, for ſix days afterwards, and, as ſoon as it began to paſs out through the urethra, the wound healed, without leaving any fiſtulous communication between the bladder and the inteſtine. (Bentley in Med. Communications, vol. i.) Richter, indeed, aſſures us, that the cannula has even been taken out immediately after the operation without any ill conſequences. (Anfangſgr. &c. band 6. p. 328.) Women ſeldom require the performance of paracenteſis of the bladder. Retroverſio uteri, however, is one caſe, which may render ſuch proceeding abſolutely neceſſary. The operation may be done in two ways, *viz.* from the vagina, and above the pubes. See Sabatier's Médécine Opératoire, tom. ii. Sharp's Critical Enquiry, &c. Richter's Anfangſgrunde, &c. band 6. Firſt Lines of the Practice of Surgery, by Samuel Cooper, edit. 3. &c. &c.

PARACENTRIC MOTION, in *Aſtronomy*, a term uſed for ſo much as a revolving planet approaches nearer to, or recedes farther from, the ſun, or centre of attraction.

Thus, if a planet in A, (*Plate* XVIII. *Aſtronomy*, *fig.* 2.) move to B, then $SB - SA = bB$, is the paracentric motion of that planet.

PARACENTRIC *Solicitation of Gravity* amounts to the ſame with the *vis centripeta*; and in aſtronomy, is expreſſed by the line A L, (*Plate* XVIII. *fig.* 3.) drawn from the point A parallel to the ray S B (infinitely nearer S A) till it interſect the tangent B L.

PARACHO, in *Geography*, a town of Hindooſtan, in the circar of Gohud; 15 miles N. of Narwa.

PARACHUETEAS, a town of Weſt Florida, near the Apalachicola. N. lat. 31° 24′. W. long. 85°.

PARACHURECOIL, a town of Hindooſtan, in Marawar; 7 miles N.W. of Tripatore.

PARACHUTE, a machine in the form of an umbrella, ſometimes annexed to a balloon, and ſometimes uſed ſeparately, and ſerving to buoy up a heavy body in its aſcent, or to prevent its precipitate fall (as its name imports) in the atmoſphere. (See AEROSTATION). Umbrellas have been uſed for this purpoſe from remote times in various parts of the Eaſt Indies. In the "Hiſtorical Relation of the Kingdom of Siam," by M. de la Loubere, who viſited that country in the years 1687 and 1688, we have an account of the manner in which umbrellas were employed in the diverſions of the court of Siam. "There died one," ſays this writer, "ſome years ſince, who leaped from a hoop, ſupporting himſelf only by two umbrellas, the hands of which were firmly fixed to his girdle: the wind carried him accidentally ſometimes to the ground, ſometimes to trees or houſes, and ſometimes into the river. He ſo exceedingly diverted the king of Siam, that this prince had made him a great lord, he had lodged him in the palace, and had given him a great title, or, as they ſay, a great name." See UMBRELLA.

PARACLET, a name which the church has given to the Holy Spirit; from the Greek Παρακλητος, q. d. *comforter*, or *advocate*.

PARACME, Παρακμη, a Greek word ſignifying *declenſion*, or a thing's being paſt its height.

PARACOPE, or PARACRUSIS, a word uſed by Hippocrates to expreſs a ſlight delirium in fevers.

PARACUSIS, from Παρακουω, *non recte audio*, ſignifies, in the language of the noſologiſts, *depraved hearing*. The term is not applied to ſimple deafneſs, that is, to a mere diminution or abolition of the ſenſe of hearing; but to thoſe varieties of imperfect hearing, in which all ſounds are heard incorrectly; as for inſtance, with hiſſing, ringing, or other noiſes; and to over-acute as well as obtuſe powers of hearing. See Cullen, Noſol. Meth. Gen. 97.

PARACYNANCHE. See CYNANCHE.

PARADANGA, in *Geography*, a town of Bengal; 25 miles E.N.E. of Rungpour.

PARADE, the ſhow, or expoſure of any thing to view, in all its advantages and ornaments.

Bed of parade, is that in which a perſon lies in ſtate.

PARADE, in *War*, a place where troops aſſemble, or draw together, in order to exerciſe or go on any ſervice.

PARADE is more properly the appearance of the officers and ſoldiery at a poſt aſſigned them, to put themſelves under arms, in the beſt order they can; either to mount, or break up the guard, or to form a battalion, or on ſome other occaſion.

PARADE, in *Fencing*, is the action of parrying or turning off any puſh or ſtroke.

There are as many kinds of parades, as of ſtrokes and attacks; as the parade inward, outward, above, below, feigned, &c.

PARADE is uſed in France for a ſpecies of farce, which was merely deſigned to amuſe, and to excite mirth.

PARADE *de Bouro*, in *Geography*, a town of Portugal, in the province of Entre Duero e Minho; 16 miles N.N.E. of Braga.

PARADELLA, a town of Portugal, in the province of Beira; 12 miles S.E. of Lamego.

PARADES, a town of Spain, in the province of Seville; 5 miles S. of Carmona.

PARADIAZEUXIS, near a disjunction, was in the ancient Greek muſic, according to Bucchius Senior, the interval only of a tone between the ſtrings of the two tetrachords; ſuch is the disjunction, for inſtance, which occurs between the tetrachord ſynnemenon, and the tetrachord diezeugmenon. See theſe ſeveral words.

PARADIES, DOMENICO, in *Biography*, a Neapolitan, arrived in England in 1742, at the beginning of lord Middleſex's opera regency. In 1747 he ſet "Fetonte," or Phaeton, for the theatre in the Haymarket. The drama was written by Vaneſchi, afterwards manager of that theatre. In examining the airs of this opera, as ſet by Paradies, that were printed, the firſt ſeems very common and ill-phraſed, nor is there much *eſtro*, or grace, in any of his ſongs that we have ſeen. Indeed he ſeems to have had no great experience as an opera compoſer. And during his reſidence in England he acquired more reputation by the leſſons he publiſhed for the harpſichord, and the ſcholars he made on that inſtrument, for which he was an admirable maſter, than by his vocal compoſitions. His little ſcholar, Frederica, afterwards Mrs. Wynne, gained him ſo much reputation as a harpſichord maſter, that he was appointed to inſtruct the young princeſſes at Leiceſter-Houſe; and had ſoon the offer of more ſcholars elſewhere than he could undertake.

His book of 12 leſſons has great merit: ſteering between Scarlatti and Alberti, and adding many new paſſages of brilliant execution, ſtrung together in a maſterly manner; yet they ſeem detached, and to form no ſtyle, or unity of melody.

PARADIGM, Paradigma, formed from ϖαραδειγμα, *exemplar*, of ϖαρα, and δεικνυμι, *oſtendo*, q. d. *juxta oſtendo*, an example, or inſtance, of ſomething ſaid or done. See Example.

Grammarians have appropriated the word paradigm to examples of declenſion and conjugations, which may ſerve as models for other words of the like kind.

PARADIGRAMMATICE, is uſed by ſome for the art of making all ſorts of figures in plaiſter. The artiſts in this are called *gypſochi*.

PARADIN, William, in *Biography*, an induſtrious French author, who flouriſhed in the 16th century, but of whoſe perſonal hiſtory little more is known than that he was living about the year 1581. His moſt important works were "The Chronicle of Savoy," divided into two parts: the firſt part treats of the counts, and the ſecond of the dukes of that country: "Ariſteas's Hiſtory of the Septuagint:" "Hiſtory of his own Times:" "Memoirs of the City of Lyons."

PARADIS, *Mademoiſelle* Theresa, a young perſon, equally diſtinguiſhed by her talents and misfortunes, was the daughter of M. Paradis, ſecretary to his imperial majeſty, in the Bohemian department, and god-daughter to the late empreſs queen.

At the age of two years and eight months, ſhe was ſuddenly deprived of ſight by a paralytic ſtroke, or palſy in the optic nerves.

At ſeven years old, ſhe began to liſten with great attention to the muſic ſhe heard in the church, which ſuggeſted to her parents the idea of having her taught to play on the piano forte, and, ſoon after, to ſing. In three or four years' time ſhe was able to accompany herſelf on the organ in the "Stabat mater" of Pergoleſi, of which ſhe ſung the firſt *ſoprano*, or upper part, in the church of St. Auguſtin, at Vienna, in the preſence of the late empreſs queen; who was ſo touched with her performance and misfortune, that ſhe ſettled a penſion on her for life.

After learning of ſeveral maſters at Vienna, ſhe purſued her muſical ſtudies under the care of Kozeluch, who has compoſed many admirable leſſons and concertos on purpoſe for her uſe, which ſhe played with the utmoſt neatneſs and expreſſion.

At the age of thirteen ſhe was placed under the care of the celebrated empyric, Dr. Meſmer, who undertook to cure every ſpecies of diſeaſe by animal magnetiſm. He called her diſorder a perfect *gutta ſerena*, and pretended, after ſhe had been placed in his houſe as a boarder for ſeveral months, that ſhe was perfectly cured; yet refuſing to let her parents take her away, or even viſit her, after ſome time, till, by the advice of the barons Stoërk and Wenzel, Dr. Ingenhous, profeſſor Barth the celebrated anatomiſt, and the expreſs order of her late imperial majeſty, ſhe was taken out of his hands by force; when it was found that ſhe could ſee no more than when ſhe was firſt admitted as Meſmer's patient. However, he had the diabolical malignity to aſſert that ſhe could ſee very well, and only pretended blindneſs, to preſerve the penſion granted to her by the empreſs queen; and ſince the deceaſe of this princeſs, the penſion of Mad. Paris was withdrawn, indiſcriminately, with all other penſions granted by her imperial majeſty.

Mad. Paradis quitted Vienna, in order to travel, accompanied by her mother, who treated her with extreme tenderneſs, and was a very amiable and intereſting character. After viſiting the principal courts and cities of Germany, where her talents and misfortunes procured her great attention and patronage, ſhe arrived at Paris, and remained there five or ſix months, and received every poſſible mark of approbation and regard in that capital, both for her muſical abilities, and innocent and engaging diſpoſition.

When ſhe arrived in England, ſhe brought letters from perſons of the firſt rank to her majeſty, the prince of Wales, the imperial miniſter, count Kageneck, lord Stormont, and other powerful patrons, as well as to the principal muſical profeſſors in London. Meſſrs. Cramer, Abel, Salomon, and other eminent German muſicians, intereſted themſelves very much in her welfare; not only as their countrywoman, bereaved of ſight, but as an admirable performer.

She went to Windſor, to preſent her letters to the queen, and had the honour of playing there to their majeſties, who were extremely ſatisfied with her performance, and treated her with that condeſcenſion and kindneſs, which all who are ſo happy as to be admitted into the preſence of our gracious ſovereigns, in moments of domeſtic privacy, experience, even when leſs intitled to it by merit and misfortunes than Mad. Paradis. Her majeſty was not only graciouſly pleaſed to promiſe to patronize and hear her frequently again in the courſe of the winter, but to afford her all the protection in her power; as did his royal highneſs the prince of Wales, to whom ſhe ſince performed, at a grand concert at Carlton houſe, to the entire ſatisfaction and wonder of all who heard her.

Beſides her muſical talents, which were indiſputable for neatneſs, preciſion, and expreſſion, particularly in the great variety of admirable pieces ſhe executed of her maſter, Kozeluch, Mad. Paradis was extremely well educated, and was very ingenious and accompliſhed; as ſhe was able, with printing types, to expreſs her thoughts on paper, almoſt as quick as if ſhe could write. She underſtood geography, by means of maps prepared for her uſe, in which ſhe could find and point out any province, or remarkable city in the world; and was likewiſe able, by means of tables formed in the manner of draught-boards, to calculate, with eaſe and rapidity, any ſums or numbers in the firſt five rules of arithmetic. She is likewiſe ſaid to have diſtinguiſhed many colours and coins by the touch; played at cards, when prepared for her by private marks unknown by the company; and in her muſical ſtudies, her memory and quickneſs were wonderful: as ſhe learned in general the moſt difficult pieces for keyed inſtruments, however full and complicated the parts, by hearing them played only on a violin: and ſince her arrival in this kingdom, ſhe was enabled, in this manner, to learn to perform ſome of Handel's moſt elaborate and difficult organ fugues and movements in his firſt book of Leſſons, as well as his Coronation Anthem, and more popular compoſitions.

Since her arrival in England ſhe received a cantata, written for her in the German language, by the celebrated profeſſor of mathematics, M. Pfeffel, of Colmar, who is himſelf blind. This cantata has been admirably ſet to muſic for her own voice and accompaniment on the piano forte, and ſhe executed it in a truly pathetic and able manner. Her voice was not ſo powerful as her hand; but it is touching in itſelf, and her knowledge of muſic and circumſtances rendered it doubly intereſting.

Madame Paradis having entreated Dr. Burney, who has had letters from Germany in behalf of her ingenious daughter,

ter, and was very zealous in her ſervice, to tranſlate this cantata; we have procured the following copy of his verſion:

Cantata, written in German for Mad. Paradis, by her blind friend M. Pfeffel, of Colmar, and ſet to muſic by her muſic-maſter, M. Leopold Kozeluch, of Vienna, November 11, 1784.

Imitated by Dr. Burney.

"The new-born inſect ſporting in the ſun,
Is the true ſemblance of my infant ſtate,
When ev'ry prize for which life's race is run
Was hidden from me by malignant fate.

"Inſtant deſtruction quench'd each viſual ray,
No mother's tears, no objects were reveal'd!
Extinguiſh'd was the glorious lamp of day,
And ev'ry work of God at once conceal'd!

"Where am I plunged? with trembling voice I cried,
Ah! why this premature, this ſudden night!
What from my view a parent's looks can hide,
Thoſe looks more cheering than celeſtial light!

"How ſhould I wander through the gloomy maze,
Or bear the black monotony of woe,
Did not maternal kindneſs gild my days,
And guide my devious footſteps to and fro!

"Thereſa! great in goodneſs as in power,
Whoſe fav'rite uſe of boundleſs ſway,
Was benefits on all to ſhower,
And wipe the tear of wretchedneſs away.

"When firſt my hand and voice eſſay'd,
Sweet Pergoleſi's pious ſtrains,
Her pitying goodneſs ſhe diſplayed,
To cheriſh and reward my pains.

"But now, alas! this friend to woe,
This benefactreſs is no more!
And though my eyes no light beſtow
They'll long with tears her loſs deplore!

"Yet ſtill wher'er my footſteps bend,
My helpleſs ſtate has found a friend.

"The wreathes my feeble talents ſhare,
The balmy ſolace friends employ,
Lifting the ſoul above deſpair,
Convert calamity to joy."

Paradis. See Plate *Forme.*

PARADISE, in *Geography*, a townſhip of America, in Pennſylvania, in the county of York, containing 1275 inhabitants.

Paradise, a term primarily uſed for the place in which Adam was ſeated, during his innocence; and from which he was expelled for diſobeying God: this is called, in a ſtricter manner, the *Terreſtrial Paradiſe.*

The word is formed of παράδεισος, *orchard*, a place ſtored with apples, and all kinds of fruits. Moſes calls it the *Garden of Eden*, q. d. garden of delight, from עֵדֶן, ἡδονὴ, *voluptas, pleaſure.*

The critics are in diſpute about the preciſe place of Paradiſe. Some, as Hardouin, &c. will have it in Judea, in the place where now is the lake Geneſareth; others, as Le Clerc, &c. in Syria, towards the ſprings of the Orontes, and Chryſorrhoe: but in neither of thoſe places do we diſcover any track of the rivers with which the Paradiſe in Moſes's deſcription was watered. Calmet, and ſome other ingenious critics, have placed the terreſtrial Paradiſe in Armenia, near mount Ararat, where Noah's ark was left; and imagine they there diſcover the ſources of the four rivers which watered the garden of Eden, *viz.* Euphrates; Hiddekel, now the Tigris; Gihon, now Araxes; and Piſon, now Phazzo. But ſir J. Chardin aſſures us in his travels, that the Phazzo ſprings out of the mountains of Caucaſus, northward of the kingdom of Imereti, and far enough from mount Ararat: beſides, that in Armenia we have no ſigns of the countries of Havila and Ethiopia, which thoſe rivers waſhed after their departure from Eden.

There are various other opinions, as to this point: Poſtellus will have Paradiſe placed under the north pole; grounding his notion upon an ancient tradition of the Egyptians and Babylonians, that the ecliptic or ſun's way was at firſt at right angles to the equator; and ſo paſſed directly over the north pole. Others are againſt limiting it to any one place, and contend, that it included the whole face of the earth, which was then, as it were, one continued ſcene of pleaſures, till altered upon Adam's tranſgreſſion.

However, both theſe opinions are equally incompatible with the account in the book of Geneſis; others, as Origen, Philo, &c. interpret the ſcripture relation of Paradiſe allegorically.

But the moſt common and probable opinion is that of Hopkinſon, Huet, Bochart, &c. who place Paradiſe between the confluence of the Euphrates and Tigris, and their ſeparation. Theſe rivers are two of thoſe with which the garden of Eden was watered: Piſon was a branch ariſing out of one of them after their ſeparation; and Gihon another branch ariſing from the other, on the ſide of Armenia, or the weſt: accordingly Ethiopia, one of the countries which theſe rivers waſhed, was inconteſtibly Arabia Deſerta; for Moſes calls his wife, who was of this country, an Ethiopian; and Havilah, the other country, muſt have been the Chuſiſtan in Perſia; where were anciently found gold, bdellium, the onyx, &c. mentioned in Moſes's deſcription.

The great difficulty in this ſyſtem is, that Moſes ſpeaks expreſsly of four rivers, each of which had its ſource in the garden of Eden; whereas this gives us only two rivers, which were ſeparated into four branches. See Eden.

Paradise is alſo uſed in the New Teſtament, and by Chriſtian writers, for the final habitation of the bleſſed, or Heaven: which ſee.

Paradise *Loſt*, a poem, which, whether it be referred or not to the claſs of thoſe poems that are denominated *Epic* (ſee that article), is juſtly deemed one of the higheſt efforts of poetical genius, and in one great characteriſtic of the epic poem, majeſty and ſimplicity, fully equal to any which bear that name. With reſpect to the choice of his ſubject, it has been queſtioned whether Milton was altogether happy; and it has been ſuggeſted, that, if it had been more human, and leſs theological, and more connected with the occurrences of life, ſo as to have afforded a greater diſplay of the characters and paſſions of men, his poem would have been more acceptable and pleaſing to the bulk of readers. However, his ſubject was ſuited to the daring ſublimity of his genius. To this purpoſe Dr. Johnſon aſſures us, (Life of Milton,) that "he ſeems to have been well acquainted with his own genius, and to know what it was that nature had beſtowed on him more bountifully than upon others; the power of diſplaying the vaſt, illuminating the ſplendid, enforcing the awful, darkening the gloomy, and aggravating the dreadful. He therefore choſe a ſubject, on which too much could not be ſaid; on which he might tire his fancy, without the cenſure of extravagance."

In the conduct of the ſubject which he has ſelected, he has ſhewn a very wonderful ſtretch of imagination and invention, and he has admirably ſuſtained the various characters he has aſſumed, and made the moſt of the ſcanty materials which he derived from the ſacred ſcriptures. Some, indeed, have lamented that he has added to theſe a variety of incidents, which have ſerved to perpetuate erroneous doctrines in theology, and a ſyſtem of demonology of his own creation, without ſufficient warrant from the ſacred writings. However this be, " the general tenor of his work is intereſting; he ſeizes and fixes the imagination: engages, elevates, and affects us as we proceed; and this is always a ſure teſt of merit in an epic compoſition. The artful change of his objects: the ſcene laid now in earth, now in hell, and now in heaven, affords a ſufficient diverſity, while unity of plan is at the ſame time perfectly ſupported. We have ſtill life and calm ſcenes, in the employments of Adam and Eve in Paradiſe; and we have buſy ſcenes, and great actions, in the enterpriſe of Satan, and wars of the angels. The innocence, purity, and amiableneſs of our firſt parents, oppoſed to the pride and ambition of Satan, furniſh a happy contraſt, that reigns throughout the whole poem:" though the concluſion is, in Dr. Blair's opinion, too tragic for epic poetry. Although the nature of Milton's ſubject did not admit any great diſplay of characters, thoſe which he has introduced are ſupported with much propriety. Satan is the beſt drawn character in the poem, inſomuch that ſome have ſaid, either ſeriouſly or jocularly, that he was the hero of his poem. (See Hero.) The different characters of Beelzebub, Moloch, and Belial, are well painted in their eloquent ſpeeches. Among the good angels, always deſcribed with propriety, though with greater uniformity than the infernal ſpirits in their appearance, the dignity of Michael, the mild condeſcenſion of Raphael, and the tried fidelity of Abdiel, form characteriſtical diſtinctions. In the adventurous attempt to deſcribe God Almighty himſelf, and to recite dialogues between the Father and the Son, Milton, as we might naturally expect, has been moſt unſucceſsful. With regard to human characters, the innocence of our firſt parents, and their love, are finely and delicately painted. Eve is more diſtinctly characterized than Adam. Her gentleneſs, modeſty, and frailty, very expreſſively mark a female character.

Milton's diſtinguiſhing excellence is his ſublimity, in which he far ſurpaſſes Virgil, and every other poet, and is thought by ſome to excel even Homer. The proſpect of hell, and of the fallen hoſt, the appearance and behaviour of Satan, the conſultation of the infernal chiefs, and Satan's flight through chaos to the borders of this world, manifeſt the moſt lofty ideas that ever entered into the conception of any poet. Indeed, the firſt and ſecond books are continued inſtances of the ſublime. In the ſixth book there is alſo much grandeur, particularly in the appearance of the Meſſiah; but in this book, the witticiſms of the devils upon the effect of their artillery, form an intolerable blemiſh. It is obſerved that Milton's ſublimity is different from that of Homer. That of the latter is generally accompanied with fire and impetuoſity; while Milton's poſſeſſes more of a calm and amazing grandeur. Homer warms and hurries us along; Milton fixes us in a ſtate of aſtoniſhment and elevation. Homer's ſublimity is moſt conſpicuous in the deſcription of actions; Milton's in that of wonderful and ſtupendous objects. Milton alſo unites with his ſublimity, much of the beautiful, the tender, and the pleaſing, in many parts of his works. Milton's language and verſification poſſeſs high merit. His ſtyle is full of majeſty, and wonderfully adapted to his ſubject. His blank verſe is harmonious and diverſified, and affords the moſt complete example of the elevation, which our language is capable of attaining by the force of numbers. "Upon the whole," as Dr. Blair obſerves in the concluſion of his criticiſm upon this poem, "Paradiſe Loſt is a poem that abounds with beauties of every kind, and that juſtly entitle its author to a degree of fame not inferior to any poet; though it muſt be alſo admitted to have many inequalities. It is the lot of almoſt every high and daring genius, not to be uniform and correct. Milton is too frequently theological and metaphyſical; ſometimes harſh in his language; often too technical in his words, and affectedly oſtentatious of his learning. Many of his faults muſt be attributed to the pedantry of the age in which he lived. He diſcovers a vigour, a graſp of genius equal to every thing that is great; if at ſome times he falls much below himſelf, at other times he riſes above every poet, of the ancient or modern world." Blair's Lectures, vol iii.

Mr. Addiſon's criticiſms on the Paradiſe Loſt contained in the "Spectator," are in every body's hands. They comprehend the fable, the characters, the ſentiments, and the language of this poem. See Action, Epic *Poem*, Fable, &c. &c. See alſo the biographical article of Milton.

Paradise, *Birds of*, in *Ornithology*. See Paradisea.

Paradise, *Golden Bird of*. See Oriolus *Aureus*.

Paradise *Sound*, in *Geography*, a bay on the S.W. part of Placentia, on the coaſt of Newfoundland. N. lat. 47° 30′. W. long. 54° 15′.

PARADISEA, the Bird of Paradiſe, in *Ornithology*, a genus of birds of the order Picæ, of which the generic character is; bill covered with a belt of downy feathers at the baſe; feathers of the ſides very long; two of the tail-feathers naked; legs and feet very large and ſtrong. Theſe birds chiefly inhabit New Guinea, from which they migrate in the dry ſeaſon into the neighbouring iſlands. Their feathers are uſed in theſe countries as ornaments for the head-dreſs; and the Japaneſe, Chineſe, and Perſians import them for the ſame purpoſe. Among the latter, the principal people attach theſe brilliant collections of plumage, not only to their own turbans, but to the houſings and harneſs of their horſes. They are ſeldom found many degrees beyond the equator. Gmelin enumerates twelve ſpecies, Shaw fifteen, and Latham only eight. We ſhall give thoſe of Gmelin.

Species.

Apoda; Greater Bird of Paradiſe. Cheſnut; neck beneath gold-green; feathers on the ſides longer than the body; the two middle tail-feathers are long and briſtly. There is a variety which is leſs, and the body above is yellow; the feathers on the ſides are yellowiſh-white. The two long tail-feathers are naked, ſtraight, and tapering to the tip; the tail, as it is improperly called, is nothing more than the long feathers of the back and flanks. Theſe birds are found in the Molucca iſlands, and thoſe ſurrounding New Guinea, particularly in Aroo, where they arrive with the weſterly or dry monſoon, and whence they return to New Guinea, when the eaſterly or wet monſoon ſets in. They are ſeen going and returning in flights of thirty or forty, conducted by a leader, which flies higher than the reſt. During this flight they cry like ſtarlings. By a ſudden ſhifting of the wind, their long ſcapular feathers are ſometimes ſo diſhevelled as to preclude flying, when they fall to the ground, or are loſt in the water. In the former caſe they cannot riſe again into the air, without gaining an eminence, and are ſecured by the natives, and killed on the ſpot, as they cannot be preſerved alive by art. They are likewiſe caught with bird-lime, or ſhot with blunt arrows, or are ſometimes intoxicated with the berries of *Meniſpermum cocculus* put into the water which they are accuſtomed to drink. Their real food is not known with certainty. According to ſome authors, they feed on the red berries of the *Waringa-tree*, the *Ficus benjamina*; according to others they are particularly fond of nutmegs; ſome aſſert that they live on large butterflies and moths, and others that they chaſe and devour ſmall birds.

Regia; King's Bird of Paradiſe. This is of cheſnut-purple, whitiſh beneath; two middle tail-feathers filiform, feathered, and ſemilunar at the tips; the breaſt is blueiſh; the cirri of the tail are very long; the feathers under the wings are longer than the reſt; the tail is ſhort and truncate; from five to ſeven inches long, and about the ſize of a lark. It is ſaid not to aſſociate with any other birds of Paradiſe, but ſhifts in a ſolitary ſtate from buſh to buſh in queſt of red berries, and never gets on tall trees. It is found on the iſlands of the Indian ocean, and returns to New Guinea in the rainy ſeaſon.

Tristis; Grakle Bird of Paradiſe. This has a triangular naked ſpace behind the eyes; the head and neck are brown. It inhabits the Philippine iſlands; is nine inches and a half long; feeds on fruit, inſects, mice, and every kind of grain; builds twice a-year in the forked branches of trees; it lays four eggs; when young it is eaſily tamed, and becomes docile and imitative. The bill and legs are yellow; the body is browniſh; the firſt quill-feathers are white from the baſe to the middle; tail-feathers, except the middle ones, are tipt with white. This bird has a great affinity in all its habits to the grakle genus, yet, on account of the downy feathers at the baſe of the bill, it is placed among the birds of Paradiſe.

Magnifica; Magnificent Bird of Paradiſe. Cheſnut-brown above; chin green, with golden lunules; crown with a tuft of yellow feathers. It inhabits New Guinea, and is about nine inches long. This is a ſingularly beautiful ſpecies, and a figure of it is given by Latham. The firſt quill-feathers are brown, ſecondary deep yellow; middle tail-feathers very long, with a ſhort fringe; legs and bill yellow, the latter black at the baſe and tip.

Cirrata; Creſted Bird of Paradiſe. Head, neck, and wings black; tuft of hairs near the crown and frontlet yellow. It inhabits New Guinea, and is eighteen inches long.

Nigra; Gorget Bird of Paradiſe. Black; beneath ſlight green; hind head, nape, crown, and band on the middle of the belly fine green, under the chin a ſplendid gold-coloured creſcent. It inhabits the iſlands of the Indian ocean, and is twenty-eight inches long. There are twelve unequal tail-feathers, the outer ones five inches long, and the two in the middle about twenty-two inches.

Leucoptera; White-winged Bird of Paradiſe. Black; crown ſhining copper; quill-feathers white, edged with black on the outſide; the tail is very long and wedged.

Superba; Superb Bird of Paradiſe. This ſpecies is creſted; the head, crown, and belly are green; the chin is violet, ſilky; wings black; tail with a ſhade of green. It is found in New Guinea, and is about ten inches long. The bill is black; the legs are brown; under the wings a tuft of looſe, black, ſilky feathers, as long as the wings when folded.

Furcata. This is black; under the wings is a downy tuft; feathers in the middle of the belly like a forked tail; ſhining-green.

Aurea; Gold-breaſted Bird of Paradiſe. Creſted, black; crown, cheeks, and chin violet-black; throat, ſpot on the neck, and breaſt ſhining-green; at the region of the ears, on each ſide, are three long briſtly feathers. It inhabits New Guinea, and is the ſize of a turtle dove.

Viridis; Blue-green Bird of Paradiſe. Sea-green; back, belly, rump, and tail ſteel-blue. It inhabits New Guinea, and is ſixteen inches long. The bill is thick and black; the plumage on the head is ſilky, and on the body it appears as if it were criſp at the tips.

Alba; White Bird of Paradiſe. This is entirely white, and is the rareſt of all the ſpecies. It is found in the Papuan iſlands. A variety of it is black on the fore-part, and white on the hind-part.

"In the ſecond edition of Pennant's Indian Zoology," ſays Dr. Shaw, "may be found a good general deſcription from Valentyn, of this remarkable genus, by Dr. J. Reinhold Forſter, preceded by a very learned diſſertation on the fabulous phœnix of antiquity, a bird of the ſize of an eagle, decorated with gold and purple plumes, and more particularly deſcribed by Pliny, as having the ſplendour of gold round the neck, the reſt of the body purple, the tail blue, varied with roſe-colour, the face adorned with wattles, and the head furniſhed with a creſt. This imaginary bird, Dr. Forſter ſuppoſes to have been no other than a ſymbolical Egyptian illuſtration of the annual revolution of the ſun, and the converſion of the great year, which correſponds with the ſuppoſed life of the phœnix, and from which period the ſame courſe of ſeaſons and poſitions of the heavenly bodies is renewed." Theſe notions, then, ſays Dr. Forſter, are to be explained by the theology of Egypt. Though the birds of Paradiſe were never known to the ancients, and though what has been ſaid by the Egyptian prieſts concerning the fabulous phœnix, has but little agreement with the bird of Paradiſe, yet it is remarkable that the names applied both by the Indian and European nations to theſe birds, appear to attribute ſomething of a ſuppoſed celeſtial origin to them. In all probability, ſays Dr. Shaw, this notion has ariſen merely from their tranſcendent beauty, and the ſingular diſpoſition and delicacy of their plumage.

PARADISIACA, in *Botany*, a name given by ſome authors to the *arbor vitæ*, or *thuya*.

PARADISUS, among *Ancient Church Writers*, denoted a ſquare court, before cathedrals, ſurrounded with piazzas, or porticos for walking under, ſupported by pillars. Mathew Paris calls it *parviſus*.

PARADOX, Παραδοξον, formed from ϖαρα, *againſt*, and δοξα, *opinion*, in *Philoſophy*, a propoſition ſeemingly abſurd, becauſe contrary to the received opinions; but yet true in effect.

The Copernican ſyſtem is a paradox to the common people; but the learned are all agreed as to its truth.

Geometricians have been accuſed of maintaining paradoxes; and it muſt be owned, that ſome uſe very myſterious terms in expreſſing themſelves about aſymptotes, the ſums of infinite progreſſions, the areas comprehended between curves and their aſymptotes, and the ſolids generated from theſe areas, the length of ſome ſpirals, &c. But all theſe paradoxes and myſteries amount to no more than this: that the line or number may be continually acquiring increments, and thoſe increments may decreaſe in ſuch a manner, that the whole line or number ſhall never amount to a given line or number.

The neceſſity of admitting this is obvious from the nature of the moſt common geometrical figures: thus, while the tangent of a circle increaſes, the area of the correſponding ſector increaſes, but never amounts to a quadrant. Neither is it difficult to conceive, that if a figure be concave towards a baſe, and have an aſymptote parallel to the baſe (as it happens when we take a parallel to the aſymptote of the logarithmic curve, or of the hyperbola, for a baſe), that the ordinate in this caſe always increaſes while the baſe is produced, but never amounts to the diſtance between the aſymptote and the baſe. In like manner, a curvilinear area may increaſe while the baſe is produced, and approach continually to a certain finite ſpace, but never amount to it; and a ſolid may increaſe in the ſame manner, and yet never amount to a given ſolid. See Logarithmic *Curve.*

A ſpiral may in like manner approach to a point continually, and yet in any number of revolutions never arrive at it; and there are progreſſions of fractions which may be continued at pleaſure, and yet the ſum of the terms ſhall be always leſs than a given number. See Maclaurin's Fluxions, book i. ch. 10. ſeq. where various rules are demonſtrated, and illuſtrated by examples, for determining the aſymptotes and limits of figures and progreſſions without having recourſe to thoſe myſterious expreſſions which have of late years crept into the writings of mathematicians. For, as that excellent author obſerves elſewhere, though philoſophy has, and probably always will have, myſteries to us, geometry ought to have none.

Paradoxes, *Hydroſtatical.* See Fluid.

PARADOXI, or Paradoxologi, among the *Ancients,* were a kind of mimes or buffoons, who diverted the people with their drolling.

They were alſo called *ordinarii,* for this reaſon apparently, that, as they ſpoke without ſtudy or preparation, they were always ready.

They had another denomination, *viz. nianicologi, q. d.* tellers of children's tales: and beſide were called *aretalogi,* of αρετη, *virtue,* or talking much of their own rare talents and qualifications.

PARÆA, in *Zoology,* the name of a ſpecies of ſerpent, called alſo *anguis Æſculapii.* It is a perfectly innocent and harmleſs creature, and is ſo little dreaded by the inhabitants, that it is common about their houſes, and even ſometimes gets into their beds. Its mouth is full of very ſmall teeth, and when much provoked, it is ſometimes known to bite, though without any bad ſymptoms attending the wound; it is a very long kind, and is of a yellowiſh-green colour on the ſides, and blackiſh on the back; it has two ſmall eminences on the neck, and between them two ſmall ſinews. It is very common in Spain, Italy, and moſt other of the warm countries.

PARÆNESIS, παραινεσις, formed of παρα, and αινεω, *I praiſe,* a Greek term, ſignifying adoration or exaltation.

PARAGAUDÆ, among the Romans, a ſort of wreaths, either wholly of gold, or of ſilk adorned with gold, which were interwoven in garments and not ſewed to them. The garment was ſometimes of one colour, in which was woven one paragauda; others were of two colours, and had two paragaudæ; and ſome had three colours, and three paragaudæ. They were worn both by men and women.

PARAGE, Paragium, in *Law,* an equality of blood or dignity, but more eſpecially of land, in the partition of an inheritance between coheirs.

Parage, *Paragium,* is more properly uſed, in ancient cuſtoms, for an equality of condition among nobles, or perſons holding nobly.

Thus, when a fief is divided among brothers; in this caſe, the younger hold their part of the elder by parage, *i. e.* without any homage or ſervice.

This ſtill obtains, in ſome meaſure, in Scotland, where the huſbands of the younger ſiſters are not obliged to any faith or homage to the huſband of the elder; nor their children to the ſecond degree.

This parage being an equality of duty or ſervice among brothers and ſiſters, ſome have called it *fratriage* and *parentage.*

The Cuſtomary of Normandy defines tenure by parage to be, when a noble fief being divided among daughters, the eldeſt does homage to the chief lord for all the reſt, and the youngeſt hold their parts of the reſt by parage, *i. e.* without any homage or fealty.

Parage ceaſes at the ſixth degree incluſively. It likewiſe ceaſes when any of the ſharers ſell their part.

PARAGLOSSA, from παρα, and γλωσσα, *the tongue,* in *Surgery,* a prolapſis of the tongue; or a protruſion of it from the mouth.

PARAGOGE, παραγωγη, in *Grammar,* a figure whereby a word is lengthened out by adding a ſyllable at the end of it: as in *dicier* for *dici.*

Paragoge is alſo a word uſed by medical writers to expreſs a reduction of luxated bones.

PARAGOGIC, formed of παραγω, *I prolong,* compounded of παρα and αγω, in *Grammar,* denotes ſomething added to a word without adding any thing to its ſenſe.

In the Hebrew, the ה is frequently paragogic; as in אברכה, for אברך, *I will praiſe.* The paragogic letters are the five following, *viz.* א ה ו י ן, to which ſome add the ת.

The uſe of paragogic letters is only to give a more full and agreeable ſound to words, either for the ſake of the verſe, or the ſmoothneſs of the period. As in the Hebrew letters are ſometimes added "euphoniæ gratia," ſo likewiſe the four following letters, *viz.* י ן נ ת, which, according to the grammatical rules, ought to be preſent, are omitted.

PARAGON, in *Geography,* one of the largeſt of the Calamianes iſlands, in the Eaſt Indian ſea.

PARAGONE, in *Natural Hiſtory,* the name given by many to the baſaltes, a black marble, uſed as a touchſtone.

PARAGRAPH, Παραγραφος, a term in *Juriſprudence,* ſignifying a ſection or diviſion of the text of a law: otherwiſe called an *article.*

Such a law is ſaid to be divided into ſo many paragraphs. The character of a paragraph in quotation, is ¶.

Among the Greek poets, paragraphs, παραγραφοι, were a ſpecies of critical notes, ſerving to mark the couplets, ſtrophes, and other diviſions of odes, and other poetical compoſitions. This paragraph, as deſcribed by the ſcholiaſt of Ariſtophanes, was a ſhort line, with a dot at the extremity of it.

PARAGUA, in *Ornithology,* the name of a Braſilian parrot, of the ſize of our common green parrot; but its back is all black, and its breaſt and the forepart of its belly are of a beautiful red; its eyes are black, with a red circle round them; its beak brown, or a very duſky grey, and legs and feet grey. See Psittacus *Paraguanus.*

PARAGUARE, in *Geography,* a town of Brazil, on the river of the Amazons. S. lat. 3° 10′. W. long. 65° 56′.

PARAGUAY, or Palawan, the moſt weſterly of the Philippine iſlands, about 180 miles in length, and 21 in breadth; 190 miles E.N.E. of Mindanao. N. lat. 8 12′ to 11° 31′. E. long. 117° 21′ to 119° 40′.

Paraguay, a river of South America, which riſes about W. long. 58° between the 5th and 6th degrees of S. lat. After purſuing an almoſt due S. courſe, it joins the Plata in S. lat. 28°. W. long. 60° 36′. The word "Paraguay" means "the crown," or a kingly ſtream.

Paraguay, a province of the viceroyalty of La Plata or Buenos Ayres, called the "Government of Paraguay." This government lies S. of Santa Cruz de la Sierra and E. of Tucuman. Southward it joins to that of Buenos Ayres, and eaſtward it is terminated by the captainſhip of St. Vicente in Brazil, the capital of which is the city of St. Pablo. Theſe countries were firſt diſcovered by Sebaſtian Gaboto or Cabot (ſee Cabot), who, coming to the river of Plata in the year 1526, ſailed up the Parana in ſmall barks,

barks, and thence entered that of Paraguay. In 1536 he was ſucceeded by Juan de Ayolas, to whom Don Pedro de Mendoza, the firſt governor of Buenos Ayres, had given a commiſſion, together with a body of troops, military ſtores, and other neceſſaries; and, afterwards, by his orders, Juan de Salinas founded the city of Nueſtra Senora de la Aſſumption, the capital of the province; but the diſcovery of the whole, and conſequently the conqueſt of the people who inhabited it, being ſtill imperfect, it was proſecuted by Alvar Nunez, ſurnamed Cabeza de Baca, or Cowhead, whoſe eminent ſervices, on the death of Don Pedro de Mendoza, procured for him the government of Buenos Ayres. The only ſetttlements, in the whole extent of this government, is the city of Aſſumption, Villa Rica, and ſome other towns, inhabited by converted Indians, who were once entirely under the adminiſtration of the Jeſuits. The province is diſtinguiſhed by its fertility, and though it produces none of the precious metals, it is the moſt opulent in the new viceroyalty, on account of its various vegetable productions, and the prodigious herds of horſes, mules, cattle and ſheep, which enliven its extenſive plains. The northern parts, however, of Paraguay have been little explored, as the ſettlements of the Jeſuits were chiefly in the ſouthern ſkirts, and among the adjacent Abipons and Guaranis. It was in the year 1580 that the Jeſuits were firſt admitted into theſe fertile regions, where they afterwards, in the reign of Philip III., founded the famous Miſſions, which in Europe have been known under the name of Paraguay, but in America Uraguay, from the river of that name on which they were ſituated. Actuated by motives of religion and of intereſt, they were diligent and zealous in the ſervice aſſigned them of converting the Indians to the Catholic faith; and by a gradual progreſs their labours were attended with very conſiderable ſucceſs. The Jeſuit miſſionaries had previouſly ſtipulated with the court of Spain, that for the more effectual accompliſhment of their purpoſes in converting and civilizing the Indians, they ſhould be independent of the governors of the province, and that they ſhould annually receive from the royal treaſure 60,000 piaſtres for defraying the expences of cultivation; on condition that as colonies were formed and the lands cultivated, the Indians ſhould pay yearly a piaſtre *per* head to the king, from the age of eighteen to ſixty. The Jeſuits thus encouraged embarked in the execution of their enterprize with ſingular reſolution and ardour, and notwithſtanding the difficulties with which they had to contend, ſucceeded in civilizing the barbarous Indians, introducing among them uſeful and polite arts, and forming them into a ſtate of mutual aſſociation and amity, of profitable labour and domeſtic comfort. Their miſſions extended over a country, which contained about 200 leages N. and S. and about 150 E. and W.; and the number of inhabitants was about 300,000, From the immenſe foreſts they derived all kinds of wood, and the extenſive paſtures were covered with at leaſt two millions of cattle.

The country was divided into pariſhes, and each pariſh was under the direction of two Jeſuits, who officiated, the one as rector, and the other as curate. The eſtabliſhment was ſupported at an expence, which, comprehending the magnificent ſtructure and ornaments of the churches, was not very conſiderable; as the Indians ſupported themſelves by their own labour. The products of the ground and cattle belonged to the Jeſuits, who provided inſtruments of various trades, for glaſs, knives, needles, chaplets of beads, gunpowder, and muſkets. Their annual revenues conſiſted in cotton, tallow, leather, honey, and more eſpecially *Mathe*, or herb of *Paraguay* (which ſee,) monopolized by the ſociety, and yielding, according to the ſtatement of Dr. Robertſon in his "Hiſtory of America," 500,000 peſos, at 4*s*. 6*d*. each. The whole ſyſtem of adminiſtration, planned and conducted by the Jeſuits, was ſo formed as to keep the Indians in perfect ſubordination to the rectors; whilſt they were provided with means of inſtruction in various departments of ſcience, ſuch as muſic, painting, ſculpture, and architecture, and alſo of manufacture and trade; and at the ſame time their attention was directed to the regular performance of religious ceremonies and duties.

The ſociety of Jeſuits was thus employed in extending its miſſions, and eſtabliſhing its authority, when their deſigns and labours were entirely terminated by the Spaniſh court, which decreed their expulſion throughout its widely ſpread dominions. The miſſions upon the Uraguay, of which we have above given a conciſe account, were not the only ones founded by the Jeſuits in South America; northward and ſouthward they made progreſs in carrying their plans of government into effect, and multiplying their eſtabliſhments. When their effects in this province were confiſcated, it was expected that large ſums of hoarded money would have been found; but theſe, in their whole amount, were very trifling. Their magazines, indeed, were furniſhed with all ſorts of merchandiſe, conſiſting of the products of the country, and of goods imported from Europe; the number of their ſlaves was alſo very conſiderable, inſomuch, that at Cordova alone they reckoned 3500. In detailing botanical notices, with reſpect to the province of Paraguay, by the aſſiſtance of Dobrizhoffer's communications, in the firſt volume of his work, we ſhall curſorily mention the tree, which bears the quinquina or Jeſuits' bark, the ſarſaparilla, rhubarb, jalap, ſaſſafras, the guayacum, the zamu, called from its form the drunkard, the mangay, yielding the elaſtic juice applied in Europe to various purpoſes, the caa, from which is obtained the reſin called dragon's blood, the cupay, whoſe precious oil is uſed in medicine, the nux vomica, the vanilla, the tree which yields chocolate, the timbabi, which ſupplies ſtore of a beautiful golden gum, that is run into moulds and formed into croſſes, necklaces, and ear-rings, ſtraight and lofty cedars, and the American pine called cury, harder than the European, and marked with red veins, of the knots of which exuding a red juice, and appearing varniſhed, the Guaranis make elegant images; ſeveral ſpecies of the algarobba or carrob tree, of which are made a bread by pounding it in a mortar, and a wholeſome drink by infuſing it in cold water, which is ſaid to be a radical cure for conſumptions, and to poſſeſs a ſtrong diuretic virtue: the paraguay already mentioned, numerous and beautiful ſpecies of palm, figs, peaches, pomegranates, lemons, and large oranges. Among the native fruits are the jujub, the chanar, the yacani, the quabyra, of a ſpecies of which candles are made for divine ſervice, the paſſion-flower plant, the fruit called quembe, yielding a delicious pulp, the mammon growing on the trunk of a tree, and approaching to the melon, the tatay, producing a fruit like the mulberry, the alaba, whoſe fruit is delicious and refreſhing, the anguay, the pips of which are of a ſplendid violet colour, and triangular ſhape, uſed by the Indian women for making necklaces, the tarumay, reſembling the olive, the molle, yielding a copious and fragrant gum, the bacoba, banana, and anana, the manioc, the cotton-tree, which is a common plant, the zevil, yielding a bark uſeful in tanning, the ſeibo, bearing flowers of a violet colour, the izapi, whoſe leaves diſtil a copious ſupply of water, the ant-tree, the choſen haunt of theſe inſects, the umbu, which might cover 50 men with its thick ſhade, the willow, the ambay, uſed in ſtriking fire, the urucuy, a ſhrub yielding a ſtrong ſcarlet dye, indigo, cochineal, nakalic, whoſe beautiful yellow is uſed by dyers and painters, the caraquata of the Guaranis, or maguey of the Mexicans, reſembling an aloe, reeds of a prodigious ſize, the ſugar-cane, various ſpecies of roſemary, rue, mint, ſage, borrage, &c.; maize, or Indian corn, of which is made the favourite drink of the Indians, called chicha, or alloja, potatoes of large ſize, white, red, and yellow, which latter are the beſt, the mani, reſembling the almond in taſte and form, of which there are ſeveral kinds, the oil of which is ſuperior to that of the olive; European beans, peas, melons, cucumbers, lettuce, turnip, muſtard, creſſes, leeks, and onions, aſparagus found wild in the fields, wheat in large quantities, and the vine. Paraguay in particular produces a generous and healthy wine, but the roots are deſtroyed by the prodigious number of ants. Of quadrupeds it has been ſaid, that here are the glama or lama, the guanoco, the macmoro, or chilihueque of the Chileſe, the vicuna, and the paco or alpaco. (See Camelus.) But a late author, Azara, has omitted them in his work, and it has been accordingly affirmed, that they are totally unknown in Brazil, a town in Paraguay. The American tiger or jaguar is chiefly known in Paraguay, and the foreſts to the north. Other animals are the wild cat, the elk, the ant-bear, a kind of deer, &c. A ſpecies of oſtrich is found in the wide plains of Paraguay. Dobrizhoffer counted nine kinds of picaflor, or humming-bird, in this province; and here are alſo about 20 kinds of ſerpents, among which the rattle-ſnake is not uncommon. See La Plata.

Paraguay, or *Paragoué*, in *Natural Hiſtory*, a celebrated plant of the ſhrub kind, growing in ſome provinces in South America, eſpecially in that of Paraguay, whence its name, though better known among us under the denomination of *South-ſea tea*. See Ilex *Vomitoria*.

This plant, which does not riſe above a foot and a half high, has very ſlender branches, and leaves ſomewhat like thoſe of ſenna; it may be looked on as a kind of occidental tea, which, like the oriental, is taken infuſed in hot water, to which it communicates a colour and ſmell nearly like thoſe of the beſt tea ſeen in Europe.

There are two kinds of paraguay, the one called ſimply *paraguay;* the other *caamini*, (which ſee,) by the Spaniards, *yervacamini;* which laſt is moſt eſteemed, and ſold for a third more than the other.

The firſt the Spaniards called the *yerva-con-palos*, i. e. *herb with little ſticks*, becauſe full of broken branches: this is chiefly uſed by domeſtics and ſlaves: the latter is the drink of the richeſt. But both are of ſo much uſe, and eſteemed of ſuch abſolute neceſſity, that nobody in that part of America will live without them. The works of the mines of Potoſi would ſtand ſtill, but that the maſters take care to ſupply the ſlaves that labour therein with paraguay, which is their conſtant remedy againſt thoſe mineral ſteams, with which they would otherwiſe be ſuffocated. Nor will a ſervant engage himſelf with any maſter, but upon this among other conditions, that he have nothing but paraguay for drink.

The paraguay makes one of the moſt conſiderable articles of the South American commerce. At Peru, Chili, and Buenos Ayres, there are above two millions worth ſold *per annum;* which uſed to paſs almoſt altogether through the hands of the Jeſuits.

The preparation of the plant, and the making it into drink, is much the ſame with that of tea, except that they infuſe both the leaves and the wood, that they drink it immediately out of the veſſel it is made in, without letting it have time to infuſe, by reaſon of the black tincture it gives; and that, to prevent leaves and all from coming, they ſuck it through a ſilver or glaſs pipe, which goes round the company one after another. Frezier.

Beſide all the virtues which the eaſtern people aſcribe to their tea, as to be good in diſeaſes of the head, breaſt, and ſtomach againſt phlegm, and to reſtore ſleep; the Americans attribute to their's this likewiſe, of purifying all kinds of water, how foul and corrupt ſoever, by only infuſing it therein, either hot or cold. Thus, having always ſome of it with them, if they meet with none but the worſt waters in the vaſt deſarts to be croſſed in going from Buenos Ayres to Peru and Chili, they are not afraid to drink them, after ſteeping ſome of the plant a little while therein. It is alſo held ſovereign againſt the ſcurvy and putrid fevers.

PARAGUR, in *Geography*, a ruined town of Hindooſtan, in the circar of Gohud; 25 miles S. of Narwa.

PARAH, in *Commerce*, a corn meaſure in the Eaſt Indies. At Madras, the garee, corn-meaſure, contains 80 parahs, or 400 marcais, and the marcal, 64 ollocks. The marcal ſhould meaſure 750 cubic inches, and weigh 27 lb. 2 oz. 2 dr. avoirdupois of freſh ſpring water; hence, 43 marcals = 15 Engliſh buſhels, and the garee = $17\frac{1}{2}$ Engliſh quarters nearly. When grain is ſold by weight, $9256\frac{1}{2}$ lbs. are reckoned for 1 garee, being 18 candies $12\frac{4}{5}$ marcals.

At Bombay, the candy, dry meaſure, contains 8 parahs; the parah, 16 adowlies, 64 ſeers, or 128 tiprees. This ſerves for wheat and all grain but rice, or batty, which is ſold by the batty meaſure, as follows; the morah contains 4 candies, or 25 parahs; the parah, 20 adowlies, 150 ſeers, or 300 tiprees.

Parah, in *Geography*, a town of Bengal; 10 miles W. of Rogonatpour. N. lat. 23° 3′. E. long. 86° 39′.

PARAIBA, or Para-iba, a town of Braſil, and capital of a province or captaincy of the ſame name, which it derives from that of a river, on the S. bank of which it is ſituated, about 10 miles from the ſea; the river being navigable above the town for ſhips loaded with 600 or 700 hogſheads of ſugar. The harbour is large, but rather dangerous on account of the ſand-banks. The town has many ſtately houſes, decorated with marble pillars, beſides large warehouſes and magazines for the accommodation of the merchants. The mouth of the river is defended by three forts. The Portugueſe, who took poſſeſſion of this town and territory in 1584, after having expelled the French, have increaſed its buildings, planted ſugar-canes, and erected ſugar-mills. The whole territory is fertile in ſugar-canes, and abounds in Braſil wood, cattle, tobacco, cotton, &c.; 60 miles N. of Fernambuco. S. lat. 7° 15′. W. long. 34° 3′.

Para-iba *de Sul*, a river of Braſil, which runs into the Atlantic, S. lat. 7° 15′. There is another river in the ſouth, of the ſame appellation.

PARAKIN, a town of Servia; 32 miles N.N.W. of Niſſa.

PARALAMPSIS, from παρα λαμπω, *to ſhine a little*, in *Surgery*, a white opacity of the cornea of the eye.

PARALAPUTTY, in *Geography*, a town of Hindooſtan, in Myſore; 10 miles from Sankeridurgum.

PARALEA, in *Botany*, ſo called by Aublet from the Caribean word *parala*, a genus of that author's, of which the characters, as far as concerns the female parts of fructification, and the nature of the fruit itſelf, are unknown. It belongs to the *Polyandria*, or rather *Dodecandria*, of Linnæus, and is ranged by Juſſieu among his *Guaiacanæ* with indefinite ſtamens, between *Ciponima* of Aublet, and *Hopea* of Garden and Linnæus, both which are now known to belong to the *Symplocos* of Jacquin and Linnæus, as l'Heritier firſt ſuggeſted. We may therefore preſume to reduce the *Paralea* to the ſame genus; even though no ſuch collection of its ſtamens into parcels has been obſerved, as is found in various ſpecies of *Symplocos* already known; for that might eaſily eſcape detection in ſuch ſmall flowers as theſe are repreſented See Aubl. Guian. t. 231. Lamarck Illuſtr. t. 454. Juſſ. 157.

The *tree* is ſaid to be lofty, with a hard white wood. *Leaves* alternate, on ſhort ſtalks, oval, entire, coriaceous, dark green, ſmooth, except a fringe of white hairs in their early ſtate, which are deciduous. *Flowers* pleaſantly ſcented, in little axillary tufts, accompanied by ſmall, downy, reddiſh ſcales or bracteas. *Calyx* of one leaf, downy, reddiſh, with four ſharp teeth. *Corolla* with a ſhort inflated quadrangular tube, and a limb in four ſmall, fleſhy, red lobes. *Stamens* 18, ſhorter than the corolla. A little priſmatic body, covered with red hairs, is found in the centre of the flower. This tree bloſſoms in October. The natives of Guiana, where it grows, about 50 miles from the ſea-coaſt, bathe themſelves with a decoction of its bark when they are attacked with fevers.

PARALEPSIS, Παραλεψις, in *Rhetoric*, a pretence of omitting or paſſing over a thing, and yet expreſſing it by the way.

The deſign of this figure, according to Hermogenes, is to poſſeſs the minds of the audience with more than the words expreſs, and it is principally made uſe of on three occaſions: either when things are ſmall and yet neceſſary to be mentioned; or well known, and need not be enlarged on; or ungrateful, and therefore ſhould be introduced with caution, and not ſet in too ſtrong a light. When the imagination is warmed, and reaſons and arguments preſent themſelves in abundance, the orator would willingly lay them all down, in form; but for fear of wearying his audience, he only produces ſome of them *en paſſant*, and without dwelling on them: and this is called a *paralepſis*, by the Latins *præteritio*, by the Greeks *apoſiopeſis*.

For inſtance, I paſs over in ſilence the many injuries I have received, &c. I won't inſiſt on this laſt outrage. See Ep. to Philemon, v. 19.

PARALIA, Παραλια, in *Antiquity*, a day kept in memory of an aneient hero, called Paralus.

Paralia was alſo the name of one of the Athenian tribes.

PARALIPOMENA, Παραλειπομενα, a ſupplement of things omitted and forgot, in ſome preceding work, or treatiſe. The word is formed from the Greek παραλειπω, *prætermitto, I paſs by*. Some authors uſe the word *ſubrelictum* inſtead of *paralipomenon*.

In the canon of Scripture, there are two books of Paralipomena, called in the Engliſh verſion Chronicles; being a ſupplement to the four books of kings, the two firſt of which are alſo called books of Samuel.

Quintus Calabar has a work, entitled the Paralipomena of Homer.

PARALLACTIC Angle, called alſo ſimply *parallax*, is the angle made in the centre of a ſtar by two right lines, drawn, the one from the centre of the earth, T B, (*Plate* XVIII. *Aſtron. fig.* 4.) the other from its ſurface, E B.

Or, which amounts to the ſame, the parallactic angle is the difference of the angles C E A, and B T A, under which the real and apparent diſtances from the zenith are ſeen.

The ſines of the parallactic angles A L T and A S T, (*fig.* 5.) at the ſame or equal diſtances from the zenith S Z, are in a reciprocal ratio of the diſtances of the ſtars from the centre of the earth, T L and T S.

PARALLAX, Παραλλαξις, in *Aſtronomy*, an arc of the heavens intercepted between the true place of a ſtar, and its apparent place.

The true place of a ſtar is that point of the heavens B, (*fig.* 4.) in which it would be ſeen by an eye placed in the centre of the earth as at T. The apparent place is that point of the heavens C, in which the ſtar appears to an eye on the ſurface of the earth as at E. Now, as, in effect, we view a celeſtial body not from the centre, but from the ſurface of our earth, which is a ſemi-diameter diſtant from the centre; we ſee it by a viſual ray, which paſſing through the centre of the ſtar, and proceeding thence to the ſurface of the mundane ſphere, marks out another point C, which is its apparent place.

The difference of places, is what we call abſolutely the *parallax*, παραλλαξις, or the *parallax of altitude*; by Copernicus it is called the *commutation*; which, therefore, is an angle formed by two viſual rays, drawn the one from the centre, the other from the circumference of the earth, and traverſing the body of the ſtar; and is meaſured by an arc of a great circle intercepted between the two points of the true and apparent place, C and B.

The nature and effects of the parallax may be otherwiſe familiarly illuſtrated by adverting to *Plate* XVIII. *fig.* 9. Let C be the centre of the earth, A the place of the ſpectator on its ſurface, S any object, Z H the ſphere of the fixed ſtars, to which the places of all the bodies in our ſyſtem are referred; Z the zenith, H the horizon; draw C S M, A S *n*, and *m* is the place of S ſeen from the centre, and *n* from the ſurface. As the plane S A C paſſes through the centre of the earth, it muſt be perpendicular to its ſurface, and conſequently paſs through the zenith Z; and the points *m*, *n*, lying in the ſame plane, the arc of parallax, *m n*, muſt lie in a circle parallel to the horizon; and hence the azimuth is not affected, if the earth be a ſphere. Now the parallax, *m n*, is meaſured by the angle *m* S *n*, or A S C; and (by trigonometry) C S : C A :: ſin. S A C or ſin. S A Z its ſupplement : ſin. A S C the parallax $= \frac{CA \times \text{ſin. } SAZ}{CS}$. But C A being conſtant, on the ſuppoſition of the earth's being a ſphere, the ſine of the parallax varies as the ſine of the apparent zenith diſtance directly, and the diſtance of the body from the centre of the earth inverſely. Hence, a body in the zenith has no parallax, and at *s* in the horizon it is the greateſt. If the object be at an indefinitely great diſtance, it has no parallax; and therefore the apparent places of the fixed ſtars are not altered by it. As *n* is the apparent place, and *m* is called the true place, the parallax depreſſes an object in a vertical circle. For different altitudes of the ſame body, the parallax varies as the ſine, s, of the apparent zenith diſtance; therefore, if $p =$ the horizontal parallax, and radius be unity, we have $1 : s :: p : ps$, the ſine of the parallax. In order, therefore, to determine the parallax at all altitudes, we muſt firſt find it at ſome given altitude. Vince's Elem. of Aſtronomy, 1810.

Parallax *of Declination*, is an arc of a circle of declination S I, (*fig.* 6.) whereby the parallax of altitude diminiſhes the declination of a ſtar.

Parallax *of Right Aſcenſion and Deſcenſion*, is an arc of the equator D *d*, (*fig.* 6.) whereby the parallax of altitude increaſes the aſcenſion, and diminiſhes the deſcenſion.

Parallax *of Longitude*, is an arc of the ecliptic T *t*, (*fig.* 7.) whereby the parallax of altitude increaſes or diminiſhes the longitude.

Parallax *of Latitude*, is an arc of a circle of latitude S I, whereby the parallax of altitude increaſes or diminiſhes the latitude.

Parallax, *Menſtrual, of the Sun*, is an angle formed by two right lines, one drawn from the earth to the ſun, and another from the ſun to the moon, at either of their quadratures.

PARALLAX *of the annual orbit* of the earth, is the difference between the heliocentric and geocentric place of a planet, or the angle at any planet, ſubtended by the diſtance between the ſun and earth.

PARALLAX is alſo uſed for the angle made in the centre of the ſtar by two right lines, drawn, the one from the centre, the other from the ſurface of the earth.

This is alſo called *parallactic angle*. Hence the parallax diminiſhes the altitude of a ſtar, or increaſes its diſtance from the zenith; and has, therefore, a contrary effect to the refraction.

The parallax of altitude C B, (*fig.* 4.) is, ſtrictly, the difference between the true diſtance from the zenith C A, and the apparent diſtance B A.

The parallax is greateſt in the horizon; in the zenith, or meridian, a ſtar has no parallax at all; the true and apparent places then coinciding.

The horizontal parallax is the ſame, whether the ſtar be in the true, or the apparent horizon.

Few, if any, of the fixed ſtars have any ſenſible parallax, by reaſon of their immenſe diſtance, to which the ſemi-diameter of the earth is but a mere point. See STAR.

Hence alſo, the nearer a ſtar is to the earth, the greater is its parallax, at an equal elevation above the horizon; and Saturn is ſo high, that it is difficult to obſerve in him any parallax at all.

The parallax increaſes the right and oblique aſcenſion, diminiſhes the deſcenſion; diminiſhes the northern declination and latitude in the eaſtern part, increaſes them in the weſtern; increaſes the ſouthern in the eaſtern and weſtern part; diminiſhes the longitude in the weſtern part, increaſes it in the eaſtern. The parallax, therefore, has juſt oppoſite effects to the refraction.

Hence the parallax of the remoter ſtar S (*fig.* 5.) is leſs than the parallax of the nearer L, at the ſame diſtance from the zenith; as before obſerved.

The ſines of the parallactic angles M and S, of ſtars equally diſtant from the centre of the earth T, are as the ſines of the diſtances ſeen from the vertex Z M, and Z S. Hence, the diſtances from the vertex decreaſe, *i. e.* as the altitudes decreaſe, the parallax increaſes; and hence, alſo, the parallax affects the altitude of the ſtar, from the horizon to the zenith.

The doctrine of parallaxes is of the utmoſt importance, in aſtronomy, for determining the diſtances of planets, comets, and other phenomena of the heavens; for the calculation of eclipſes, and for finding the longitude. Methods of finding the parallaxes of the celeſtial phenomena are various: ſome of the principal and eaſier follow.

To obſerve the PARALLAX *of a celeſtial Phenomenon.*—Obſerve when the phenomenon is in the ſame vertical with a fixed ſtar which is near it, and meaſure its apparent diſtance from the ſtar; obſerve, again, when the phenomenon and fixed ſtar are at equal altitudes from the horizon; and again meaſure their diſtance. The difference of thoſe diſtances will be, very nearly, the parallax ſought. The parallax of a phenomenon may be likewiſe found by obſerving its azimuth and altitude; and by marking the time between the obſervation, and its arrival at the meridian.

All required to find the parallax of the moon is, the parallax of right aſcenſion: to find the effect of the magnitude of the ſemi-diameter of the earth, with regard to the phenomena of its motion, it is ſufficient to know how far the meridian, to which the eye refers it, deviates from the true meridian. This is what M. Caſſini found and practiſed with regard to Mars; and what M. Maraldi has ſince practiſed with regard to the moon. The whole myſtery here conſiſts in having the moon's true motion, which refers to the centre of the earth; and its apparent motion, which refers to the place of obſervation: the difference of theſe, which is greateſt in the horizon, or horary circle of ſix o'clock, gives the horizontal parallax for that latitude; whence the general parallax, or that under the equator, is eaſily found: the parallax of any parallel being to that of the equator, as the ſemi-diameter of this parallel is to that of the equator. See the practice of this method exemplified in finding the parallax of Mars.

PARALLAX, *to obſerve the Moon's*. Obſerve the moon's meridian altitude, with the greateſt accuracy, and mark the moment of time: this time being equated (ſee EQUATION), compute her true longitude and latitude, and from theſe find her declination, and from her declination, and the elevation of the equator, find her true meridian altitude: if the obſerved altitude be not meridian, reduce it to the true altitude for the time of obſervation; take the refraction from the obſerved altitude, and ſubtract the remainder from the true altitude; and the remainder is the moon's parallax.

By this means Tycho, in 1583, Oct. d. 12 hor. 5. 19'. from the moon's meridian altitude obſerved, 13° 38', found her parallax to be 54 minutes.

To obſerve the Moon's PARALLAX *in an Eclipſe.*—In an eclipſe of the moon, obſerve when both horns are in the ſame vertical circle; in that moment take the altitudes of both horns; the difference of the two being halved, and added to the leaſt, or ſubtracted from the greateſt, gives nearly the viſible altitude of the moon's centre: but the true altitude is nearly equal to the altitude of the centre of the ſhadow at that time. Now we know the altitude of the centre of the ſhadow, becauſe we know the ſun's place in the ecliptic, and its depreſſion under the horizon, which is equal to the altitude of the oppoſite point of the ecliptic in which the centre of the ſhadow is: thus have we both the true and apparent altitude, the difference whereof is the parallax.

PARALLAX, *in order to find the Moon's*. Let a graduated inſtrument, as D A E (the larger the better), *Plate* XVIII. *Aſtronomy*, *fig.* 8. having a moveable index with ſight-holes, be fixed in ſuch a manner, that its plane ſurface may be parallel to the plane of the equator, and its edge A D in the meridian; ſo that when the moon is in the equinoctial, and on the meridian A D E, ſhe may be ſeen through the ſight-holes, when the edge of the moveable index cuts the beginning of the diviſions at o, on the graduated limb D E; and when ſhe is ſo ſeen, let the preciſe time be noted. Now, as the moon revolves about the earth from the meridian to the meridian again, in about 24 hours, 48 minutes, ſhe will go a fourth part round it in 6 hours, 12 minutes, as ſeen from C, or from the earth's centre or pole. But as ſeen from A, the obſerver's place on the earth's ſurface, the moon will ſeem to have gone a quarter round the earth when ſhe comes to the ſenſible horizon at O; for the index, through the ſights of which ſhe is then viewed, will be at *d*, 90° from D, where it was when ſhe was ſeen at E. Now, let the exact moment when the moon is ſeen at O, in or near the ſenſible horizon, be carefully noted, (allowance being made for the horizontal refraction, which is about 34', ſo that the moon's centre will appear 34 minutes above the horizon, when her centre is really in it); that it may be known in what time ſhe has gone from E to O; which time ſubtracted from 6 hours 12 minutes, (the time of her going from E to L), leaves the time of her going from O to L, and affords an eaſy method for finding the angle O A L, or the moon's horizontal parallax, which is equal to the angle A L C, by the following analogy: as the time of the moon's deſcribing the arc E O is to 90°, ſo is 6 hours 12 minutes to the degrees of the arc D *d* E, which meaſures the angle E A L; from which ſubtract 90°, and there remains the angle O A L = A L C, under which the earth's ſemi-diameter A C is ſeen from the moon.

Aſtronomers have propoſed the following method, for more accurately determining the moon's parallax; let two obſervers be placed under the ſame meridian, one in the northern hemiſphere, and the other in the ſouthern, at ſuch a diſtance from each other, that the arc of the celeſtial meridian included between their two zeniths, may be at leaſt 80 or 90 degrees. Let each obſerver take the diſtance of the moon's centre from his zenith, by means of an exceeding good inſtrument, at the moment of her paſſing the meridian: add theſe two zenith diſtances of the moon together, and their exceſs above the diſtance between the two zeniths, will be the diſtance between the two apparent places of the moon. Then as the ſum of the natural ſines of the two zenith diſtances of the moon is to the radius, ſo is the diſtance between her two apparent places to her horizontal parallax. If the two places be not exactly under the ſame meridian, their difference of longitude muſt be accurately taken, that proper allowance may be made for the moon's declination, while ſhe is paſſing from the meridian of the one to the meridian of the other. Ferguſon's Aſtr. p. 307. quarto, 1773.

Otherwiſe: take the meridian altitudes of the moon, when it is at its greateſt north and ſouth latitudes, and correct them for refraction: then the difference of the altitudes, thus corrected, would be equal to the ſum of the two latitudes of the moon, if there were no parallax; conſequently the difference between the ſum of the two latitudes and the difference of the altitudes, will be the difference between the parallaxes at the two altitudes. To find from them the parallax itſelf, let S, s, be the ſines of the greateſt and leaſt apparent zenith diſtances; P, p, the ſines of the correſponding parallaxes: then as, when the diſtance is given, the parallax varies as the ſine of the zenith diſtance, as we have ſhewn at the beginning of the article PARALLAX, $S : s :: P : p$; hence $S - s : s :: P - p : p = \dfrac{s \times P - p}{S - s}$, the parallax at the greateſt altitude. This ſuppoſes that the moon is at the ſame diſtance in both caſes; but as this will not neceſſarily happen, we muſt correct one of the obſervations, in order to reduce it to what it would have been, had the diſtance been the ſame, the parallax at the ſame altitude being inverſely as the diſtance. If the obſervations be made in thoſe places where the moon paſſes through the zenith of one of the obſervers, the difference between the ſum of the two latitudes and the zenith diſtance at the other obſervation will be the parallax at that altitude.

Since, from the moon's theory, we have the ratio of her diſtances from the earth in the ſeveral degrees of her anomaly; thoſe diſtances being found by the rule of three in ſemidiameters of the earth, the parallax is thence determined to the ſeveral degrees of the true anomaly.

De la Hire makes the greateſt horizontal parallax 1° 1′ 25″, the ſmalleſt 54′ 5″. The moon's diſtance, therefore, when in her perigee, is, according to his calculation, $55\frac{97}{100}$, that is, almoſt 56 ſemidiameters; in her apogee $63\frac{57}{100}$, that is, $63\frac{1}{2}$ ſemidiameters of the earth.

M. le Monnier determined the mean parallax of the moon to be 57′ 12″. Others have made it 57′ 18″.

According to the Tables of Mayer, the greateſt parallax of the moon (or when ſhe is in her perigee and in oppoſition) is 61′ 32″; the leaſt parallax (or when ſhe is in her apogee and conjunction) is 53′ 52″, in the latitude of Paris: the arithmetical mean of theſe is 57′ 42″. But this is not the parallax at the mean diſtance, becauſe the parallax varies inverſely as the diſtance; and therefore the parallax at the mean diſtance is 57′ 24″, an harmonic mean between the two. M. de Lambre re-calculated the parallax from the ſame obſervations from which Mayer calculated it, and found it did not exactly agree with Mayer's. He made the equatorial parallax 57′ 11″.4. M. de la Lande makes it 57′ 5″ at the equator, 56′ 53″.2 at the pole, and 57′ 1″ for the mean radius of the earth, ſuppoſing the difference of the equatorial and polar diameters to be $\frac{1}{300}$dth of the whole. From the formula of Mayer, the equatorial parallax is 57′ 11″.4.

From the Moon's PARALLAX AST, *Plate* XVIII. *Aſtronomy*, *fig.* 5, and *Altitude* S R, *to find her Diſtance from the Earth.* By her apparent altitude given, we have her apparent diſtance from the zenith, *i. e.* the angle Z A S; or, by her true altitude, the angle A T S; wherefore, ſince at the ſame time we have the parallactic angle S; and the ſemidiameter of the earth A T is reputed as 1; by plane trigonometry we ſhall have the moon's diſtance in ſemidiameters of the earth, thus: as the ſine of the angle S is to the oppoſite ſide given, ſo is the ſine of the other angle T to the ſide A S: or ſo is the ſine of T A S (= 180° − T + S) to the ſide T S, the diſtance from the centre.

Hence, according to Tycho's obſervation, the moon's diſtance at that time from the earth was 62 ſemi-diameters of the earth.

Otherwiſe: for finding the mean diſtance, C *s* (*fig.* 9.) of the moon, we have A C, the mean radius (r) of the earth : C *s*, the mean diſtance (D) of the moon from the earth :: ſin. 57′ 1″ = A *s* C : ſin. 90° or radius :: 1 : 60.3; conſequently $D = 60.3\,r$; but $r = 3964$ miles; and therefore $D = 239029$ miles. According to M. de la Lande, the horizontal ſemi-diameter of the moon : its horizontal parallax for the mean radius (r) of the earth :: 15′ : 54′ 57″.4, or very nearly as 3 : 11; hence, the ſemi-diameter of the moon is $\frac{3}{11} r = \frac{3}{11} \times 3964 = 1081$ miles; and as the magnitudes of ſpherical bodies are as the cubes of their radii, we have the magnitudes of the moon and earth as $3^3 : 11^3 :: 27 : 1331 :: 1 : 49$ nearly. Vince, ubi ſupra.

Another Method of obſerving the Parallax of a celeſtial Body.—Let the body, P, (*fig.* 10.) be obſerved from two places, A and B, in the ſame meridian, then the whole angle A P B is the ſum of the parallaxes of the two places. The parallax A P C = hor. parall. × ſin. P A L, (as appears in the beginning of this article,) taking A P C for ſin. A P C, and the parallax B P C = hor. par. × ſin P B M; hence hor. par. × $\overline{\text{ſin. PAL} + \text{ſin. PBM}}$ = A P B; therefore hor. par. = A P B divided by the ſum of theſe two ſines. If the two places be not in the ſame meridian, it does not ſignify, provided we know how much the altitude varies from the change of declination of the body, in the interval of the paſſages over the meridians of the two obſervers.

Ex. On October 5, 1751, M. de la Caille, at the Cape of Good Hope, obſerved Mars to be 1′ 25″.8 below the parallel of λ in Aquarius, and at the diſtance of 25° from the zenith. On the ſame day, at Stockholm, Mars was obſerved to be 1′ 57″.7 below the parallel of λ, and at 68° 14′ zenith diſtance. Hence the angle A P B is 31″.9, and the ſines of the zenith diſtances being 0,4226 and 0.9287, the horizontal parallax was $23''.6$. Hence, if the ratio of the diſtance of the earth from Mars to its diſtance from the ſun be found, we ſhall have the ſun's horizontal parallax, the horizontal parallaxes being inverſely as their diſtances from the earth.

To obſerve the Parallax *of Mars.*—1. Suppoſe Mars in the meridian and equator, in H, (*fig.* 11.) and that the obſerver, under the equator in A, obſerves him culminating with ſome fixed ſtar. 2. If now the obſerver was in the centre of the earth, he would ſee Mars conſtantly in the ſame point of the heavens with the ſtar; and therefore, together with it, in the plane of the horizon, or of the ſixth horary; but ſince Mars here has ſome ſenſible parallax, and the fixed ſtar has none, Mars will be ſeen in the horizon, when in P, the plane of the ſenſible horizon; and the ſtar, when in R, the plane of the true horizon: obſerve, therefore, the time between the tranſits of Mars and of the ſtar through the plane of the ſixth hour. 3. Convert this time into minutes of the equator; by this means we ſhall have the arc P M, to which the angle P A M, and conſequently the angle A M D, is nearly equal; which is the horizontal parallax of Mars.

If the obſerver be not under the equator, but in a parallel I Q, that difference will be a leſs arc Q M: wherefore, ſince the little arcs Q M and P M are as their ſines I D and A D; and ſince A D G is equal to the diſtance of the place from the equator, *i. e.* to the elevation of the pole; and therefore A D to I D, as the whole ſine to the co-ſine of the elevation of the pole; ſay, as the co-ſine of the elevation of the pole I D is to the whole ſine A D; ſo is the parallax obſerved in I, to the parallax to be obſerved under the equator.

Since Mars and the fixed ſtar cannot be commodiouſly obſerved in the horizon; let them be obſerved in the circle of the third hour: and ſince the parallax there obſerved, T O, is to the horizontal one P M, as I S to I D; ſay, as the ſine of the angle I D S, or 45, (ſince the plane D O is in the middle between the meridian D H and the true horizon D M,) is to the whole ſine; ſo is the parallax T O to the horizontal parallax P M.

If Mars be likewiſe out of the plane of the equator, the parallax found will be an arc of a parallel; which muſt, therefore, be reduced, as above, to an arc of the equator.

Laſtly, If Mars be not ſtationary, but rather direct, or retrograde, by obſervations for ſeveral days; find out what his motion is every hour, that his true place from the centre may be aſſigned for any given time.

By this method Caſſini, to whom we owe this noble invention, obſerved the greateſt horizontal parallax of Mars to be twenty-five ſeconds, or a little leſs: but, by the ſame method, Mr. Flamſteed found it near thirty ſeconds. By the ſame method, the ſame author, Caſſini, obſerved alſo the parallax of Venus.

It muſt be here noted, that the obſervation is to be made with a teleſcope, in whoſe focus are ſtrained four threads, cutting each other at right angles, A, B, C, D, *fig.* 12, and the teleſcope is to be turned about, till ſome ſtar near Mars be ſeen to paſs over ſome of the threads, that the threads A B and C D may be parallel to the equator, and therefore A C and B D may repreſent circles of declination: thus, by means of the perpendicular threads, the ſituations of the ſtar, and of Mars, in the meridian, and circle of three o'clock, will be determined.

Another Method of finding the Parallax of a celeſtial Body. Let E Q be the equator (*fig.* 13.), P its pole, Z the zenith, v the true place of the body, and r the apparent place, as depreſſed by parallax in the vertical circle Z K, and draw the ſecondaries, P va, P rb; then ab is the parallax in right aſcenſion, and rs in declination. Now,

$$\begin{array}{l} vr : vs :: 1\ (\text{rad.}) : \text{ſin. } vrs, \text{ or } Z v P \\ vs : ab :: \text{coſ. } va : 1\ (\text{rad.}) \\ \hline \therefore vr : ab :: \text{coſ. } va : \text{ſin. } Z v P ; \end{array}$$

therefore $ab = \frac{vr \times \text{ſin. } Z v P}{\text{coſ. } va}$; but $vr = \text{hor. par.} \times \text{ſin. } vZ$, and $\text{ſin. } vZ : \text{ſin. } Z P :: \text{ſin. } Z P v : \text{ſin. } Z v P = \frac{\text{ſin. } Z P \times \text{ſin. } Z P v}{\text{ſin. } vZ}$; therefore, by ſubſtitution, $ab = \frac{\text{hor par.} \times \text{ſin. } Z P \times \text{ſin. } Z P v}{\text{coſ. } va}$. Hence, for the ſame ſtar, where the hor. par is given, the parallax in right aſcenſion varies as the ſine of the hour angle. Alſo, the hor. par. $= \frac{ab \times \text{coſ. } va}{\text{ſin. } Z P \times \text{ſin. } Z P v}$. For the eaſtern hemiſphere, the apparent place, b, lies on the equator to the eaſt of a, the true place, and therefore the right aſcenſion is increaſed by parallax; but in the weſtern hemiſphere, b lies to the weſt of a, and therefore the right aſcenſion is diminiſhed. Hence, if the right aſcenſion be taken before and after the meridian, the whole change of parallax in right aſcenſion between the two obſervations, is the ſum (s) of the two parts before and after the meridian, and the hor. par. $= \frac{s \times \text{coſ. } va}{\text{ſin. } Z P \times S}$. On the meridian there is no parallax in right aſcenſion, for $ab = \frac{vr \times \text{ſin. } Z v P}{\text{coſ. } va}$, and on the meridian, the angle $Z v P$, and conſequently its ſine, vaniſhes.

To apply this rule, obſerve the right aſcenſion of the planet when it paſſes the meridian, compared with that of a fixed ſtar, at which time there is no parallax in right aſcenſion; about ſix hours after, take the difference of their right aſcenſions again, and obſerve how much the difference, d, between the apparent right aſcenſions of the planet and fixed ſtar has changed in that time. Next, obſerve the right aſcenſion of the planet for three or four days when it paſſes the meridian, in order to get its true motion in right aſcenſion; then, if its motion in right aſcenſion, in the above interval of time, between the taking of the right aſcenſions of the fixed ſtar and planet on and off the meridian, be equal to d, the planet has no parallax in right aſcenſion; but if it be not equal to d, the difference is the parallax in right aſcenſion; and hence the horizontal parallax will be known. Or one obſervation may be made before the planet comes to the meridian, and one after, by which a greater difference will be obtained.

Ex. On Aug. 15, 1719, Mars was very near a ſtar of the fifth magnitude, in the eaſtern ſhoulder of Aquarius; and at $9^{h}\ 18'$ in the evening, Mars followed the ſtar in $10'\ 17''$; and on the 16th, at $4^{h}\ 21'$ in the morning, it followed it in $10'\ 1''$: therefore, in that interval, the apparent right aſcenſion of Mars had increaſed $16''$ in time. But, according to obſervations made in the meridian for ſeveral days after, it appeared that Mars approached the ſtar only $14''$ in that time, from its motion; therefore $2''$ in time, or $30''$ in motion, is the effect of parallax in the interval of the obſervations. Now the declination of Mars was 15°, the co-latitude $41^{\circ}\ 10'$, and the two hour angles $49^{\circ}\ 15'$, and $56\ 39$; therefore the hor. par. $= \frac{30'' \times \text{coſ. } 15^{\circ}}{\text{ſin. } 41^{\circ}\ 10' \times \text{ſin. } 49^{\circ}\ 15' + \text{ſin. } 56\ 39'} = 27\frac{1}{2}''$. But at that time, the diſtance of the earth from

Mars was to its diſtance from the ſun, as 37 to 100; and, therefore, the ſun's horizontal parallax comes out 10″.17.

Beſides the effect of parallax in right aſcenſion and declination, it is manifeſt that the latitude and longitude of the moon and planets muſt alſo be affected by it; and as the determination of this, in reſpect to the moon, is in many caſes, particularly in ſolar eclipſes, of great importance, we ſhall proceed to ſhew how to compute it, ſuppoſing that we have given the latitude of the place, the time, and conſequently the ſun's right aſcenſion, the moon's true latitude and longitude, with her horizontal parallax.

Let HZR (*fig.* 14.) be the meridian, ♈EQ the equator, *p* its pole; ♈C the ecliptic, P its pole; ♈ the firſt point of Aries, HQR the horizon, Z the zenith, ZL a ſecondary to the horizon paſſing through the true place *r*, and apparent place *t*, of the moon; draw P*t*, P*r*, which produce to *s*, drawing the ſmall circle *ts*, parallel to *ov*; then *rs* is the parallax in latitude, and *ov* the parallax in longitude. Draw the great circles, ♈P, PZAB, P*pde*, and ZW, perpendicular to *pe*; then, as $\text{♈}P = 90°$, and $\text{♈}p = 90°$, ♈ muſt be the pole of P*pde*, and therefore $d\text{♈} = 90°$; conſequently *d* is one of the ſolſtitial points, ♋ or ♑; alſo, draw Z*x* perpendicular to P*r*, and join Z♈, *p*♈. Now ♈E, or the angle ♈*p*E, or Z*p*♈, is the right aſcenſion of the mid-heaven, which is known; $PZ = AB$ (becauſe AZ is the complement of both) the altitude of the higheſt point, A, of the ecliptic above the horizon, called the nonageſimal degree, and ♈A, or the angle ♈PA, is its longitude; alſo, Z*p* is the co-latitude of the place, and the angle Z*p*W is the difference between the right aſcenſion of the mid-heaven ♈*p*E, and ♈*e*. Now, in the right-angled triangle Z*p*W, $\text{rad.} \times \text{coſ. } p = \text{tan. } pW \times \text{cot. } pZ$; therefore,

$$\text{log. tan. } pW = 10, + \text{log. coſ. } p - \text{log. cot. } pZ;$$

hence, $PW = pW \pm pP$, where the *upper* ſign takes place when the right aſcenſion of the mid-heaven is *leſs* than 180°; and the *lower* ſign, when *greater*. Alſo, in the triangles WZ*p*, WZP, we have ſin. W*p* : ſin. WP :: tan. WPZ : tan. W*pz* :: cot. W*p*Z : cot. WPZ, or, tan. AP♈; therefore,

$$\text{log. tan. AP♈} = \text{ar. co. log. ſin. } Wp + \text{log. ſin. } WP + \text{log. cot. } WpZ - 10;$$

and as we know ♈*o*, or ♈P*o*, the true longitude of the moon, we know AP*o*, or ZP*x*. Alſo, in the triangle WPZ, we have coſ. WPZ, or ſin. AP♈, : rad. :: tan. WP : tan. ZP; therefore,

$$\text{log. tan. } ZP = 10, + \text{log. tan. } WP - \text{log. ſin. AP♈}.$$

Again, in the triangle ZP*r*, we know ZP, P*r*, and the angle, P, from which the angle Z*r*P, or *trs*, may be thus found. In the right-angled triangle ZP*x*, we know ZP, and the angle P; hence, $\text{rad.} \times \text{coſ. } ZPx = \text{cot. } PZ \times \text{tan. } Px$; therefore,

$$\text{log. tan. } Px = 10, + \text{coſ. } ZPx - \text{log. cot. } PZ;$$

therefore we know *rx*; hence, ſin. *rx* : ſin. P*x* :: tan. ZP*x* : tan. Z*rx*, or *trs*; therefore,

$$\text{log. tan. } Zrx = \text{ar. co. log. ſin. } rx + \text{log. ſin. } Px + \text{log. tan. } ZPx - 10;$$

alſo, in the right-angled triangle Z*rx*, we have $\text{rad.} \times \text{coſ. } Zrx = \text{cot. } Zr \times \text{tan. } rz$; therefore,

$$\text{log. cot. } Zr = 10, + \text{log. coſ. } Zrx - \text{log. tan. } rx.$$

With this *true* zenith diſtance Z*r*, find the parallax, as if it were the *apparent* zenith diſtance, and it will give you the true parallax *nearly*; add this, therefore, to the *true* zenith diſtance, and you will get *nearly* the *apparent* zenith diſtance, to which compute again the parallax, and thus you will get the true parallax, *rt*, extremely nearly; then, in the right-angled triangle *rst*, which may be conſidered as plane, we have rad. : coſ. *r* :: *rt* : *rs*, the parallax in *latitude*; therefore,

$$\text{log. } rs = \text{log. } rt + \text{log. coſ. } r - 10, = \text{log. par. latitude.}$$

Alſo, rad. : ſin. *r* :: *rt* : *ts*; therefore,

$$\text{log. } ts = \text{log. } rt + \text{log. ſin. } r - 10;$$

hence, coſ. *tv* : rad. :: *ts* : *ov*, the parallax in *longitude*; therefore,

$$\text{log. } ov = 10, + \text{log. } ts - \text{log. coſ. } tv = \text{log. par. long.}$$

Ex. On January 1, 1771, at 9^h apparent time, in lat. 53° N., the moon's true longitude was $3^s\ 18°\ 27'\ 35''$, and latitude $4°\ 5'\ 30''$ S., and its horizontal parallax $61'\ 9''$; to find its parallax in latitude and longitude.

The ſun's right aſcenſion was $282°\ 22'\ 2''$ by the Tables, and its diſtance from the meridian 135°; alſo, the right aſcenſion ♈E, of the mid-heaven, was $57°\ 22'\ 2''$; hence, the whole operation for the ſolution of the triangles will ſtand thus:

Tri. Z*p*W	Z*p*W	= 32° 37′ 58″	10, + coſ.	19.9253864
	Z*p*	= 37 0 0	cot.	10.1228856
	*p*W	= 32 23 57	tan.	9.8025008
	P*p*	= 23 28 0		
	PW	= 55 51 57		
Tri. W*p*Z, WPZ	*p*W	= 32 23 57	ar. co. ſin.	0.2709855
	PW	= 55 51 57	ſin.	9.9178865
	Z*p*W	= 32 37 58	cot.	10.1935941
	AP♈	= 67 29 8	tan.	10.3824661
	*o*P♈	= 108 27 35		
	*o*PA	= 40 58 27		
Tri. WPZ	WP	= 55 51 57	10, + tan.	20.1688210
	AP♈	= 67 29 8	ſin.	9.9655700
	ZP	= 57 56 36	tan.	10.2032510
Tri. ZP*x*	ZP*x*	= 40 58 27	10, + coſ.	19.8779500
	ZP	= 57 56 36	cot.	9.7967445
	P*x*	= 50 19 33	tan.	10.0812055
	P*r*	= 94 5 30		
Tri. ZP*x*, Z*rx*	*rx*	= 43 45 57	ar. co. ſin.	0.1600743
	P*x*	= 50 19 33	ſin.	9.8863144
	ZP*x*	= 40 58 27	tan.	9.9387676
	Z*rx*	= 44 1 16	tan.	9.9851563
Tri. Z*rx*	Z*rx*	= 44 1 16	10 + coſ.	19.8567795
	rx	= 43 45 57	tan.	9.9812846
	Z*r*	= 53 6 10	cot.	9.8754949
	Z*r*	= 53 6 10	ſin.	9.9029362

	Brought over - -	ſin.	9.9029362
	Hor. par. $= 61' 9'' = 3669''$ -	log.	3.5645477
	rt uncorrected $= 2934'' = 48' 54''$	log.	3.4674839
	App. zen. diſt. $Zt = 53° 55' 4''$ nearly,	ſin.	9 9075042
	Hor. par. $= 61' 9'' = 3669''$ -	log.	3.5645477
Tri. trs	Par. rt cor. $= 2965'' = 49' 25''$	log.	3.4720519
	$trs = 44° 1' 16''$ - -	coſ.	9.8567795
	rs par. in *lat.* $= 2132'' = 35' 32''$	log.	3.3288314
Tri. trs	rt cor. $= 2965''$ - -	log.	3.4720519
	$trs = 44° 1' 16''$ - -	ſin.	9.8419369
	$ts = 2061'' = 34' 21''$ - -	log.	3.3139888
	True lat. $ro = 4° 5' 30''$		
	App. lat. $tv = ro + rs = 4° 41' 2''$	coſ.	9.9985472
	$ts = 2061''$ - - 10, +	log.	13.3139888
	ov par. in *long.* $= 2067'' = 34' 27''$	log.	3.3154416

The value of tv is $ro -$ or $+ rs$, according as the moon has N or. S. latitude.

The order of the ſigns being from weſt to eaſt, from A towards C is eaſtward, and from A towards ♈ is weſtward: now the parallax depreſſing the body from r to t, increaſes the longitude from o to v; but if the point o had been on the other ſide of A, ov would have lain the contrary way; hence, when the body is to the *eaſt* of the nonageſimal degree, the parallax *increaſes* the longitude; and when it is to the *weſt*, it *diminiſhes* the longitude. Vince, ubi ſupra.

Parallax, *To find the Sun's.*—The great diſtance of the ſun renders its parallax too ſmall to fall under even the niceſt immediate obſervation; indeed, many attempts have been made, both by the ancients and moderns, and many methods invented for that purpoſe. The firſt was that of Hipparchus, followed by Ptolemy, who made the ſun's horizontal parallax 2′ 50″, and Tycho, who made it 3′, &c.; this was founded on the obſervation of lunar eclipſes: the ſecond was that of Ariſtarchus, whereby the angle ſubtended by the ſemidiameter of the moon's orbit, ſeen from the ſun, was ſought from the lunar phaſes: but theſe both proving deficient, aſtronomers are now forced to have recourſe to the parallaxes of the planets nearer us, as Mars and Venus; for, from their parallaxes known, that of the ſun, which is inacceſſible by any direct obſervation, is eaſily deduced. For, from the theory of the motions of the earth and planets, we know, at any time, the proportion of the diſtances of the ſun and planets from us; and the horizontal parallaxes are in a reciprocal proportion to thoſe diſtances: knowing, therefore, the parallax of a planet, that of the ſun may be found from it.

Thus Mars, when oppoſite to the ſun, is twice as near as the ſun is: his parallax, therefore, will be twice as great as that of the ſun; and Venus, when in her inferior conjunction with the ſun, is ſometimes nearer us than he is; her parallax, therefore, is greater in the ſame proportion. Thus, from the parallaxes of Mars and Venus, Caſſini found the ſun's parallax to be ten ſeconds; which implies his diſtance to be 22,000 ſemidiameters of the earth.

The moſt accurate method of determining the parallaxes of theſe planets, and deducing from thence the true parallax of the ſun is, that of obſerving their tranſit: however, Mercury, though frequently to be ſeen on the ſun, is not fit for this purpoſe; becauſe it is ſo near the ſun, that the difference of their parallaxes is always leſs than the ſolar parallax required. But the parallax of Venus, being almoſt four times as great as the ſolar parallax, will cauſe very ſenſible differences between the times in which ſhe will ſeem to be paſſing over the ſun at different parts of the earth. With a view of engaging the attention of aſtronomers to this method of determining the ſun's parallax, Dr. Halley communicated to the Royal Society in 1691, a paper containing an account of the ſeveral years in which ſuch a tranſit may happen, computed from the tables which were then in uſe: thoſe at the aſcending node occur in the month of November, O. S. in the years 918, 1161, 1396, 1631, 1639, 1874, 2109, 2117: and at the deſcending node in May, O. S. in the years 1048, 1283, 1291, 1518, 1526, 1761, 1769, 1996, 2004. Phil. Tranſ. Abr. vol. i. p. 435, &c.

Dr. Halley even then concluded, that if the interval in time between the two interior contacts of Venus with the ſun could be meaſured to the exactneſs of a ſecond, in two places properly ſituated, the ſun's parallax might be determined within its 500dth part. But this concluſion was explained more fully in a ſubſequent paper, (Phil. Tranſ. N° 348, or Abr. vol. iv. p. 213.) concerning the tranſit of Venus in the year 1761. It does not appear that any of the preceding tranſits had been obſerved; except that of 1639, by our illuſtrious countryman Mr. Horrox, and his friend Mr. Crabtree, of Mancheſter. But Mr. Horrox died on the 3d of January, 1640—1, about the age of twenty-five, juſt after he had finiſhed his treatiſe, intitled "Venus in Sole Viſa," in which he diſcovered a more accurate knowledge of the dimenſions of the ſolar ſyſtem than his learned commentator Hevelius.

In order to give our readers, not much converſant with ſubjects of this kind, a general idea of this method of determining the horizontal parallax of Venus, and from thence, by analogy, the parallax and diſtance of the ſun, and of all the planets from him; it may be briefly illuſtrated in the following manner: let D B A, (*Plate* XVIII. *Aſtronomy. fig.* 15.) be the earth, V, Venus, and T S R the eaſtern limb of the ſun. To an obſerver at B the point t of that limb will be on the meridian, its place referred to the heaven will be at E, and Venus will appear juſt within it at S. But, at the ſame inſtant, to an obſerver at A, Venus is eaſt of the ſun, in the right line A V F; the point t of the ſun's limb appears at e in the heavens, and if Venus were then viſible, ſhe would appear at F. The angle C V A is the horizontal parallax of Venus; and is equal to the oppoſite angle F V E, meaſured by the arc F E. A S C is the ſun's horizontal parallax, equal to the oppoſite angle e S E, meaſured by the arc e E; and F A e, or V A v, is Venus's horizontal parallax from the ſun, which may be found by obſerving how much later in abſolute time her total ingreſs on the ſun is, as ſeen from A, than as ſeen from B, which is the time ſhe takes to move from V to v, in her orbit O V v. If Venus were nearer the earth, as at U, her horizontal parallax from the ſun would be the arc fe, which meaſures the angle f A e; and this angle is greater than the angle F A e, by the difference of their meaſures f F. So that as the diſtance of the celeſtial object from the earth is leſs, its parallax is the greater. Now it has been already obſerved, that the horizontal parallaxes of the planets are inverſely as their diſtances from the earth's centre; therefore as the ſun's diſtance at the time of the tranſit is to Venus's diſtance, ſo is her horizontal parallax to that of the ſun: and as the ſun's mean diſtance from the earth's centre is to his diſtance on the day of the tranſit, ſo is his horizontal parallax on that day to his horizontal parallax at the time of his mean diſtance from the earth's centre. Hence his true diſtance in ſemidiameters of the earth may be obtained by the following analogy: as the ſine of the ſun's parallax is to radius, ſo is unity or the earth's ſemidiameter to the number of ſemidiameters of the earth in the ſun's diſtance from the centre; which number multiplied by 3985, the number of miles in the earth's ſemidiameter, will give the number of miles in the ſun's diſtance. Then from the proportional diſtances of the planets, determined by the theory of gravity (ſee DISTANCE), we may find their true diſtances. And from their apparent diameters at theſe known diſtances, their real diameters and bulks may be found. See PLANETS.

Mr. Short, with great labour, deduced the quantity of the ſun's parallax from the beſt obſervations that were made of the tranſit of June 6th, 1761, (for which ſee Phil. Tranſ. vol. li. and lii.) both in Britain and abroad, and found it to have been 8″.52 on the day of the tranſit, when the ſun was very nearly at his greateſt diſtance from the earth; and, conſequently, 8″.65 when the ſun is at his mean diſtance from the earth. (See Phil. Tranſ. vol. lii. art. 100. p. 611, &c.) Whence we ſhall have radius, or 10.0000000 — 5.621914, or ſine of 8″.65 taken out of Gardiner's tables = 4 3780860, the logarithm of the number 23882.84, or the number of ſemidiameters of the earth contained in its diſtance from the ſun: and multiplying 23882.84 by 3985, the number of Engliſh miles contained in the earth's ſemidiameter, we ſhall have 95,173,127 miles for the earth's mean diſtance from the ſun. And from the analogies under the article DISTANCE, we ſhall find the mean diſtances of all the reſt of the planets from the ſun in miles to be as follows, *viz.* Mercury's diſtance, 36,841,468; Venus's diſtance, 68,891,486; Mars's diſtance, 145,014,148; Jupiter's diſtance, 494,990.976; and Saturn's diſtance, 907,956,130. In another paper, (Phil. Tranſ. vol. liii. p. 169.) Mr. Short ſtates the mean horizontal parallax of the ſun at 8″.69. Mr. Hornſby, from ſeveral obſervations of the tranſit of June 3d, 1769, (for which ſee Phil. Tranſ. vol. lix. &c.) deduces the ſun's parallax for that day equal to 8″.65, and the mean parallax 8″.78, whence he makes the mean diſtance of the earth from the ſun to be 93,726,900 Engliſh miles; Mercury's diſtance, 36,281,700; Venus's diſtance, 67,795,500; Mars's diſtance, 142,818,000; Jupiter's diſtance, 487,472,000: and Saturn's diſtance, 894,162,000 miles. (Phil. Tranſ. vol. lxi. part ii. p. 579.) Others, however, by taking the reſults of thoſe obſervations that were moſt to be depended on, have made the ſun's parallax at his mean diſtance from the earth to be 8″.6045; and others again make it 8″.54. According to the former of theſe, the ſun's mean diſtance from the earth is 95,109,736 miles; and, according to the latter, it is 95,834.742 miles. Upon the whole, there ſeems reaſon to conclude, that it may be fairly reckoned at more than ninety-five millions of miles, and leſs than ninety-ſix. Ferguſon's Aſtr. p. 354. See PLANETS.

The PARALLAX *of the Stars, with regard to the Earth's natural Orbit;* called their *annual parallax*. The ſtars have no parallax, with regard to the earth's ſemidiameter; yet, with regard to the earth's annual orbit, it is juſtly expected, that ſome parallax may be found.

The axis of the earth, in its natural motion, deſcribes a kind of cylinder, which, being prolonged to the heaven of the fixed ſtars, there draws a circular circumference; each point of which is the pole of the world for its reſpective day: ſo that the ſituation of the apparent pole, with regard to any of the fixed ſtars, changes very conſiderably in the courſe of a year.

Could this be found by obſervation, it would irrefragably evince the annual motion of the earth round the ſun, and remove that only objection which lies againſt it, urged by Ricciolus, from no ſuch parallax being obſerved.

Accordingly, Dr. Hook attempted to find it by obſerving the various diſtances of a fixed ſtar from the zenith, in different parts of the earth's orbit; and Mr. Flamſteed, from the acceſs and receſs of a fixed ſtar from the equator at different times of the year, and with imagined ſucceſs; the reſult of his obſervations being, that a fixed ſtar, near the pole, was found 40 or 45 ſeconds nearer it at the winter ſolſtice, than at the ſummer one, for ſeven years ſucceſſively.

Mr. Caſſini the younger allows the obſervations of Flamſteed to agree with thoſe made at the Royal Obſervatory; but he denies the conſequences: he ſays that the variations in the diſtance of the pole-ſtar are not ſuch as they ſhould be, ſuppoſing the motion of the earth. Fontenelle accounts for them from a ſuppoſition, that the ſtars, like the ſun, turn or revolve on their centres; and that ſome of them have their hemiſpheres equally luminous: whence, when the more ſhining hemiſphere is turned towards us, the ſtars appear bigger, conſequently nearer the neighbouring ſtars, than when the darker is towards us.

Dr. Bradley has accounted for this ſuppoſed parallax in another way; and conceives it to proceed from the progreſſive motion of the ſtar's light. (See *Motion of the* EARTH and LIGHT.) For the reſult of later obſervations, ſee STARS.

PARALLAX is alſo uſed, in *Levelling*, for the angle contained between the line of true level, and that of apparent level.

PARALLAXIS, among *Medical Writers*, expreſſes a natural change in the ſituation of the parts of a broken bone, as when the two fragments ſlip to the ſides of one another.

PARALLEL, in *Geometry*, is applied to lines, figures, and bodies, which are every where equidiſtant from each other; or which, though infinitely produced, would never either approach nearer, or recede farther from, each other.

PARALLEL *Right Lines*, are thoſe which, though infinitely produced in the ſame plane ſurface, would never meet.

Thus the line O P, (*Plate* X. *Geometry, fig.* 10.) is parallel to Q R.

Parallel lines ſtand oppoſed to lines converging, and diverging.

Some define an inclining or converging line that which will meet another at a finite diſtance; and a parallel line, that which will only meet it at an infinite diſtance.

A perpendicular is by ſome ſaid to be the ſhorteſt of all lines that can be drawn to another; and a parallel the longeſt.

Geometricians demonſtrate, that two right lines, perpendicular to one and the ſame right line, are parallel to each other, and hence they infer the poſſibility of parallel lines: that perpendiculars to one of two parallel lines, terminated by thoſe lines, are equal to each other, and alſo perpendicular to the other of the two parallels: that two lines, parallel to the ſame third line, are alſo parallel to one another; and that if two parallels, O P and Q R, be cut by a tranſverſe line S T in A and B; 1. The alternate angles x and y are equal: 2. The external angle u is equal to the internal oppoſite one y: 3. That a line interſecting two parallel lines, make the angles on the ſame ſide equal to each other: and, 4.

4. That the two internal oppoſite ones, z and y, are alſo equal to two right ones.

It is ſhewn, on the principles of optics, that if the eye be placed between two parallel lines, they will appear to converge towards a point oppoſite to the eye, becauſe the apparent magnitudes of their perpendicular intervals are perpetually diminiſhed; for the ſame reaſon they appear to converge towards an imaginary line, drawn parallel to them from the eye: and if they run to ſuch a length, as that the diſtance between them be but as a point thereto, they will there appear to coincide.

This is the reaſon that the remoter parts of a walk or floor appear to aſcend gradually, and the ceiling to deſcend towards the horizontal line; and that the ſurface of the ſea, ſeen from an eminence, appears to aſcend gradually in going from the ſhore; and that the upper parts of very high buildings ſeem to lean forward over the eye below.

Parallel lines are deſcribed by letting fall equal perpendiculars, and drawing lines through their extremes, by ſliding the compaſſes open to the deſired width, along a line, &c. or, by drawing two lines, which ſhall make the alternate angles with a line interſecting them equal.

PARALLEL *Motion*, is a term uſed among practical mechanics to denote the rectilinear motion of a piſton-rod, &c. in the direction of its length; and contrivances, by which ſuch alternate rectilinear motions are converted into continuous rotatory ones, or *vice verſa*; for pumps, ſteam-engines, ſaw-mills, &c. are uſually called parallel motions, or parallel levers. In the modern improved ſteam-engines and pumps, cloſe cylinders are generally uſed for the piſtons to act in, which being worked by poliſhed rods ſliding through collars or ſtuffing-boxes in the lids of the cylinders, it has become neceſſary to contrive methods for cauſing the piſton-rod to move accurately up and down in the ſame right line. The different combinations of levers uſed to produce this effect are worthy of our notice, as exhibiting ſome ingenious applications of geometrical principles. The object of the parallel motion is, to convert the motion of the end of a reciprocating beam or lever, into a vertical or rectilinear motion; or the continuous motion of a crank at once into a reciprocating motion.

The ſimpleſt and moſt obvious method of producing either of theſe effects, is to connect the end of the piſton-rod to the beam, or the crank, by means of joints, with a connecting rod of a proper length between them, and confine the former, to preſerve its rectilinear movement, by ſliding through a collar, or in grooves. Friction-wheels may be uſed to make it work eaſily; but in machines which have great ſtrains, the conſtant wear of the grooves or wheels would ſoon produce looſeneſs, and deſtroy the paralleliſm of the motion: recourſe muſt, therefore, be had to parallel levers.

Plate III. of *Steam-engines*. contains three different conſtructions of levers, which are in common uſe in ſteam-engines, to produce parallel motions. Two of them, *figs.* 1, 2, 3, and 4, were, we believe, firſt introduced by Meſſrs. Boulton and Watt, as appendages to their patent ſteam-engine, in lieu of the ſectors, or arch heads with chains, formerly applied to the beams of the old atmoſphere engines. The moſt ſimple of theſe two is repreſented in *figs.* 3 and 4, where the pump, or piſton-rod T, is required to move always in the line T T, when actuated by the beam, or lever, H B, whoſe centre of motion is A, and the point I, from which the rod receives its motion, of courſe moves in an arc of a circle. To this point, one end of a bar, or link I K, of any convenient length, is jointed, and to the oppoſite end, K, the extremity of a lever, K L, is attached by the joint or centre-pin K, the other end, L, moving on a fixed centre of motion. The lever, K L, is exactly equal in length to the acting radius, A I, of the beam, and its centre of motion, L, is attached to a fixed ſupport, ſo ſituated, that when the beam, A I, is horizontal, or at right angles to the line T T, the lever, K L, will alſo be horizontal, and therefore parallel to A I; at the ſame time the link, I K, which connects them, muſt hang perpendicular. A centre-pin is fixed at M, exactly in the middle of I K, and to this centre the top of the piſton-rod, T, is attached. Now the effect of the combination is, that the point, M, will always move in the vertical line T T, when the beam or the point, I, deſcribes an arc of a circle round the centre A; for it is evident, that when the levers, by the motion of the beam on its centre, are brought into the poſition ſhewn by the dotted lines A, I, K, L, (*fig.* 3.) either above or below the horizontal, the upper end of the link, I K, is drawn as much out of the line, T T, on one ſide, by the curved motion, or ſweep of the beam, as the lower end is drawn out of that line, on the oppoſite ſide, by the ſweep of the lever K L; conſequently, its middle point, M, continues always in that line, and prevents the piſton-rod deviating from it. The movement may be readily traced by inſpection of the diagram, *fig.* 3, which exhibits the levers in three different poſitions.

Figs. 1 and 2 repreſent another of Boulton and Watt's parallel motions, and is that now moſt commonly uſed by themſelves and other engine-makers. This, as before deſcribed, has two fixed centres, A and F, and rods connected by moveable joints C, B, D and E, forming a parallelogram.

In ſetting out of theſe centres, the line G G, in which the piſton is to move, ſhould fall as much ſhort of the end of the beam, or point B, when in the horizontal poſition, as it will be beyond the end of the ſame at the two extremes of the movement, which poſitions are repreſented by dotted lines, *fig.* 1: the link, B D, connects the end of the beam with the top of the piſton-rod, and about half way to the centre of the beam, another link, C E, of the ſame length, is jointed, being always kept parallel to the former by a connecting rod, D E, which is equal in length to C B, ſo that C B, D E, may form a parallelogram, in whatever poſition it may be placed by the motion of the beam, and the conſequent motion of the links and coupling-rod on their moveable centres.

The paralleliſm of the point, D, is produced by means of the lever, E F, which is connected to the point, E, of the parallelogram, and the other end moves on the fixed centre, F; therefore the end, E, of the rod, E D, moves in an arc of a circle, round the centre F; the other end, D, will be found to traverſe the right line G G.

The proportions of the levers of this motion admit of great variation: the ſimpleſt caſe is, when the radius, A C, is exactly half of A B, then E F muſt be equal to A C or C B. Conſiderable latitude is allowed to the workman in the length of the links B D and C E, without ſenſibly deranging the paralleliſm of the point D, and piſton-rod attached to it. With theſe proportions, the centre, F, will fall upon the line G G, which is often inconvenient; for as there are two of the parallelograms, C E and D B, one on each ſide of the beam, the centres of the lever, E F, cannot be made on one common axis. Eleven different proportions for theſe levers will appear by the following table of dimenſions, in inches, taken from ſome of the beſt ſteam-engines, by various makers in or near the metropolis.

Figs. 1 and 2.	Length of Stroke D *d.*	Beam A B.	Coupling Rod, D E C B.	Link, C E = B D.	Bridle = Lever E F
N 1	96	147	69	42	78
2	72	120	50	28	96
3	72	110	55	31½	55
4	48	90	41	20	60
5	48	84	38	19	60
6	48	84	36	20	54
7	48	72	41	18	25
8	45.6	76	40	28	36
9	36	60	37	12	15.66
10	24	37	16	9	26
11	23	36	16	12	26

The principle on which parallel motion, or what is inſenſibly near to one, is produced in all theſe different caſes, will beſt appear, after explaining a different conſtruction for the ſame purpoſe by Mr. Freemantle.

Fig. 6. repreſents this parallel motion, which is effected by means of two fixed centres, D and E, and the three moveable ones B, C and A. In this caſe the beam-centre, A, is not ſtationary, but has a ſmall motion on its ſupport D A, which is moveable on the fixed centre D: the centre C, which unites the lever, E C, to the beam, is in the middle of the beam, (*i. e.* B C = C A, and E C is alſo of the ſame length,) the ſupport, D A, being of any convenient length; but the longer the better, ſince the conſtruction requires, in ſtrictneſs, that the point, A, ſhould ſlide horizontally in the dotted lines E, A, inſtead of deſcending in each end of its courſe in the arc of the radius D A. The piſton-rod, G, is jointed immediately to the end of the beam at B. The paralleliſm of the motion in this contrivance is effected by the lever, E C, compelling the middle point of the beam, A B, to move upon the arc C C, as it librates upon its centre, whilſt that point traverſes upon the top of the bar, A D, to ſuch an extent, that the extremity, B, will always traverſe upon the line G G, and of courſe carry the piſton-rod with it. This may be demonſtrated thus: ſuppoſing E A to be a horizontal line, let the dotted line, B A, repreſent any poſition whatever of the beam, and E C the correſponding poſition of the lever; then B C E and A C E will form two iſoſceles triangles, becauſe of the equal ſides B C and C E, and E C and C A: their oppoſite angles are equal, as E B C = B E C, and C E A = C A E; and becauſe the angle, B E A, is made up of the angles B E C and C E A, the ſame, (B E A,) is equal to the ſum of the two angles, B and A, of the triangle B A E, which ſhew the third angle, E, to be a right angle; therefore the point, B, will be perpendicular over E, or perpendicular beneath it, as a ſimilar conſtruction, below the line E A, would ſhew. As the demonſtration is equally true of every other part of the movement, as well as its extremes, the angle, B E A, will in all caſes be a right angle, and conſequently produce a parallel motion. We have here ſuppoſed the centre, A, to be confined to ſlide along the line E A; but in practice it has been found, that the point, A, may be allowed to move in the arc of a circle, deſcribed on the centre D, inſtead of the right line E A, without producing ſenſible deviation in the paralleliſm of the point B, and the piſton-rod, G, attached to it. The fixed centre, E, may alſo be moved out of the line B B, either towards or from the centre A, within certain limits, making proportionate alteration in the lengths of the lever E C, and radius A C, as will be evident on making the following compariſon between the conſtructions in *fig.* 2. and *fig.* 6. If in *figs.* 1. and 2. we produce the line D E, and from A draw a line parallel to C E and B D, interſecting it in Y, then ſuppoſe the figures turned upſide down, and end for end, we can compare the fixed centre D, *fig.* 6, with A, *fig.* 2; and the fixed centre E, *fig.* 6, with F; alſo the beam A B, *fig.* 6, with the produced coupling rod Y D; the ſupport D A, *fig.* 6, with A Y; and the lever E C, *fig.* 6, with F E: it will then appear that the two conſtructions are eſſentially the ſame in principle, ſuppoſing the fixed centre, E, moved out beyond the line B B, as has been mentioned above to be practicable.

The dimenſions, given in our table above, will ſhew what conſiderable variations in the proportion of lengths, particularly with regard to the lever E F, *fig.* 2, may be made in practice, without ſenſibly impairing this admirable contrivance for producing a vertical motion from a power moving up and down, in the arc of a circle deſcribed by the end of the beam.

A very ingenious parallel motion is repreſented in *fig.* 5, which converts the rectilinear motion of a piſton-rod at once to a rotatory motion for a crank or axis. This contrivance has been aſcribed to an American, named White; and has been adopted in ſteam-engines by Mr. Murray, of Leeds. It is founded on a well-known property of epicycloidal curves, *viz.* that if within any given fixed circle another circle rolls round, which is juſt half the diameter of the fixed circle, any point in the circumference of the rolling circle deſcribes a right line, which croſſes the longer circle, as a diameter thereto. The mode of conſtruction is eaſily underſtood from the figure, in which A B is a fixed circle, or hoop of caſt iron, whoſe internal diameter is equal to the ſtroke of the piſton; it is ſupported externally by ſtandards G and H, and furniſhed with ſmall teeth all round the interior part of its circumference; C is a toothed wheel, whoſe diameter is only half that of the ring; the axis of the wheel, which is to have the rotatory motion, paſſes through the centre of the ring, and has a circular iron plate, or wheel E, fixed upon the extremity of it; from this plate, a pin or bolt, R, projects, and is by the motion of the axis carried round in a circle, in the manner of a crank. This pin forms the centre-pin of the ſmall wheel C, and therefore compels it to roll round within the great circle, and keep the teeth always in contact. The upper extremity of the piſton-rod is attached to a pin, F, fixed on the circumference of the ſmall wheel, at the point where the two wheels will be in contact, when at the loweſt and higheſt points of the motion.

The pin F, at the circumference of the ſmall wheel, is adjuſtable by a ſlider and ſcrew, ſo as exactly to ſuit the diameter of the outer circle; and the piſton-rod, being attached to it, is moved truly up and down in the line I K, in a very regular manner, when the axis of the plate, E, is turned round; or *vice verſâ*, if the impelling power is applied to the piſton-rod, in which caſe a fly-wheel muſt be applied upon the central axis to regulate the motion.

The extremity of the piſton-rod will be confined to move in the vertical diameter of the ring, becauſe it is made to deſcribe an epicycloid of that kind, which is formed by a circle rolling round within the inſide of another circle of double diameter, in which caſe, it is well known the epicycloid becomes a diameter of the larger circle, and the ſmaller circle makes two complete revolutions, while it is revolving from any one point of the larger circle to the ſame point again.

In all the motions we have deſcribed, the converſion of the reciprocating motion to a rotative, is effected by means of a crank, which communicates with the beam by a connecting rod at the oppoſite end of the beam, in the manner of H K, *fig.* 4; uſually at the end oppoſite to the parallel levers. Some mechanics have ſuppoſed it deſirable, in a parallel motion, to give the piſton-rod, the ſaw, or the like, an uniform velocity through the whole of its progreſs; then to bring it at once to reſt again, and to give it inſtantaneouſly its intended velocity in the oppoſite direction, and ſo on. This the crank will not do, as its motion, at the point where the change or reciprocation of motion takes place, is imperceptible; they have therefore ſought other means.

One method of producing this effect is, to make the piſton-rod conſiſt of two parallel bars, having teeth in the ſide, which front each other. Let a toothed wheel be placed between them, having only the half of its circumference furniſhed with teeth. It is evident, without any further deſcription, that if this wheel be turned uniformly round its axis, the piſton-rod will be moved uniformly up and down without intermiſſion. This has often been put in practice, and the piſton-rod made to work between grooved rollers, but the machine always went by jolts, and ſeldom laſted a few days. Unſkilful mechanics attributed this to defects in the execution, but the fault is eſſential, and lies in the principle. The machine could not perform a ſingle ſtroke without breaking, if the firſt mover did not ſlacken a little, or the different parts of the machine did not yield by bending, or by compreſſion, and no ſtrength of materials could withſtand the violence of the ſtrains at every reciprocation of the motion. This is chiefly experienced in great works, which are put in motion by a water-wheel, or ſome other equal power, exerted on the maſs of matter of which the machine conſiſts. The water-wheel, being of great weight, moves with conſiderable ſteadineſs, or uniformity; and when an additional reſiſtance is oppoſed to it by the beginning of a new ſtroke of the piſton, its great quantity of motion is but little affected by this addition, and it proceeds with very little loſs of motion. The machine muſt either yield a little by bending, and compreſſion, or go to pieces, which is the common event. Cranks are free from this inconvenience, becauſe they accelerate the piſton gradually, and bring it gradually to reſt, while the water-wheel moves round with almoſt perfect uniformity. The only inconvenience attending this ſlow motion of a piſton at the beginning of its ſtroke, is, that the valves do not ſhut with rapidity, ſo that ſome water gets back through them. But when they are properly formed and loaded, this is but trifling.

Parallel *Planes* are thoſe planes which have all the perpendiculars drawn betwixt them equal to each other. And it is demonſtrated, that two right lines perpendicular to the ſame plane are parallel to each other; and that if one of two parallel right lines be perpendicular to any plane, the other will alſo be perpendicular to the ſame plane; that planes, to which one and the ſame right line is perpendicular, are parallel to each other; that all right lines, perpendicular to one of two parallel planes, are perpendicular to the other; that right lines parallel to one and the ſame right line, though not in the ſame plane with it, are alſo parallel to each other; that if two right lines, meeting each other, be reſpectively parallel to two other right lines, alſo meeting each other, and not being in the ſame plane with them, the angles contained by thoſe lines will be equal; that if two right lines, meeting each other, be reſpectively parallel to two other right lines, alſo meeting each other, and not being in the ſame plane with them, the planes extended by thoſe lines will be parallels; and that the ſections, made by a plane cutting two parallel planes, are alſo parallel the one to the other: and hence parallel lines, terminated by the ſame parallel planes, are equal to each other.

Parallel *Rays*, in *Optics*, are thoſe which keep at an equal diſtance in reſpect to each other, from the viſible object to the eye, which is ſuppoſed to be infinitely remote from the object.

Parallel *Ruler*, called alſo *Paralleliſm*, an inſtrument conſiſting of two wooden, braſs, or ſteel rulers, A B and C D, (*Plate* X. *Geom. fig.* 11.) equally broad every where, and ſo joined together by the croſs blades E F and G H, as to open to different intervals, and accede and recede, yet ſtill retain their paralleliſm. The uſe of this inſtrument is obvious; for one of the rulers being applied to R S, and the other withdrawn to a given point V; a right line A B, drawn by its edge through V, is a parallel to R S: and thus, having given only one line, and erected a perpendicular upon it, we may draw any number of parallel lines, or perpendiculars to them; by only obſerving to ſet off the exact diſtance of every line with the point of the compaſſes.

But the beſt parallel rulers are thoſe whoſe bars croſs each other, and turn on a joint at their interſection; one end of each bar moving on a centre, and the other ends ſliding in grooves as the rulers recede. See *fig.* 12.

Parallels, or *Places of Arms*, in a ſiege, are deep trenches fifteen or eighteen feet wide, joining the ſeveral attacks together; and ſerving to place the guard of the trenches in, to be at hand to ſupport the workmen when attacked. There are generally three in an attack; the firſt is about three hundred toiſes from the covert-way, the ſecond one hundred and ſixty, and the third near or on the glacis. They are ſaid to have been firſt invented or uſed by M. Vauban.

Thus, in *Plate* VII. *Fortification*, *fig.* 2, let A, B be the baſtions to be attacked, whoſe capitals, as well as that of the ravelin C, being indefinitely produced towards the field, ſet off three hundred fathoms from the ſaliant angles, *r*, *s*, of the covert-way to the points *l*, *m*; and from the centre, *o*, of the place, deſcribe an arc of a circle through the points *l*, *m*, whoſe interſections with the capitals will terminate the ſeveral parts of the firſt parallel E, which is terminated at twenty fathoms beyond the faces produced of the two adjacent ravelins *z*, X, next to the front attacked. Take *l n*, *m q*, each equal to one hundred and forty fathoms, and deſcribe from the centre, *o*, another part of a circle through the points *n*, *q*; and its interſection with theſe capitals will terminate the ſeveral parts of the ſecond parallel F, which extends only ten fathoms beyond the faces of the ravelins *z*, X. Laſtly, draw lines through the ſaliant angles of the glacis, and they will give the third parallel G. When this is done, take the points *d*, *e*, in the capitals of the baſtions, at about eight hundred fathoms from the ſaliant angles, *r*, *s*, of the covert-way, and join them by a right line, which will expreſs the beginnings of the attacks. From the point *f*, in *d e*, at about twenty-four or twenty-ſix fathoms from the point *e*, draw a line *f g* or H of any length, as one hundred and twenty or one hundred and twenty-ſix fathoms, for the firſt approach, but ſo as, when produced, to fall ten or twelve fathoms from the fartheſt ſaliant angle of the covert way: from the point *g* draw *g h*, ſo as to fall as much from the fartheſt ſaliant angle on the other ſide of the place; and the point *h* is taken, ſo as to be nearly at the ſame diſtance from the capital *s e* as the point *g*; and from the point *h* draw the line *h i*, ſo as to fall again as far from the fartheſt ſaliant angle in the firſt ſide, and that the point *i* be equally as diſtant from the capital *s e* as the point *h*; and thus continue the approaches to the third parallel. The approaches are traced after the ſame manner as the capital *d r*, and alſo on the capital of the ravelin C, from the ſecond parallel to the third; always obſerving that no part of them is to be ſeen or enfiladed from any part of the fortification, nor to defile too much, which would occaſion unneceſſary labour. As the approaches advance nearer the place, they become ſhorter, as they make ſmaller angles with each other. Between the ſecond and third parallels, at the returns of the approaches, are made places of arms, ſuch as I, about thirty or forty fathoms long, nearly parallel to the third parallel, which ſerve to receive the troops that are to cover the workmen, till the third parallel is quite finiſhed. When the principal or outlines of the trenches are thus traced, parallels are drawn to them on the ſide towards the field, at twelve feet diſtance in the approaches, fifteen in the firſt and ſecond parallels, and at eighteen in the third; and the intervals between theſe and the former lines will expreſs the width of the trenches. At the ends of the ſecond parallel are made ſquare redoubts, as K, K, of about ten or twelve fathoms on each ſide, to protect it more effectually from the ſallies of the beſieged. The firſt part, *d e*, of the trenches is an epaulement of about ten feet high to cover the horſe deſigned to guard the trenches. Muller's Attack and Def. of Fortified Places, p. 21, &c.

Parallels, or *Parallel Circles*, in *Geography*, called alſo *parallels of latitude*, and *circles of latitude*, are leſſer circles of the ſphere, conceived to be drawn from weſt to eaſt, through all the points of the meridian; commencing from the equator, to which they are parallel, and terminating with the poles.

They are called *parallels of latitude*, &c. becauſe all places lying under the ſame parallel have the ſame latitude.

Parallels *of Latitude*, in *Aſtronomy*, are leſſer circles of the ſphere parallel to the ecliptic, imagined to paſs through every degree and minute of the colures.

They are repreſented on the globe by the diviſions of the quadrant of altitude, in its motion round the globe, when ſcrewed over the poles of the ecliptic.

Parallels *of Altitude*, or *Almucantars*, are circles parallel to the horizon, imagined to paſs through every degree and minute of the meridian between the horizon and zenith; having their poles in the zenith.

On the globe theſe are repreſented by the diviſions on the quadrant of altitude, in its motion about the body of the globe, when ſcrewed to the zenith.

Parallels *of Declination*, are the ſame with parallels of latitude in geography.

Parallels, *Anti*. See Anti-Parallels.

Parallel *Sphere*, that ſituation of the ſphere in which the equator coincides with the horizon, and the poles with the zenith and nadir.

In this ſphere, all the parallels of the equator become parallels of the horizon; conſequently no ſtars ever riſe or ſet, but all turn round in circles parallel to the horizon; and the ſun, when in the equinoctial, wheels round the horizon the whole day.

After his riſing to the elevated pole, he never ſets for ſix months; and after his entering again on the other ſide of the line, he never riſes for ſix months longer.

This poſition of the ſphere is their's who live under the poles, if any ſuch there be; their ſun being never above 23° 30′ high.

Parallel *Sailing*, in *Navigation*, is the ſailing under a parallel of latitude.

Of this there are but three caſes. 1. Given the departure, and diſtance; required the latitude. The canon for which is, as the difference of longitude is to the radius, ſo is the diſtance to the coſine of latitude.

2. Given the difference of longitude between two places under the ſame parallel; required their diſtance. The canon is, as radius to difference of longitude, ſo is coſine of latitudes to diſtance.

3. Given the diſtance between two places in the ſame latitude; required their difference of longitude. The canon is, as the coſine of latitude to diſtance, ſo is radius to difference of longitude. See Sailing.

Parallel *Cut*, in *Inland Navigation*, is a counter-drain to carry off water, and prevent the adjoining lands from being flooded.

PARALLELA, a word uſed by medical writers to expreſs a ſort of ſcurf or leprous appearance, affecting only the palms of the hands. It is a ſymptom of the pox.

PARALLELEPIPED, in *Geometry*, one of the regular bodies, or ſolids, comprehended under ſix parallelograms, the oppoſite ones of which are ſimilar, parallel, and equal; as in *Plate* X. *Geometry*, *fig.* 13.

A parallelepiped is by ſome defined an upright priſm, whoſe baſe is a parallelogram, and the planes of whoſe ſides are perpendicular to the plane of the baſe. A rectangular parallelepiped is that whoſe bounding planes are all rectangles, and which ſtand at right angles one to another; and every rectangular parallelepiped is ſaid to be contained under the planes that are its length, breadth, and altitude.

It is demonſtrated, that if from one of the angular points of any parallelogram, a right line be elevated above the plane of the parallelogram, ſo as to make any angles with the contiguous ſides of it, and there be alſo drawn, from the three remaining angular points, three other right lines parallel and equal to the former, and the extremes of theſe lines be joined, the figure thus deſcribed will be a parallelepiped. If the angle of the parallelogram be right, and the elevated line be erected perpendicular to the plane of the baſe, then will the parallelepiped be a rectangular one.

Parallelepiped, *Properties of the*. All parallelepipeds, priſms, and cylinders, &c. whoſe baſes and heights are equal, are themſelves equal.

Every upright priſm is equal to a rectangular parallelepiped of equal baſe and altitude.

A diagonal plane divides the parallelepiped into two equal priſms: a rectangular priſm, therefore, is half a parallelepiped upon the ſame baſe, and of the ſame altitude.

All parallelepipeds, priſms, cylinders, &c. are in a ratio compounded of their baſes and altitudes: wherefore, if their baſes be equal, they are in proportion to their altitudes; and converſely.

All parallelepipeds, cylinders, cones, &c. are in a triplicate ratio of the homologous ſides; and alſo of their altitudes.

Equal parallelepipeds, priſms, cones, cylinders, &c. are in the reciprocal ratio of their baſes and altitudes.

Rectangular parallelepipeds, contained under the correſponding lines of three ranks of proportionals, are themſelves proportionals.

To meaſure the Surface and Solidity of a Parallepiped.—Find the areas of the parallelograms I L M K, L M O N, and O M K P (ſee Parallelogram); add theſe into one ſum, and multiply that ſum by 2: the product will be the ſurface of the parallelepiped.

If, then, the baſe I L M K be multiplied by the altitude M O, the product will be the ſolidity.

Suppoſe, *v. gr.* L M = 36, M K = 15, M O = 12. Then L I K M = 36 × 15 = 540; L M O N = 36 × 12 = 432;

MOKP = 15 × 12 = 180. The ſum of which is = 1152, which multiplied by 2, gives the ſuperficies equal to 2304. And 540 × 12 gives the ſolidity equal to 6480. Or the ſolid content of a parallelepiped may be obtained by multiplying the area of the baſe by the altitude of the parallelepiped. *E. g.* If the two dimenſions of the baſe be 16 and 12 inches, and the height of the ſolid 10 inches; then the area of the baſe being 192, the content of the ſolid will be 1920 cubical inches.

The parallelepiped with oblique angles is a figure very common to many kinds of ſtones, eſpecially of the ſofter ſort. The common cryſtallizations of grottos break naturally into fragments of this ſhape; and the ſtalactitæ which hang down from their roofs in form of icicles, are originally ſmall hollow pipes formed by the water which continually trickles down drop by drop; and whoſe outer ſurfaces, fixing themſelves by their ſmall baſes, form by degrees a ſort of blunted pyramids, which like ſo many rays from the axis, which is the hollow pipe, grow hollow at laſt. This axis ſeems to be compoſed of plates, almoſt cylindrical, laid one over another; but, if broken, the whole divides into fragments of a parallelepiped figure: the blunted pyramids that are about the axis divide themſelves at firſt into other blunted pyramids; but afterwards almoſt all theſe fragments divide of themſelves into other fragments of a parallelepiped figure, this ſeeming every where the ultimate ſhape of the particles.

In the mountain of Berege there is found a vaſt quantity of aſbeſtos; the ſtone upon which this grows, though in itſelf of no determinate figure externally, always breaks into regular parallelepipeds: nor is this peculiar to theſe ſtones found naturally concreted on the ſurface or within the bowels of the earth, but it is alſo found in ſuch as are concreted by means of art out of the water in which they are originally ſuſpended.

The water of the fountain de Salut, near Bagneres in Gaſcony, when evaporated to a certain degree, yields a ſcum on the ſurface, which alſo adheres to the ſides of the veſſel; and this ſcum, examined by the microſcope, is found to be compoſed of many regular parallelepipeds. If the ſame waters, and thoſe of ſeveral other ſprings, be evaporated to a dryneſs, there remains a white ſhining powder, out of which the microſcope can direct us to ſeveral the like regular figures. Phil. Tranſ. N 472. p. 32.

PARALLELISM, the quality of a parallel, or that which denominates it ſuch: or it is that whereby two things, *v. gr.* lines, rays, or the like, become equidiſtant from one another.

Thus, we ſay, remote objects are ſcarcely perceptible, by reaſon of the paralleliſm of their rays.

Parallelism *of the Earth's Axis*, in *Aſtronomy*, or *motion of paralleliſm*, is that invariable ſituation of the earth's axis, in its progreſs through its orbit, whereby it ſtill looks nearly to the ſame point of the heavens, *viz.* towards the pole-ſtar; ſo that if a line be drawn parallel to its axis, while in any one poſition; the axis, in all other poſitions or parts of the orbit, will always be nearly parallel to the ſame line. This paralleliſm is the neceſſary reſult of the earth's double motion; the one round the ſun, the other round its own axis. Nor is there any neceſſity to imagine a third motion, as ſome have done, to account for this paralleliſm.

It is to this paralleliſm that we owe the viciſſitudes of ſeaſons, and the inequality of day and night.

Parallelism *of Rows of Trees.* The eye placed at the end of an alley bounded by two rows of trees, planted in parallel lines, never ſees them parallel, but always inclining to each other, towards the farther extreme.

Hence mathematicians have taken occaſion to enquire, in what lines the trees muſt be diſpoſed, to correct this effect of the perſpective, and make the rows ſtill appear parallel? To this purpoſe parallel they muſt not be, but diverging; but according to what law muſt they diverge? The two rows, in fine, muſt be ſuch, as that the unequal intervals of any two oppoſite or correſponding trees may be ſeen under equal viſual angles.

On this principle, F. Fabry has aſſerted, without any demonſtration; and F. Tacquet, after him, has demonſtrated by a long and intricate ſyntheſis; that the two rows of trees muſt be two oppoſite ſemi-hyperbolas.

M. Varignon has ſince, in the Memoirs of the Royal Academy, ann. 1717, found the ſame ſolution by an eaſy and ſimple analyſis. But he renders the problem much more general, and requires not only that the viſual angles be equal, but to have them increaſe, or decreaſe, in any given ratio: provided the greateſt do not exceed a right angle. The eye he requires to be placed in any point either juſt at the beginning of the ranges, or beyond, or on this ſide.

All this laid down, he ſuppoſes the firſt row to be a right line, and ſeeks what line the other muſt be, which he calls the *curve of the range.* This he finds muſt be an hyperbola, to have the viſual angles equal. The ſtraight and hyperbolical rows will be ſeen parallel to infinity; and if the oppoſite ſemi-hyperbola be added, we ſhall have three rows of trees (the ſtraight one in the middle), and all three parallel.

Nor is it required this ſecond hyperbola be the oppoſite of the firſt, *i. e.* of the ſame kind, or have the ſame tranſverſe axis: it is enough, if it have the ſame centre, its vertex in the ſame right line, and the ſame conjugate axis. Thus the two hyperbolas may be of all the different kinds poſſible; yet all have the ſame effect.

Again, the ſtraight row being laid down as before; if it be required to have the trees appear under decreaſing angles, M. Varignon ſhews, that if the decreaſe be a certain ratio, which he determines; the other line muſt be a parallel ſtraight line.

But he goes yet farther, and ſuppoſing the firſt row any curve whatever, he ſeeks for another that ſhall make the rows have any effect deſired, *i. e.* be ſeen under any angles equal, increaſing, or decreaſing.

Notwithſtanding the ingenuity of this ſpeculation, it has been ſatisfactorily demonſtrated by M. D'Alembert, and M. Bouguer, that in order to produce the effect propoſed, the trees are to be ranged merely in two diverging right lines. Encyclopedie.

Parallelism, in *Hebrew Poetry*, is a term uſed by biſhop Lowth for expreſſing the correſpondence of one verſe, or line, with another. When a propoſition is delivered, and a ſecond is ſubjoined to it, or drawn under it, equivalent, or contraſted with it in ſenſe, or ſimilar to it in the form of grammatical conſtruction; theſe the learned prelate calls *parallel* lines; and the words, or phraſes, anſwering one to another in the correſponding lines, are denominated *parallel* terms. Parallel lines, he ſays, may be reduced to three ſorts; parallels ſynonymous, parallels antithetic, and parallels ſynthetic. Of theſe the author has given a variety of examples, exhibiting their various forms, from the books univerſally acknowledged to be poetical; the correſpondent examples from the prophet Iſaiah; and ſometimes alſo from the other prophets; in order to ſhew, that the form and character of the compoſition are in all the ſame. It is obſerved, that the ſeveral ſorts of parallels are perpetually mixed with one another; and that this mixture gives a variety and beauty to the compoſition.

Parallel lines ſynonymous are thoſe which correſpond one to another by expreſſing the ſame ſenſe in different, but equivalent terms; when a propoſition is delivered, and is immediately repeated, in the whole or in part, the expreſſion being varied, but the ſenſe entirely or nearly the ſame. Examples occur in the following paſſages: *viz.* Pſ. xxi. 1, 2. Prov. i. 24—32. Iſaiah, lv. 6, 7. Iſ. liv. 4. Iſ. li. 7, 8. Joel, xi. 7. Pſ. cxii. 1. Iſ. xlvi. 3. Prov. iii. 9. Iſ. lv. 3. In the foregoing examples there are different degrees of ſynonymous paralleliſm. The parallel lines ſometimes conſiſt of three or more ſynonymous terms; ſometimes of two, which is generally the caſe, when the verb, or the nominative caſe of the firſt ſentence, is to be carried on to the ſecond, or underſtood there; ſometimes of one only, as in the four laſt examples. Among the foregoing there are a few inſtances, in which the lines conſiſt of double numbers, or two propoſitions. The author has ſubjoined one or two more of theſe, very perfect in their kind, occurring in Pſ. cxliv. 5, 6. Iſ. lxv. 21, 22.

Parallels are alſo ſometimes formed by a repetition of part of the firſt ſentence; as in Pſ. lxxvii. 1. 11. 16. Iſ. xxvi. 5, 6. Hoſea, vi. 4.

Sometimes in the latter line a part is to be ſupplied from the former to complete the ſentence; as in 2 Sam. xxii. 41. Job, xxvi. 5. Iſ. xli. 28.

There are alſo parallel triplets; when three lines correſpond together, and form a kind of ſtanza, of which, however, only two commonly are ſynonymous: Pſ. cxii. 10. Job, iii. 4. 6. 9. Iſ. ix. 20. Joel, iii. 13. There are likewiſe parallels conſiſting of four lines; two diſtichs being ſo connected together, by the ſenſe and the conſtruction, as to make one ſtanza. Such is the form of the xxxviith Pſalm. See particularly Pſ. xxxvii. 1, 2. Iſ. i. 3. Iſ. xlix. 4. Amos, i. 2.

Some periods may be conſidered as making ſtanzas of five lines, in which the odd line, or number, either comes in between two diſtichs, or after two diſtichs making a full cloſe: as in Job, viii. 5, 6. Iſ. xlvi. 7. Hoſ. xiv. 9. Joel. iii. 16. Iſ. xliv. 26. In ſtanzas of four lines ſometimes the parallel lines anſwer to one another alternately; the firſt to the third, and the ſecond to the fourth; as in Pſ. ciii. 11, 12. Iſ. xxx. 16. Iſ. l. 10.

The ſecond parallels are the antithetic; when two lines correſpond with one another by an oppoſition of terms and ſentiments; when the ſecond is contraſted with the firſt, ſometimes in expreſſions, ſometimes in ſenſe only. Accordingly the degrees of antitheſis are various, examples of which occur in Prov. x. 1. Prov x. 7. Prov. xi. 24. Prov. xxix. 26. Prov. xvi. 33. See alſo Pſ. xx. 7, 8. Pſ. xxx. 5. Pſ. xxxvii. 10, 11. Iſ. liv. 10. Iſ. ix. 10.

The third ſort of parallels comprehends thoſe, which are called ſynthetic, or conſtructive; where the paralleliſm conſiſts only in the ſimilar form of conſtruction; in which word does not anſwer to word, and ſentence to ſentence, as equivalent or oppoſite; but there is a correſpondence and equality between different propoſitions, in reſpect of the ſhape and turn of the whole ſentence, and of the conſtructive parts; ſuch as noun anſwering to noun, verb to verb, number to number, negative to negative, interrogative to interrogative. See Pſ. cxlviii. 7—13. Job, xii. 13—16. Iſ. lviii. 5—8. The following paſſages are conſtructively parallel, *viz.* Pſ. cxxxv. 6, 7. Iſ. l. 5, 6. Micah, vi. 15. See alſo Prov. xxx. Prov. vi. 16—19. Eccl. xi. 2. Iſ. li. 19. Cantic. i. 5. Iſ. xv. 3.

Of the three different ſorts of parallels, above-enumerated, every one has its peculiar character and proper effect; and therefore they are differently employed on different occaſions; and that ſort of paralleliſm is chiefly made uſe of, which is beſt adapted to the nature of the ſubject and of the poem. Synonymous parallels have the appearance of art and concinnity, and a ſtudied elegance; they prevail chiefly in ſhorter poems; in many of the pſalms; in Balaam's prophecies; frequently in thoſe of Iſaiah, which are moſt of them diſtinct poems of no great length. The antithetic paralleliſm gives an acuteneſs and force to adages and moral ſentences; and therefore abounds in Solomon's proverbs, and elſewhere is not often to be met with. The poem of Job, being on a large plan, and in a high tragic ſtyle, though very exact in the diviſion of the lines, and in the paralleliſm, and affording many fine examples of the ſynonymous kind, yet conſiſts chiefly of the conſtructive. A happy mixture of the ſeveral ſorts gives an agreeable variety; and they ſerve mutually to recommend and ſet off one another. Lowth's Preliminary Diſſertation to his "New Tranſlation of Iſaiah."

PARALLELOGRAM, in *Geometry*, a quadrilateral right-lined figure, whoſe oppoſite ſides are parallel, and equal to each other.

A parallelogram is generated by the equable motion of a right line always parallel to itſelf.

When the parallelogram has all its four angles right, and only its oppoſite ſides equal, it is called a *rectangle*, or an *oblong*.

When the angles are all right, and the ſides are all equal, it is called a *ſquare*, which ſome make a ſpecies of parallelogram, others not.

If all the ſides are equal, and the angles unequal, it is called a *rhombus*, or *lozenge*.

If both the ſides and angles be unequal, it is called a *rhomboides*.

Every other quadrilateral whoſe oppoſite ſides are neither parallel nor equal, is called a *trapezium*. See each of theſe, under their reſpective names.

PARALLELOGRAM, *Properties of the*. In every parallelogram, what kind ſoever it be of, *e. gr.* A B C D, *Plate* X. *Geometry*, *fig.* 14. a diagonal D A divides it into two equal parts; the angles diagonally oppoſite B, C, and A, D, are equal; the oppoſite angles of the ſame ſide, C, D, and A, B, &c. are, together, equal to two right angles; and each two ſides together are greater than the diagonal. Every quadrilateral whoſe oppoſite ſides are equal, is a parallelogram.

Two parallelograms A B C D, and E C D F, on the ſame, or on an equal baſe C D, and of the ſame height A C, or between the ſame parallels A F, C D, are equal. And hence two triangles C D A, and C D F, on the ſame baſe, and of the ſame height, are alſo equal; and all parallelograms or triangles whatever, whoſe baſes and altitudes are equal among themſelves.

Hence, alſo, every triangle C F D is half a parallelogram A C D B upon the ſame, or an equal baſe C D, and of the ſame altitude, or between the ſame parallels. Hence alſo a triangle is equal to a parallelogram, having the ſame baſe, and half the altitude, or half the baſe, and the ſame altitude.

Parallelograms, therefore, are in a given ratio, compounded of their baſes and altitudes. If then the altitudes be equal, they are as the baſes; and converſely.

In ſimilar parallelograms and triangles, the altitudes are proportional to the homologous ſides; and the baſes are cut proportionably thereby. Hence, ſimilar parallelograms and triangles are in a duplicate ratio of their homologous ſides, alſo of their altitudes, and the ſegments of their baſes: they are, therefore, as the ſquares of the ſides, altitudes, and homologous ſegments of the baſes.

In every parallelogram, the ſum of the ſquares of the two diagonals is equal to the ſum of the ſquares of the four ſides: and the two diagonals biſect each other. For the triangles A E B, D E C, (*fig.* 15.) being equi-angular, on account of the equal vertical and alternate angles, and having one ſide A B = one ſide D C, will have A E = C E, and B E = D E. Moreover, becauſe the double of the ſquare of a line drawn from the vertex to the middle of the baſe of any triangle, together with double of the ſquare of the ſemi-baſe, is equal to the ſquares of both the ſides taken together, $2\,AE^2 + 2\,ED^2 = AD^2 + CD^2$, and by doubling theſe, we ſhall have, becauſe four times the ſquare on half a line is equal to the ſquare on the whole line (ſee Square), $4\,AE^2\,(AC) + 4\,ED^2\,(DB^2) = AD^2 + BC^2 + CD^2 + AB^2$.

This propoſition, M. de Lagny takes to be one of the moſt important in all geometry; he even ranks it with the celebrated forty-ſeventh of Euclid, and with that of the ſimilitude of triangles; and adds, that the whole firſt book of Euclid is only a particular caſe of it. For if the parallelogram be rectangular, it follows, that the two diagonals are equal; and, of conſequence, the ſquare of a diagonal, or, which comes to the ſame thing, the ſquare of the hypothenuſe of a right angle, is equal to the ſquares of the ſides.

If the parallelogram be not rectangular, and of conſequence, the two diagonals be not equal, which is the moſt general caſe, the propoſition becomes of vaſt extent; it may ſerve, for inſtance, in the whole theory of compound motions, &c.

There are three ways of demonſtrating this propoſition; the firſt by trigonometry, which requires twenty-one operations; the ſecond geometrical and analytical, which requires fifteen. M. de Lagny gives a more conciſe one, in the Mémoires de l'Acad. which only requires ſeven.

To find the area of the right-angled parallelogram A B C D, (*fig.* 14.) Find the length of the ſides A B and A C; multiply A B into A C, the product will be the area of the parallelogram. Suppoſe, *e. gr.* A B to be 345; A C 123; the area will be 42435.

Hence, 1. Rectangles are in a ratio compounded of their ſides A B and A C. 2. If, therefore, there be three lines continually proportional; the ſquare of the middle one is equal to the rectangle of the two extremes: and if there be four proportional lines, the rectangle under the two extremes is equal to that under the two middle terms.

Other parallelograms, not rectangular, have their areas found by reſolving them, by diagonals, into two triangles, and adding the areas of the ſeparate triangles into one ſum; or by multiplying their baſes into their altitudes.

Parallelogram, *Complement of a.* See Complement.

Parallelogram, *Centre of Gravity of a.* See Center *of Gravity*, and Centrobaryc *Method.*

Parallelogram, *Newtonian* or *Analytic*, in *Algebra*, an appellation uſed for an invention of ſir Iſaac Newton, to find the firſt term of an infinite converging ſeries.

This is ſometimes called the method of the parallelogram and ruler; becauſe a ruler or right line is alſo uſed in it.

This analytic parallelogram is formed by dividing any parallelogram into equal ſquares or parallelograms, by lines drawn horizontally and perpendicularly through the equal diviſions of the ſides of the parallelogram. The cells, thus formed, are filled with the dimenſions of the quantities x and y, and their products.

The powers, $y^0 = 1, y, y^2, y^3, y^4$, &c. of y, for inſtance being placed in the loweſt horizontal range of cells, and the powers of x, or $x^0 = 1, x, x^2, x^3$, &c. in the vertical column to the left, or *vice verſâ;* ſo that theſe powers and their products will ſtand as in *Plate* XVII. *Analyſis*, *fig.* 4.

Thus, when any literal equation is propoſed, mark ſuch of the parallelograms or cells as correſpond to all its terms; and let a ruler be applied to two, or perhaps more of the parallelograms ſo marked, of which let one be the loweſt in the left-hand column at A B, the other touching the ruler towards the right hand; and let all the reſt not touching the ruler lie above it. Then ſelect thoſe terms of the equation which are repreſented by the parallelograms that touch the ruler, and from them find the quantity to be put in the quotient.

This is ſir Iſaac Newton's famous rule, of the application of which he has left us ſome examples in his Method of Fluxions and Infinite Series, p. 9 and 10, but without demonſtration; which has been ſince ſupplied by others. See Mr. Colſon's Comment on that treatiſe, p. 192, ſeq. Maclaurin's Algebra, p. 251, ſeq. and particularly Monſ. Cramer's Analyſ. des Lignes Courbes, chap. vii. p. 148, ſeq.

This learned author obſerves, that this invention, which is the true foundation of the method of ſeries, was but imperfectly underſtood, and not valued as it deſerved for a long time. He thinks it more convenient in practice to uſe the analytic triangle of the abbé de Gua, which takes in no more than the diagonal cells lying between A and C, and thoſe which lie between them and B.

Parallelogram, or *Paralleliſm*, alſo denotes a machine uſed for the ready and exact reduction or copying of deſigns, ſchemes, prints, &c. in any proportion; which is done hereby without any knowledge or habit of *deſigning*; which ſee.

The parallelogram is alſo called pentagraph. See its deſcription and uſe under Pentagraph.

Parallelogram *of the Hyperbola*, in *Geometry*, is uſed for the parallelogram formed by the two aſymptotes of an hyperbola, and the parallels to them, drawn from any point of the curve. A parallelogram thus formed is of an invariable magnitude in the ſame hyperbola; and the rectangle of its ſides is equal to the power of the hyperbola. L'Hôpital, Sect. Coniq. Art. 99—101. See Power.

This parallelogram is the modulus of the logarithmic ſyſtem; and if we take it as unity, the hyperbolic ſectors and ſegments will correſpond to Napier's, or the natural logarithms. If the parallelogram be taken = 0.43429, &c. theſe ſectors and ſegments will repreſent Briggs's logarithms. See Logarithm.

Huygens has made uſe of this term, De Cauſ. Gravitat. in fin. See Logarithmic *Curve.*

Parallelogram *Protractor*, a mathematical inſtrument, conſiſting of a ſemicircle of braſs, with four rulers in form of a parallelogram, made to move to any angle: one of theſe rulers is an index, which ſhews on the ſemicircle the quantity of any inward or outward angle.

PARALLELOPIPEDIA, in *Natural Hiſtory*, the name of a genus of ſpars, thus called, becauſe regularly of a parallelopiped or parallelepiped form.

They are pellucid cryſtalline ſpars, externally of a determinate and regular figure, always found looſe, detached, and ſeparate from all other bodies, and in form an oblique parallelepiped, with ſix parallelogram ſides and eight ſolid angles, eaſily fiſſile, either in an horizontal or perpendicular direction, being compoſed of numbers of thin plates, and thoſe of very elegantly and regularly arranged bodies, each of the ſame form with the whole maſs, except that they are thinner in proportion to their horizontal planes; and naturally fall into theſe and no other figures, on being broken with a ſlight blow.

Of this genus Hill has enumerated four known ſpecies. 1. The hard, pellucid, and colourleſs one, called the iſland cryſtal of authors. (See *Iſland* CRYSTAL.) 2. A dull and whitiſh kind, found in France, Germany, and England, particularly in the Derbyſhire and Yorkſhire lead-mines, and about Scarborough. This has the ſame property with the former, of giving a double refraction; but it is ſo dull and opaque, that it does not ſhew it ſo elegantly. 3. A ſoft, whitiſh, and very bright one, found principally in the lead-mines of Yorkſhire, and about the ſea-ſhores of that county. And, 4. A dull, hard, and pale brown one: this is found in the lead-mines of the ſame county, and in ſome parts of Ireland. All theſe ſpecies have the ſame power of double refraction with the firſt, but are too opaque to ſhew it ſo beautifully, and often have not tranſparence enough to make it at all diſtinguiſhable.

PARALLELOPLEURON, a term uſed by ſome writers for an imperfect parallelogram, or a kind of trapezium, having unequal angles and ſides, but which obſerve a certain regularity and proportion.

PARALOGISM, ϖαραλογισμος, in *Logic*, a falſe reaſoning, or a fault committed in demonſtration, when a conſequence is drawn from principles that are falſe, or, though true, are not proved; or when a propoſition is paſſed over, which ſhould have been proved by the way.

A paralogiſm differs from a ſophiſm in this, that the ſophiſm is committed out of deſign and ſubtlety; and paralogiſm out of miſtake, and for want of ſufficient light and application.

Yet Meſſieurs du Port Royal do not ſeem to make any difference between them.

PARALOPHIA, a word uſed by Keil, and ſome other anatomical writers, to expreſs the lower and lateral part of the neck.

PARALOURGES, ϖαραλουργες, among the ancients, a kind of garment, with a purple clavus on each ſide. See CLAVUS.

PARALYSIS, in *Botany*. See PRIMROSE.

PARALYSIS, in *Medicine*. See PALSY.

PARALYTIC, a perſon afflicted with the paralyſis, or palſy.

PARAMARIBO, or PARAMAIRAMBA, in *Geography*, a conſiderable town of South America, and capital of Surinam, or Dutch Guiana, occupying a pleaſant gravelly ſituation, on the banks of the river Surinam, which is here about a mile in breadth. The number of houſes, chiefly conſtructed of timber, is about 1400, and that of the inhabitants is about 5000; the town contains two churches, and two Jewiſh ſynagogues: the ſtreets are all perfectly ſtraight, and lined with trees, ſuch as oranges, lemons, ſhaddocks, and tamarinds. It is about 18 miles from the ſea, and has a good harbour. N. lat. 5° 48′. W. long. 55° 11′.

PARAMBAH, a town of Hindooſtan, in Bahar; 17 miles E. of Bahar.

PARAMECIUM, in *Vermeology*, a genus of worms of the order Infuſoria, of which the generic character is this; an inviſible, ſimple, pellucid, flattened worm. There are ſeven ſpecies mentioned by Gmelin, which are as follow:

Species.

* AURELIA. This is compreſſed, longitudinally plaited towards the fore part, behind it is acute. This, ſays Mr. Adams, is rather a large animalculum, four times longer than it is broad; the fore part is obtuſe, tranſparent, and apparently without inteſtines; the hind part is filled with molecules of various ſizes; the fold that goes from the middle to the apex is a ſtriking characteriſtic of the ſpecies, forming a kind of triangular aperture, and giving it ſomewhat the appearance of a gimblet. Its motion is rectilinear, reeling, or ſtaggering, and generally vehement. This ſpecies is frequently found in ditch-water, and in infuſions, cohering lengthwiſe; the lateral edges of both bodies appear bright. They may ſometimes be ſeen lying on one another alternately, at others adhering by the middle. They will live many months in the ſame water, without its being renewed. They are to be found in the month of June, in ditches where there is plenty of duck-weed.

* CHRYSALIS. This is cylindrical, longitudinally plaited on the fore part, and obtuſe behind. It is an inhabitant of ſalt water, is very like the laſt, but is more obtuſe behind. The margins are filled with black globules.

* OVIFERUM. Depreſſed, with large oval molecules within: the body is oval, pellucid, with black grains towards one end.

MARGINATUM. This is depreſſed, is grey, and has a double margin. It is, ſays Mr. Adams, one of the largeſt of the genus, flat, elliptical, and every part filled with molecules, except in the lower end, where there is a pellucid veſicle. This animalculum is ſurrounded by a broad double margin, and at the moment of its expiring, a bright ſpiral inteſtine is obſervable.

CAUDATUM. This ſpecies is pointed at both ends, the middle is the broader, and filled with molecules. It is found in waters among duck-weed; its motion is very ſlow.

ANCEPS. The tail of this ſpecies is two-edged, and the head is obtuſe. The motion of this animalculum is very ſlow; it is found in the water, in which the plant hydrocharis is produced.

ACUTUM. Tail two-edged, head acute; inhabits ſtagnant water; is ſlow in its motions, continually agitating its tail.

VERSUTUM. This ſpecies, mentioned by Adams, is cylindrical, the lower part thick, and both ends very obtuſe. It has an oblong green gelatinous body, filled with molecules; the lower part is thick, the fore part is ſmaller, both ends are obtuſe, and they may be ſeen to propagate by diviſion. It is found in ditches.

PARAMESE, ϖαραμεση, in the *Ancient Muſic*, the ninth chord or ſound in the diagramma, or ſcale of muſic.

The word is Greek, and ſignifies *juxta medium*, *next to the middle*; its ſituation in the firſt ſtate of the ſcale, being next the meſe, or middle chord.

It was the note above the meſe, which anſwers to *a-la-mi-re* of Guido's ſcale. Hence, as the parameſe was the firſt of the diazeugmenon tetrachord, it will be equivalent to Guido's higheſt ♮ mi. Se DIAGRAM.

PARAMESOS, a word uſed by ſome to expreſs the ring-finger, that next the little one.

PARAMESWARA, in *Mythology*, a name given to the Hindoo deity Siva by his ſectaries. Hindoos of ſome ſects give this name excluſively to Brahm, the ſupreme ruler: others apply it to the deity whom they more particularly worſhip. In one of the Puranas, Lakſhmi is invoked under the name of Paramaiſwarya-rupini, meaning with the countenance of Parameſwara; but in ſtrictneſs it ſeems more applicable to the ſupreme ruler, as noticed under the article MAYA.

PARAMETER, in *Geometry*, a conſtant right line in each of the three conic ſections; called alſo *latus rectum*. In the parabola the rectangle of the parameter, and an abſciſſa, is equal to the ſquare of the correſpondent ſemi-ordinate. See PARABOLA.

In an ellipſis and hyperbola, the parameter is a third proportional to a conjugate, and tranſverſe axis. See Ellipsis and Hyperbola

PARAMO, Luiz de, in *Biography*, a native of Borox, in the dioceſe of Toledo, archdeacon and canon of Leon, and afterwards inquiſitor in Sicily, is author of a moſt extraordinary work, entitled "De Origine et Progreſſu Officii Sanctæ Inquiſitionis, ejuſque Dignitate et Utilitate," which was undertaken under the patronage of D. Gaſpar de Quiroga, then archbiſhop of Toledo, and inquiſitor-general, and which was pronounced by Nicholas Antonio, to be a work full of various learning. It was printed in folio at Madrid in 1598, and afterwards at Antwerp, in 1614, and a copy of the firſt edition is in Dr. Williams' library in Redcroſs-ſtreet, London. Mr. Southey, in the General Biography, has given an analyſis of this book, from whoſe account we ſhall give a ſhort extract, to ſhew the inquiſitor's mode of reaſoning.

Paramo begins by proving God to have been the firſt inquiſitor, who convicts Adam and Eve of hereſy, infidelity, apoſtacy, and blaſphemy. God cited Adam, otherwiſe the proceſs would have been null. On Adam's appearance, he made inquiſition into the crime. The man accuſed his wife, and then the judge queſtioned her: he did not examine the ſerpent, becauſe of his obſtinacy. The examinations were ſecret and ſeparate, that there might be no colluſive lying. He calls no witneſſes, and affirms that conſcience and confeſſion are as a thouſand witneſſes, and ſave the judge all the trouble, except that of condemning. The whole, he ſays, was done ſecretly, that it might be a precedent for the holy office; and ſo cloſely does this holy office obſerve the precedent, that they make the dreſs of penitent offenders after the very pattern of the clothes which God made for Adam and Eve, and confiſcate all the property of a heretic, becauſe Adam and Eve were turned out of paradiſe. The author then goes on to ſhew that Abraham was an inquiſitor, ſo were David and Solomon, Chriſt, and a multitude of others, but our readers will eaſily believe, after the ſpecimen we have given, he can prove any thing. It had been well had Paramo ſtopped here, but he was one of the moſt ſavage practical inquiſitors that ever exiſted. In proof of this it is ſufficient to obſerve, that, he himſelf ſays, in the courſe of one hundred and fifty years, the inquiſition had burnt thirty-thouſand witches, and he claims great part of the merit for himſelf, ſaying he had puniſhed very many of them. We cannot help ſaying, that unleſs the Britiſh government inſiſt upon the abolition, not only of the exiſting inquiſition in Spain, but alſo of the laws (which we know on good authority ſtill remain) which ſanction ſo ſavage a court, they cannot with any degree of propriety be ſaid to be contending for the liberties of mankind. We hope the noble marquis, the hero of the times, will immortalize his name by deſtroying every veſtige of it.

PARAMORES, in *Geography*, a ſmall iſland in the Atlantic, near the coaſt of Virginia. N. lat. 37° 36′. W. long. 75° 44′.

PARAMOUNT, in our *Law*, ſignifies the ſupreme lord of the fee.

There may be a tenant to a lord, who holdeth himſelf of another lord; in reſpect whereof the former lord is called *lord meſne* (ſee Mesne), and the latter *lord paramount*.

All honours, which have manors under them, have the lord paramount.

But even the term lord paramount is only comparative; for as one man may be great, compared to a leſs; and little, being compared with a greater; ſo none truly ſeems to be lord paramount but the king, who is patron paramount to all the benefices in England. See Manor and Tenant.

PARAMOUSIR, or Poromashir, in *Geography*, the ſecond of the Kurile or Kurilſkoi iſlands; between which and Shoomtſhu, the ſtrait is but two verſts broad. It extends from N.E. to S.W., and is twice as large as Shoomtſhu, and, according to Capt. Cook, is the largeſt of the Kuriles under the dominion of Ruſſia. The land is very high, and when viſited by Capt. Cook's navigators, in his Third Voyage, Oct. 13, 1779, it was entirely covered with ſnow. It is richly furniſhed with roots and minerals, but deſtitute of wood. Here is no ſcarcity of red foxes, wolves, and all kind of mice. Mr. King places the S. end of this iſland in N. lat. 49° 58′, and the N. end in lat. 50° 46′. E. long. 156° 14′.

PARAMUTTY, a town of Hindooſtan, in the Carnatic, taken by the Britiſh in 1790; 10 miles S.W. of Coveriporum.

PARANA, the longeſt and moſt conſiderable ſtream of the Rio de la Plata, which riſes in the grand mineral mountains of Braſil, S. lat. 19°, and bending S., then W. till it receives the Iba Parana, after which it bends S.W. till it is joined by the Paraguay; while the conjunct rivers are ſtill called the Parana by the natives, and the Rio de la Plata by the Spaniards. Yet the length of the Paraguay, according to the map of La Cruz, does not yield above half a degree to that of the Parana; and the ſtraightneſs of its courſe gives it the appearance of the principal river. The grand cataract of the Parana is in lat. 24°, not far from the ruined town of Cuayra; but is rather a ſeries of rapids, for a ſpace of 12 leagues, amidſt rocks of tremendous and ſingular forms. Dobrizhoffer aſſerts that the Parana is the chief ſtream, which receives the Paraguay and Uraguay. The inundations are chiefly in December and January, riſing about five or ſix yards above the iſlets. This noble river is ſtudded with numerous iſlands; and Spaniſh veſſels navigate to the town of Aſſumption, about 400 leagues from the ſea. On the ſhores are often found geods, incloſing cryſtals; but the natural hiſtory of the Parana is almoſt as obſcure as that of the true Maranon. The breadth of the eſtuary is ſuch, that the land cannot be diſcovered from a ſhip in the middle of the ſtream. Pinkerton.

Parana, a town on the W. coaſt of the iſland of Samar. N. lat. 11° 54′. W. long. 124° 48′.—Alſo, a town of Braſil, on the coaſt of the iſland of Marajo. S. lat. 0° 12′. W. long. 51° 36′.

PARANAGUA, a river of Brazil, which runs into the Atlantic, S. lat. 25° 30′.

PARANA-MERIN, a river of Brazil, which runs into the Atlantic, S. lat. 2° 50′. W. long. 42° 46′.

PARANAPANEMA, a river of Paraguay, which runs into the Parana.

PARANETE, in the *Ancient Muſic*, was a name ſometimes uſed to ſignify the next note or chord to the nete, or laſt note of a tetrachord.

Hence it might be called the penultimate chord. It was otherwiſe, and more properly called the *lichanos*, or index.

Paranete *Diezeugmenon*, in the *Greek Muſic*, was the penultimate note of the diezeugmenon tetrachord, and anſwers to Guido's *de-la-ſol-re*. See Diagram.

Paranete, *Hyperbolæon*, was the penultimate note of the hyperbolæon tetrachord, and anſwers to Guido's *g-ſol-re-ut*. See Diagram.

PARANOMASIA, is a figure that occurs when two words, very near in ſound, but different in ſenſe, reſpect each other in the ſame ſentence; this is uſually called a pun.

PARANOO, in *Geography*, a river of Malacca, which runs into the ſea, N. lat. 4° 40′. E. long. 103° 25′.

PARANYMPH, Paranymphus, among the ancients, the perſon who waited on the bride-groom, and directed the nuptial ſolemnities; called alſo *pronubus* and *auſpex*, becauſe the ceremony begun with taking auſpicia.

In ſtrictneſs, the paranymph, *παρανυμφος*, only officiated on the part of the bride-groom; on the part of the bride a woman officiated, who was called *pronuba*.

The Jews had likewiſe a kind of paranymphs, which the Talmud and rabbins call ששבים, *ſchuſchebim*, q. d. *companions of the ſpouſe*.

The fourth council of Carthage appoints, that when the married couple come to aſk the prieſt's bleſſing, they be preſented either by their fathers and mothers, or by their paranymphs.

PARAPET, Breastwork, in *Fortification*, a defence, or ſcreen, on the extreme of a rampart, or other work, ſerving to cover the ſoldiers and the cannon from the enemy's fire. See *Plate* VII. *Fortification*, *fig.* 3.

Borel gives us, from Joſ. Maria Subreſius, a curious collection of names, which the ancients and moderns have given to this kind of parapet: the Latins call them *ſubarræ*, and *baſtiæ*, whence the names baſtion and baſtile. They alſo call them *pagineumata*, *loricæ*, and *antemuralia*. The Spaniards call them *barbacanes*; the Italians, *parapetti*, becauſe of their defending the breaſt, *petto*; whence our parapet.

Parapets are raiſed on all works, where it is neceſſary to cover the men from the enemy's fire; both within and without the place, and even in the approaches. See *Mr. Vauban's Method of Fortification*, under the article *Military* Construction.

The thickneſs of the parapet ſhould be about eighteen or twenty feet, in order to be cannon-proof, and it ſhould be about ſeven or eight feet high, when the enemy has no command above the battery; otherwiſe it ſhould be raiſed high enough to cover the men while they load the guns. Its length depends on the number of guns to be employed in the battery: for one gun, it is common to allow eight yards in length, and ſix yards more for every other gun. The parapet conſiſts of two parts, the wall contained in one piece from end to end, and about two and a half or three feet high, and the merlons, which are detached pieces of the parapet, leaving openings, called embraſures, through which the cannon deliver their ſhot.

The parapet of the wall is ſometimes of ſtone. The parapet of the trenches is either made of the earth dug up; or of gabions, faſcines, barrels, ſacks of earth, or the like.

Parapet is alſo a little wall, breaſt-high, raiſed on the brinks of bridges, quays, or high buildings; to ſerve as a ſtay, and prevent people's falling over.

PARAPH, a particular character, knot, or flouriſh, which people habituate themſelves to make always in the ſame manner at the end of their name, to prevent their ſignature from being counterfeited.

The paraph of the kings of France uſed to be a grate, which the ſecretaries always place before their own, in all letters, &c. Menage derives the word from *paragraphus*. See Paragraph.

PARAPHERNALIA, or Parapherna, in the *Civil Law*, thoſe goods which a wife brought her huſband, beſides her dower, and which were ſtill to remain at her diſpoſal, excluſive of her huſband, unleſs there was ſome proviſion made to the contrary in the marriage-contract.

The word is formed from the Greek *παρα*, *beyond*, or *over*, and *φερνη*, *dos*, *dower*. "In his rebus quas extra dotem mulier habet, & quas Greci *παραφερνα* vocant, nullam, uxore prohibente, vir habeat communionem." Cod. de Pactis.

The Grand Cuſtomary of Normandy gives a different ſenſe to the word; it calls paraphernalia the moveables, linen, and other female neceſſaries, which are adjudged to a wife, in prejudice to the creditors, when ſhe renounces the ſucceſſion of her huſband.

Some of our Engliſh lawyers give a ſtill different ſenſe to the word paraphernalia, defining it to be ſuch goods as a wife challengeth over and above her dower, or jointure after her huſband's death; as furniture for her chamber, wearing apparel, and jewels, which are not to be put in the inventory of her huſband's goods.

Accordingly the apparel and ornaments of a wife, ſuitable to her rank and degree, are paraphernalia; and even the jewels of a peereſs, uſually worn by her, have been held to be paraphernalia. (Moor, 213.) Theſe ſhe becomes entitled to at the death of her huſband, over and above her jointure or dower, and preferably to all other repreſentatives. (Cro. Car. 347. 1 Roll. Abr. 911. 2 Leon. 166.) Neither can the huſband deviſe by his will ſuch ornaments and jewels of his wife; though during his life perhaps he hath the power (if unkindly inclined to exert it) to ſell them or give them away. (Noy's Max. c. 49. Grahme v. lord Londonderry, 24 Nov. 1746. Cant.) But if ſhe continues in the uſe of them till his death, ſhe ſhall afterwards retain them againſt his executors and adminiſtrators, and all other perſons except creditors, where there is a deficiency of aſſets. (1 P. Wms. 730.) And her neceſſary apparel is protected even againſt the claim of creditors. Noy's Max. c. 49.

PARAPHIMOSIS, or Paraphymosis, from *παρα*, *back*, and *φιμοω*, *to bridle*. This term, in *Surgery*, is applied to the caſe, in which the prepuce is drawn backward, behind the glans penis, and cannot be brought forward again. The complaint is the very reverſe of phymoſis, which is attended with a contraction of the opening of the prepuce, ſo that the glans cannot be uncovered. Both theſe diſeaſes are moſtly the conſequence of an inflammatory thickening of the prepuce, ariſing from the irritation of gonorrhœa, a chancre, or ſimple excoriations. Paraphymoſis very frequently follows phymoſis, by the thickened prepuce being very improperly drawn back behind the glans. In this circumſtance, the conſtricted part of the prepuce acts as a ligature round the body of the penis, and retards the return of blood from the glans, and the portion of the prepuce beyond the ſtricture. Hence, œdematous inflammation attacks the latter part, while the former becomes prodigiouſly diſtended, and, it is evident, that mortification of the glans and part of the prepuce may be produced by the complaint.

Paraphymoſis frequently admits of being expeditiouſly relieved, by compreſſing as much of the blood as poſſible out of the glans penis, and then puſhing this part back again through the ſtricture. In order to perform this operation ſkilfully, the ſurgeon ſhould firſt make continued preſſure on the glans, by placing it between the ends of the thumb, index, and middle fingers of each hand. The whole ſurface of the part ſhould thus be gradually compreſſed at the ſame time for the ſpace of four or five minutes. Then the two thumbs are to be employed, both in puſhing backward the diminiſhed glans, and, together with the fingers, in drawing forward the prepuce. The caſes, which cannot thus be relieved, are extremely few. When the plan fails, however, leeches ſhould be applied to the glans, and the flow of blood be afterwards promoted by immerſing the part in warm water.

In almoſt every caſe, the preceding method will now be found completely effectual. But, if it ſhould not do ſo, as much blood muſt be taken away by veneſection, as the ſtate of the patient will well bear, and the part is either to be covered with a cold ſaturnine poultice, or the lotio plumbi ſuperacetatis. When, notwithſtanding every exertion, and the ſtrict obſervance of antiphlogiſtic means, the œdematous ſwelling increaſes inſtead of ſubſiding, the only way to prevent a mortification of the glans and prepuce is to make an inciſion, juſt behind the former part, through that portion of the prepuce which forms the conſtriction. A ſmall ſcalpel is the beſt inſtrument, and care muſt be taken to cut to a ſufficient depth. In moſt ſurgical books, paraphymoſis is repreſented as a venereal complaint, and demanding the exhibition of mercury; but the hiſtory, which we have here given of it, muſt convey a different, and, we truſt, a more accurate notion of the complaint. When paraphymoſis originates from the irritation of a chancre, mercury is indeed neceſſary for the cure of the ſore; but the paraphymoſis does not itſelf abſolutely require this medicine, and may be at once cured by compreſſing the glans and puſhing it back through the conſtricted part of the prepuce. Paraphymoſis from gonorrhœa never ſtands in need of mercury. See Firſt Lines of Practice of Surgery, by S. Cooper, edit. 3.

PARAPHONIA, from παρα, and φωνη, *the voice*, ſignifies a depraved ſound of the voice in ſpeaking, and of courſe is not applicable to dumbneſs. Dr. Cullen makes ſix ſpecies of *morbid voice, viz.* 1. Paraphonia *puberum*, or the harſh and rough voice of males about the period of puberty. 2. P. *rauca*, or hoarſeneſs, connected with dryneſs or ſwelling in the fauces. 3. P. *reſonans*, or naſal tone, from obſtructed noſtrils. 4. P. *palatina*, or the change of voice ariſing from a loſs or diviſion of the uvula, or pendulous palate. 5. P. *clangens*, when the voice acquires a ſhrill, acute, and ſmall ſound. And, 6. P. *comatoſa*; when, from relaxation of the palate and glottis, a ſtertorous ſound is made during inſpiration. Cullen, Noſol. Meth. Gen. 112.

PARAPHONIA, in *Muſic*, is that ſpecies of concord which reſults from different ſounds, as the fifth and fourth: and thus it differs from *homophonia*, which is produced by the ſame ſounds, as in the uniſon, and from *antiphonia*, or the replication of the ſame ſounds, as in the octave.

PARAPHORA, a word uſed by the ancients to expreſs a ſlight kind of delirium, or light-headedneſs in a fever: ſome have made it to ſignify a delirium in general.

PARAPHRASE, παραφρασις, an explanation of ſome text in clearer and more ample terms, whereby we ſupply what the author might have ſaid or thought on the ſubject. See TEXT.

Colomeſius looks on Eraſmus's Paraphraſe on the New Teſtament as ſo extraordinary a work, that he makes no ſcruple to declare, he thinks the author to have been divinely inſpired when he penned it.

PARAPHRASE, *Chaldee*, is a phraſe frequent among the critics and divines, denoting an ancient verſion of the bible, in Chaldee. There are three Chaldee paraphraſes on the Pentateuch: that of Onkelos, whom ſome take to be the ſame with Aquila, and whom others take to have been that Onkelos whom the Talmudiſts, in the treatiſe "Gittin," make a nephew of the emperor Titus. The ſecond is the paraphraſe of Jonathan. The third is called the Targum of Jeruſalem. See TARGUM.

The Chaldee paraphraſe on the prophets is that of Jonathan ſon of Uziel, whom ſome confound with Theodotio.

The author of the Chaldee paraphraſe on the Hagiographers is unknown. Some attribute it to one Joſeph, ſurnamed the Squinter; others to rabbi Akiba. Others ſay there is ſo much difference in the ſtyle, that no one perſon can have been the author of the whole.

The paraphraſe of Onkelos is that which is moſt eſteemed by the modern Jews, and read in their ſynagogues. See Walton Pref. Polyglott.

PARAPHRENITIS, παραφρενιτις, in *Medicine*, ſometimes written *paraphreneſis*, is not derived, it would appear, from φρην, *mens*, and therefore ſynonimous with *phrenitis*, or *phrenſy*, but from φρενες, *præcordia*; and it is ſynonimous with *diaphragmitis*, which ſignifies an inflammation of the diaphragm. The diſeaſe, indeed, is deſcribed as accompanied by ſevere delirium, but its ſeat is in the diaphragm, and conſequently the pain and moſt diſtreſſing ſymptoms are referred to the præcordia.

Authors who have deſcribed the paraphrenitis, have mentioned the ſymptoms attendant upon pleuriſy, together with conſtant delirium and a *riſus ſardonicus*, or convulſive laughter, as characteriſing the diſeaſe. They deſcribe the reſpiration as exceedingly ſhort and quick, being performed entirely by the motion of the ribs, the tender ſtate of the diaphragm not admitting of its motion, and therefore preventing the expanſion of the cavity of the cheſt in that direction. They mention alſo other ſymptoms, indicative of the inflammatory ſoreneſs of the diaphragm, eſpecially an extreme increaſe of the pain of the cheſt upon coughing, ſneezing, reaching, vomiting, ſtraining at ſtool, &c. See Boerhaave, Aphoriſm 909.

But there appears to have been ſome miſtake, in referring ſuch a fever, with delirium, and convulſive laughter, to an inflammation of the diaphragm: and every practitioner will now accord with the obſervation of Dr. Cullen, when he obſerves, (Firſt Lines, par. cccxliii.) "an inflammation of the pleura covering the upper ſurface of the diaphragm has been diſtinguiſhed by the appellation of *paraphrenitis*, as ſuppoſed to be attended with the peculiar ſymptoms of delirium, riſus ſardonicus, and other convulſive motions; but it is certain, that an inflammation of that portion of the pleura, affecting alſo even the muſcular ſubſtance of the diaphragm, has often taken place without any of theſe ſymptoms; and I have not met with either diſſections, or any account of diſſections, which ſupport the opinion, that an inflammation of the pleura covering the diaphragm is attended with delirium more commonly than other pneumonic inflammation." The reſult of modern inveſtigation of diſeaſe, by diſſection after death, is in fact demonſtrative of the error of referring ſuch a fever to inflammation of the diaphragm; and when it does occur, it muſt be obviouſly aſcribed to a morbid affection of the ſenſorium itſelf. See FEVER and PLEURISY.

PARAPHROSYNE, or *Alienation of Mind*, ſignifies, in the writings of ſome phyſicians, a ſlight and tranſitory derangement of the intellect, or non-febrile delirium, eſpecially the temporary delirium occaſioned by intoxicating and narcotic ſubſtances, ſuch as ſpirituous liquors, opium, ſtramonium, hyoſcyamus, hemp or bang, nightſhade, hemlock, the betel leaf, &c. &c. Sauvages Noſol. Meth. claſs viii. gen. 17.

PARAPITE, in *Geography*. See MADEIRA.

PARAPLEGIA, and PARAPLEXIA, from πα,α, and πλησσω, *I ſtrike*, ſignify, in the writings of the older authors, a palſy affecting the whole body below the neck. Dr. Cullen and the moderns confine it to a palſy, affecting half the body *tranſverſely*, in contradiſtinction from the hemiplegia, which affects one ſide, or half the body *longitudinally*. See PALSY.

PARAPOTAMIA, in the *Materia Medica of the Ancients*, a word uſed at firſt as an epithet of diſtinction for a kind of œnanthe, from which the œnanthine ointment of the Greeks was made; but afterwards uſed ſimply as the name of that plant. This kind of œnanthe was the moſt fragrant of all the kinds, and was therefore uſed for making the ointment preferably to the reſt.

Theophraſtus makes a very great difference in the œnanthe of different places, obſerving that the Cyprian kind was fragrant, and fit for making this ſweet ointment; but that the Grecian had no ſmell at all: and thence it probably aroſe, that the Greeks uſed afterwards the flowers of the wild vine for this purpoſe, and called them by the ſame name.

Pliny's account of this ointment is by no means to be depended upon. The whole paſſage where he names it, and the others of the like kind, is taken from the account of Apollodorus, in Athenæus; but it is ſo careleſsly tranſlated by Pliny, that the author's ſenſe can ſcarcely any where be made out.

PARAPROSDOCIA, παραποσδοκια, in *Rhetoric*, the ſame with paradox. See PARADOX.

PARARYTHMOS, an epithet uſed by the ancients to expreſs any kind of pulſe, which did not ſeem ſuitable to the age and ſtate of the perſon.

PARASANG, παρασαγγης, or FARSANG, an ancient Perſian meaſure different at different times, and in different places; being uſually thirty, ſometimes forty, and ſometimes ſixty ſtadia or furlongs.

The word, according to Littleton, has its riſe from *paraſch, angarius, q. d.* the ſpace a poſtman rides from one ſtation, *angaria*, to another.

Caſaubon cites a fragment of the architect Julian, who ſays, that the moſt common meaſure of the paraſang, in his time, was forty ſtadia; and reckoning each ſtadium at one hundred and twenty-five geometrical paces, they would hereby avoid fractions in the computation of diſtances; forty ſtadia, of one hundred and twenty-five paces each, making five thouſand Roman paces. The authors of the Univerſal Dictionary, vol. ii. p. 19. fol. aſcribe the introduction of this meaſure to Keykobad, one of the Perſian kings of the ſecond race, who employed his ſoldiers in making great roads through the empire, ſetting up public marks at the end, as they ſay, of every four thouſand paces, which ſpace was called by the Perſians, *pherſength*, and from thence by the Greeks, *paraſang*.

PARASAOLI, in *Geography*, a town of Hindooſtan, in the circar of Jyenagur; 15 miles N.N.E. of Jyepour. N. lat. 27° 10′. E. long. 76° 48′.

PARASCENIUM, among the Romans, was a place behind the theatre, whither the actors withdrew to dreſs, undreſs, &c. more frequently called *poſtſcenium*.

PARASCEVE, παρασκευη, the ſixth day of the laſt week of Lent, popularly called *Good Friday*.

St. John ſays, our Saviour was crucified on the paraſceve of the Paſſover, *i. e.* on the eve or day of preparation of the Paſſover: for Iſidore and Papias obſerve, that the word in the original Greek ſignifies preparation, and was applied among the Jews to Friday, becauſe on that day they uſed to prepare what was neceſſary for the celebration of the ſabbath. Exod. xv. 23. xxxv. 2, 3.

Hence, what our tranſlation of the New Teſtament renders preparation of the ſabbath, M. Simon, and ſome others, call *paraſceva*.

PARASCHE, from פרש, *to divide*, a name which the Jews give to that portion of the Pentateuch which they read every ſabbath. They divide their five books of the law, not into chapters, as we do, but into fifty-four parts, which they call *paraſche*: and thus go through the whole in a year. To theſe they have added ſome verſes of the prophets, which they made uſe of under the perſecution of Antiochus Epiphanes, when they were prohibited the uſe of the law.

PARASCHIDES, a word uſed by chirurgical writers to expreſs the ſplinters of fractured bones, or the fragments of bones corroded by ſharp humours.

PARASEISMA, a ſort of exerciſe preſcribed by the Greek phyſicians in many caſes. It was a general concuſſion of the body.

PARASELENE, formed from παρα, *near*, and σεληνη, *moon*, in *Phyſiology*, a mock moon: a meteor, or phenomenon encompaſſing or adjacent to the moon, in form of a luminous ring; in which are ſometimes obſerved one, ſometimes two apparent images of the moon.

The paraſelenes are formed after the ſame manner as the parhelia, or mock-ſuns, by reflections of the moon from zones of denſe vapours that happen to be collected in the ſky.

Pliny mentions three moons, which were ſeen in the year of Rome 632. Eutropius alſo informs us, that he ſaw three moons at Rimini, in the year 234 before Chriſt. Hevelius alſo ſaw three moons at Dantzic, in 1660. And ſimilar phenomena have been obſerved at different times, by many others. Theſe paraſelenes have been ſeen, accompanied with tails and coloured circles, like thoſe which accompany the parhelia. An account of ſeveral, and a particular deſcription of a fine appearance of this kind, may be found in Muſchenbroeck's Introduction, p. 1046. See HALO and PARHELIUM.

PARASEMUM, παρασημον, among the ancients, a ſign painted or carved on the prow of ſhips, by which they were diſtinguiſhed from one another. The ſign was commonly the figure or picture of ſome animal, as the bull, lion, &c. or of any other thing, as a mountain, tree, flower, &c.

PARASIOPESIS, παρασιωπησις, in *Rhetoric*. See PARALEPSIS.

PARASITE, παρασιτος, among the Greeks, was originally a very reputable title: the paraſites being a kind of prieſts, or at leaſt miniſters of the gods; in the ſame manner, as at Rome were the epulones.

They took care of the ſacred corn; or the corn deſtined for the ſervice of the temples, and the gods; *viz.* ſacrifices, feaſts, &c. They had even the intendance over ſacrifices, and took care that they were duly performed. At Athens there was a kind of college of twelve paraſites; each people of Attica furniſhing one, who was always choſen out of one of the beſt families.

Polybius adds, that paraſite was alſo an honourable name among the ancient Gauls, and was given to their poets; but of late it has been made a term of reproach, and uſed for a flatterer and mean dependant.

PARASITE *Plants*, in *Gardening*, are all thoſe which are produced upon the trunks, branches, or any other parts of other plants or roots: and which, in ſome inſtances, will not take their growth in the ground, as in the caſes of miſletoe, various moſſes, and the fungus tribe in general, but not always.

The particular manner in which theſe ſorts of plants attach themſelves to thoſe of other kinds is not by any means conſtant or uniform. Some, ſuch as the miſletoe, moſſes, and fungi, are produced originally upon the plants on which they are found growing; the firſt of which grows upon the branches of large trees, principally from the under ſides of them multiplying and extending its roots underneath the bark; and its top branches or ſpreads out into a large head, which, for the moſt part, grows downwards in a hanging poſition, being nouriſhed wholly at the expence of the tree or plant upon which it grows: the moſſes, on the contrary, are in general diſperſed all over the ſurfaces of the ſtems and branches; and the fungi ſometimes fix themſelves upon the upper roots of old trees, and at others upon their trunks or ſtems.

There are other plants of this nature which ariſe from the ground, and the ſtems of which fix on and attach themſelves to the firſt plants which they meet with, or that come in their way, into which they ſtrike root, in conſequence of which the firſt or ground roots die, or are decayed, the plants continuing to live and nouriſh themſelves upon the plants into which they have ſtruck, and on which they are fixed.

And there are ſtill other kinds of this ſort of plants, which firſt root in the ground, their ſtems attaching themſelves to the bodies of trees or other ſubſtances within their reach, ſtriking their roots into their barks, or other matters, as they riſe or grow upon them; but ſtill continuing their ground roots, and drawing their chief nouriſhment from the earth. This is the caſe in the ivy kind of plants, and ſome others of a ſimilar nature and habit of growth.

Several of theſe plants are highly injurious and miſchievous to garden, fruit, and other trees, as the miſletoe and moſs, to thoſe of the apple kind; and the ivy, as well as ſometimes the funguſſes, both to fruit and foreſt trees. They ſhould therefore be conſtantly removed from them by the gardener as ſoon as they are perceived to have fixed or eſtabliſhed themſelves on them.

This, in the firſt or miſletoe kind, ſhould be done by cutting away the top parts, and then completely deſtroying the roots, while the plants are in an early ſtate of growth. And, in the moſs ſorts, by means of rubbing and ſcraping them off from the trunks and branches in a complete manner by a ſtiff bruſh, or ſome other way, afterwards waſhing them well with ſoft ſoap and water, then keeping the trees ſufficiently thinned out in their different parts.

The fungi about the roots of trees may be eaſily removed and deſtroyed by any ſort of ſlight digging of the ground near them.

PARASITEUM, among the ancients, a granary or place where the ſacred corn, deſigned for religious purpoſes, was preſerved. See Parasite.

PARASO, in *Geography*, a town of France, in the department of Golo (or iſle of Corſica,) and chief place of a canton, in the diſtrict of Calvi. The canton contains 2471 inhabitants.

PARASOL, a little moveable, in manner of a canopy, borne in the hand to ſcreen the head from the ſun, rain, &c. more uſually called *umbrella*.

It is made of leather, taffety, oil-cloth, &c. mounted on a ſtick, and opened or ſhut at pleaſure, by means of pieces of whalebone that ſuſtain it. The Eaſt Indians never ſtir without a paraſol.

The word is French; and that uſed againſt rains is ſometimes called *parapluie*.

PARASOPIAS, in *Ancient Geography*, a country of Greece, in Theſſaly, between Aſopus and Sparchius, and above Heraclea. Strabo.

PARASPHAGIS, a word uſed by ſome anatomical writers to expreſs that part of the neck which is contiguous to the clavicles.

PARASTATA, in *Ancient Architecture*, a kind of pier, or piedroit, ſerving as a defence or ſupport to a column or arch.

Mr. Evelyn makes the paraſtata the ſame with pilaſter. Barbaro, and others, the ſame with anta; and Daviler, the ſame with piedroit. See Pilaster.

PARASTATÆ, Epidydimidæ, in *Anatomy*. See Generation.

PARASTREMMA, a name given by medical writers to a convulſive diſtortion of the mouth, or of any part of the face.

PARASU RAMA, in *Hindoo Mythology*, is one of the ten grand incarnations of their deity Viſhnu. On this occaſion he was born the ſon of a pious Brahman named Jamadagni, and his wife Runeka. (See theſe articles.) This incarnation or avatara is ſaid to have taken place in Agra, for the purpoſe of relieving mankind from a military government, which had become inſupportably oppreſſive. Paraſu Rama fought twenty battles with one of the oppreſſive rajas, ſlew him, and extirpated the race. After a life ſpent in mighty and holy deeds, Rama gave his whole property in alms, and retired to the Kokan, or Concan, the low country between Surat and the Southern Cape, though not the whole extent of this tract, (ſee Concan,) where the Hindoos ſay he is ſtill living. In pictures, this Rama (for there are three of this name whoſe exploits form the ſubject of the Ramayana, to which article, and to Rama, the reader is referred,) is uſually repreſented two-armed, holding a battle axe and a lotus, combating his twenty-armed foe Raja Diruj. The epithet *paraſu*, diſtinguiſhingly prefixed to the name of this hero, means a *ſword*, and denotes his warlike character. Some authorities ſay that Rama was educated by Siva, and going one day to pay his reſpects on Kailaſa, he was prevented from entering by Ganeſa, whom he knew not. Enraged at his inſolence, he wrenched a ſcimeter from his hand, and cut off his head, and was hence ſurnamed *Paraſu*, the *cutter-off*. Ganeſa is a name of Pollear. See the latter article.

PARATECA, in *Geography*, a town of Brazil, in the Franciſco; 240 miles W. of St. Salvador.

PARATELLA, a town of Hindooſtan, in the circar of Condapilly; 5 miles N. of Condapilly.

PARATHENAR, in *Anatomy*, a name given by Winſlow to two muſcles of the foot. His parathenar major is that part of the abductor minimi digiti, which ariſes from the os calcis: the parathenar minor is the flexor brevis minimi digiti.

PARATHESIS, in the *Greek Church*, the prayer which the biſhop rehearſes over the catechumens, ſtretching his hands over them to give them benediction; and which they receive, bowing their heads under his hands.

Parathesis (popularly called *brackets* or *crotchets*) is alſo the name of a kind of point or mark, as [ ], uſed in writing, chiefly to include ſynonyma, explicatives, and the like matters, not eſſential to the diſcourſe. See Parenthesis.

Parathesis, in *Grammar*, *oppoſition*; or a figure whereby two or more ſubſtantives are put in the ſame caſe.

PARATHREMA, from παρα, and αρθρον, *a joint*, in *Surgery*, a luxation, or diſlocation. Alſo, a tumour cauſed by a protruſion of parts; a rupture, or hernia.

PARATI, in *Ichthyology*, the name of a Braſilian fiſh of the mullet kind, much reſembling that ſpecies called *curema*, or *taintra*, in all reſpects but ſize, and in the colour of its eyes, the iris of which, inſtead of the ſilvery colour it has in the curema, is of a fine yellow. Its fleſh alſo, when dreſſed, is drier than that of the *curema*, which ſee.

PARATIANÆ, in *Ancient Geography*, a town of Africa, in Mauritania Cæſarienſis, on the route from Lemna to Hippona, between Ruſicades and Calucitena, according to the Itin. of Antonine.

PARATILMUS, in the *Ancient Greek Juriſprudence*, a name a name given to a ſort of puniſhment impoſed on adulterers, who were poor, and unable to ſtand the common penalty.

It conſiſted either in making them run a horſe-radiſh up the anus, which they called αποῤῥαφανιδωσις; or in tearing up by the roots the hair about the pudenda, which they called παρατιλμος, of ϖαρατιλλειν, *to tear, pluck up.*

PARATINGA, in *Geography*. See Xingu.

PARATITLES, Paratitla, in *Juriſprudence,* ſhort notes, or ſummaries of the titles of the Digeſt and Code; which have been made by ſeveral lawyers, in order to compare and examine the connexion of the ſeveral parts with one another.

We have paratitles of Cujas, of Maran, &c. Chaſſaneus has a ſecond comment on the paratitles of Cujas.

PARATOLA, in *Geography*, a town of Bengal; 8 miles S.S.E. of Iſlamabad.

PARATOUNKA, an oſtrog of Kamtſchatka, on a river which runs into the Avatcha; 10 miles W. of St. Peter and St. Paul.

PARAVAIL, Paravaile, in *Law*, the loweſt tenant of a fee; or he that is immediate tenant to the land.

He is called *tenant paravail,* becauſe, it is preſumed, he hath profit and avail by the land. See Tenant.

PARAVANGAH, in *Geography*, two ſmall iſlands near the coaſt of Bengal. N. lat. 22° 50′. E. long. 89° 35′.

PARAVANI, a town of Turkiſh Armenia; 50 miles S.S.E. of Akalziké.

PARAUTE, a town of South America, in the province of Venezuela, on lake Maracaybo; 80 miles S. of Venezuela.

PARAWA, a town of India, on the route from Agra to Oujein; 14½ miles N.W. from Sooſneer. The ſoil in its vicinity is black and ſpongy, like moſt of Malava or Malwa, but little cultivated. The diſtrict dependent on this town yields one lack of rupees annually. Aſiat. Reſ. vol. vi. p. 62.

PARAY-*le-Monias*, a town of France, in the department of the Saone and Loire, and chief place of a canton, in the diſtrict of Charolles, near the river Bourbinec; 6 miles W. of Charolles. The place contains 2848, and the canton 7258 inhabitants, on a territory of 235 kiliometres, in 12 communes. N. lat. 46° 27′. E. long. 4° 12′.

PARAZONIUM, ϖαραζωνιον, or *Scipio*, among *Medaliſts*, a ſceptre rounded at the two ends in manner of a truncheon, or commander's ſtaff; or a kind of poignard, or ſhort ſword, repreſented as worn at the girdle, on ſeveral ancient medals.

Antiquaries are much divided on the explication of the parazonium; as, indeed, the form and manner of bearing it are very different. It is ſometimes thrown acroſs the ſhoulders in manner of a quiver.

PARBOILING, in *Pharmacy*, &c. a term applied to fruits, herbs, &c. which are boiled a little while, to draw out the firſt juices, in order to be afterwards inſpiſſated or thickened. See Boiling.

PARBOSENA, in *Ancient Geography*, a town of Aſia, in the environs of Cappadocia, upon the route from Tavia to Sebaſte, between Sibora and Carniana, according to the Itinerary of Antonine.

PARBUCKLE, in *Seamanſhip*, a contrivance uſed by ſailors as a ſubſtitute for a crane or tackle. It is formed by faſtening the *bight* of a rope to the place from whence the weight, ſuch as a caſk or bale, is to be raiſed or lowered; the two parts of the rope are then paſſed under the quarters of the caſk, and bringing them back again over it, the ends of the rope are hauled upon to raiſe the weight, or gradually ſlackened together, and the caſk or bale ſuffered to roll eaſily downwards to whatſoever may receive it below.

PARCÆ, ſo called, ſays Servius, on the fourth eclogue of Virgil, by antiphraſis, becauſe they ſpare nobody, *quod nemini parcant*, goddeſſes who, according to the ancient Pagan theology, preſide over the periods or durations of human lives. Theſe the ancients frequently confounded with the Fates, or Deſtinies; and, in effect, the Parcæ, according to Plato, were the daughters of Neceſſity and Deſtiny. According to Heſiod, they were the daughters of Jupiter and Themis, by whom he had alſo the Seaſons; but in another place he ſays, they were the offspring of Night and Erebus.

The Parcæ were three, Clotho, Lacheſis, and Atropos; becauſe, forſooth, all things have their beginning, progreſs, and end. Hence the poets tell us, the Parcæ ſpun the thread of men's lives; that Clotho held the diſtaff, and drew the thread; Lacheſis twirled the ſpindle, and ſpun it; and Atropos cut it:

> "Clotho colum retinet, Lacheſis net, & Atropos occat."

The ancients repreſent the Parcæ divers ways: Lucian, in the ſhape of three poor old women, having large locks of wool, mixed with daffodils, on their heads; one of which holds a diſtaff, the other a wheel, and the third a pair of ſciſſars, with which to cut off the thread of life. Others repreſent them otherwiſe; Clotho appearing in a long robe of divers colours, wearing a crown upon her head, adorned with ſeven ſtars, and holding the diſtaff in her hand; Lacheſis in a robe beſet with ſtars, with ſeveral ſpindles in her hand; and Atropos, clad in black, cutting the thread with large ſciſſars.

The ancients imagined, that the Parcæ uſed white wool for a long and happy life; and black for a ſhort and unfortunate one.

Pauſanias ſays, that theſe goddeſſes had ſome temples in Greece, and ſtatues in ſeveral places. He informs us, that in the city of Olympia, there was an altar conſecrated to Jupiter, the inventor of the Parcæ, near which theſe goddeſſes had another; and from the ſame author we learn, that among the other figures upon Cypſelus's cheſt, was to be ſeen that of a kind of monſter, with a wild and ſavage air, great tuſks, and crooked hands, which was known to be a Parca from an inſcription upon it.

PARCAS, in *Geography*, a town of Walachia; 16 miles S. of Brancovani.

PARCAY, a town of France, in the department of the Mayne and Loire; 12 miles S.E. of Baugé.

PARCE′, a town of France, in the department of the Sarthe; 6 miles E. of Sablé.

PARCEL-Makers, two officers in the exchequer, who make parcels of the eſcheator's accounts, wherein they charge them with every thing that they have levied for the king's uſe, within the time of their office, and deliver the ſame to one of the auditors of the court to make their accompts therewith.

Parcels, *Bill of*. See Bill.

PARCELLING, Rigging, in *Ship Building*, long narrow ſlips of canvas payed or dipt in ſoft tar, which are bound round the ſurface of ropes in ſpiral turns, as ſmoothly as poſſible, before it is *ſerved*, that the rope may not be uneven, or full of ridges, and to further preſerve it from the injuries of weather, &c.

Parcelling *a Seam*, is laying a ſlip of canvas, prepared as above, over the ſeam, firſt paying under it, and then over it, with ſoft tar or melted pitch. This ſhould be always performed when ſeams are covered by the cheeks of the heads, &c. or, what is better, covered with ſheet copper.

PARCELOR, in *Geography*, a mountain of Aſia, on the coaſt of Salengore, near the ſtraits of Malacca. N. lat. 2° 45'. E. long. 101° 29'.

PARCENERS, quaſi *Parcellers*. See CO-PARCENERS.

Parceners are ſo called, ſays Littleton (§ 309.), becauſe they may be conſtrained to make *partition*, of which there are ſeveral kinds. (See PARTITION.) The properties of parceners are, in ſome reſpects, like thoſe of *joint-tenants* (ſee that article); as they have the ſame unities of intereſt, title, and poſſeſſion. They may ſue and be ſued jointly for matters relating to their own lands (Co. Litt. 164); and the entry of one of them ſhall, in ſome caſes, enure as the entry of them all. (Ibid. 188, 243.) They cannot have an action of treſpaſs againſt each other; but herein they differ from joint-tenants, that they are alſo excluded from maintaining an action of waſte (2 Inſt. 403); for co-parceners could at all times put a ſtop to any waſte by writ of partition, but till the ſtatute of Henry VIII. joint-tenants had no ſuch power. Parceners alſo differ materially from joint-tenants in other points. 1. They always claim by deſcent, whereas joint-tenants always claim by purchaſe. 2. There is no unity of time neceſſary to an eſtate in co-parcenary. 3. Parceners, though they have an unity, have not entirety, of intereſt.

PARCHIM, in *Geography*, a town of the duchy of Mecklenburg, on the Elda, which divides it into New and Old Town, in each of which is a church. The number of inhabitants is about 3000; 34 miles S. of Wiſmar. N. lat. 53 28'. E. long. 11° 55'.

PARCHMENT, in *Commerce*, &c. ſheep or goats' ſkin prepared after a peculiar manner, which renders it proper for ſeveral uſes; particularly for writing on, and for the covering of books, &c.

The word comes from the Latin *Pergamena*, the ancient name of this manufacture; which it is ſaid to have taken from the city of Pergamos, to Eumenes, king whereof, its invention is uſually aſcribed; though, in reality, that prince appears rather to have been the improver than the inventor of parchment; for the Perſians of old, according to Diodorus, wrote all their records on ſkins; and the ancient Ionians, as we are told by Herodotus, made uſe of ſheep-ſkins and goat-ſkins in writing, many ages before Eumenes's time. Nor need we doubt, that ſuch ſkins were prepared and dreſſed for that purpoſe, after a manner not unlike that of our parchment, though, probably, not ſo artificially. Vide Diod. Sicul. lib. ii. p. 84. Herodot. lib. v. Prid. Connect. part i. lib. vii. p. 708.

Dr. Prideaux is a ſtrenuous advocate for the antiquity of parchment; and he imagines that the authentic copy of the law which Hilkiah found in the Temple, and ſent to king Joſiah, was formed of this material; becauſe no other uſed for writing, parchment excepted, could be of ſo durable a nature as to laſt from the time of Moſes till that period, for eight hundred and thirty years. But it has been replied to this argument, that the Egyptians wrote on linen thoſe things which they deſigned for long duration; and thoſe who have examined mummies with attention, aſſure us, that the characters ſo written continue to this day. It is not, therefore, improbable, that a copy of the law of Moſes, written after this manner, might have laſted eight hundred and thirty years. Beſides, it is not very likely that thoſe ſkins which were uſed, according to the teſtimony of Diodorus and Herodotus, by the Perſians and Romans for writing, long before the time of Eumenes, were dreſſed like parchment. They muſt have been prepared in a much ruder manner, and have little reſembled the parchment, of which Eumenes is ſaid to be the inventor; becauſe. if it had been found out before, it would have rendered the want of the Egyptian papyrus no inconvenience to that prince. Such ſkins might do for records, and for ſome occaſional writings, but would have been by no means proper for books. Hence ſome writers have concluded, that parchment was a later invention than the Egyptian paper.

Parchment conſtitutes a very conſiderable article in the French commerce; it is made in moſt of their cities; and, beſides the conſumption at home, they ſend vaſt quantities abroad, particularly to England, Flanders, Holland, Spain, and Portugal.

That called *virgin* parchment is ſomewhat thinner and finer than the reſt; and is moſt proper for certain purpoſes, as fans, &c. and made of the ſkin of an abortive lamb, or kid.

PARCHMENT, *Manufacture of*. The ſkin having been ſtript of its wool, and having paſſed the lime-pit (after the manner deſcribed under the article SHAMMY), the ſkinner ſtretches it on a kind of frame, conſiſting of four pieces of wood, mortiſed into each other at the four angles, and perforated lengthways from diſtance to diſtance, with holes furniſhed with wooden pins, that may be turned at pleaſure, like thoſe of a violin.

To ſtretch the ſkin on this frame, they make little holes all around it, and through every two holes draw a little ſkewer; to this ſkewer they tie a ſmall piece of pack-thread, and tie that over the pins; ſo that coming to turn the pins equally the ſkin is ſtrained tight every way, like that of a drum.

The ſkin being thus ſufficiently ſtretched on the frame, the fleſh is pared off with a ſharp inſtrument for that purpoſe; this done, it is moiſtened with a rag; and a kind of white ſtone, or chalk, reduced to a fine duſt, is ſtrewed over it: then, with a large pumice-ſtone, flat at bottom, much after the manner of a mullet for grinding colours, they rub over the ſkin as if about to grind the chalk; and thus they ſcour off the remains of the fleſh. Then they go over it again with the iron inſtrument; again moiſten it as before, and again rub it with the pumice-ſtone without any chalk underneath; this ſmoothens and ſoftens the fleſh-ſide very conſiderably. They then drain it again, by paſſing over it the iron inſtrument as before.

The fleſh-ſide being thus drained, they paſs the iron on the wool or hair-ſide; then ſtretch it tight on the frame, by means of the pins, and go over the fleſh-ſide again with the iron; this finiſhes its draining; and the more the ſkin is drained, the whiter it always becomes.

They now throw on more chalk, ſweeping it over with a piece of lamb-ſkin that has the wool on; this ſmoothens it ſtill farther, and gives it a white down or knap. It is now left to dry, and when dried it is taken off the frame, by cutting it all round.

The ſkin, thus far prepared by the ſkinner, is taken out of his hands by the parchment-maker, who firſt ſcrapes or pares it dry on the ſummer with an iron inſtrument like that above-mentioned, only finer and ſharper; with this, worked with the arm from top to bottom of the ſkin, he takes away about one-half of its thickneſs. The ſkin, thus equally pared on both ſides, they paſs the pumice-ſtone over both ſides, to ſmoothen it. This laſt preparation is performed on a kind of form or bench covered with a ſack ſtuffed with flocks, and it leaves the parchment in a condition for writing on.

The paring of the ſkin dry on the ſummer is the moſt difficult preparation in the whole proceſs of parchment-making; for which reaſon, the ſkinners ſeldom dare meddle with it, but uſually leave it to thoſe more experienced in it; the ſummer, whereon it is performed, is a calf-ſkin well-ſtretched on a frame, ſerving as a ſupport to the ſkin, which is faſtened a-top of it with a wooden inſtrument, that has a notch cut in it. Laſtly, that the iron knife may paſs the eaſier between the ſummer and the ſkin to be pared, they put another ſkin, which they call the counter-ſummer. The parings, thus taken off the ſkin, are uſed in making glue, ſize, &c.

What we call *vellum*, is only parchment made of the ſkins of abortive calves, or, at leaſt, of ſucking calves; it is finer, whiter, and ſmoother, than the common parchment; but it is prepared in the ſame manner as that, except that it is not paſſed through the lime-pit.

Parchment, *To make a green tranſparent.* Waſh the parchment in cold ley, till it come clear from it; then ſqueeze out the liquor as much as poſſible; and if you would have it of a fine green colour, take diſtilled verdigris, ground with vinegar, and add a little ſap-green to it; temper it neither too thick nor too thin; then ſoak your parchment in this colour thoroughly a whole night; rinſe it afterwards in water, ſtrain it immediately on a frame, and ſet it to dry; take clear varniſh, lay it on both ſides, ſet it in the ſun to dry; after this cut the parchment out of the frame into leaves, as large as you pleaſe, and lay them in a book under preſs, to keep them fine and ſtraight. The effect of this parchment is to make a ſmall letter, when put over it, appear as big again; and it is a great preſerver of the eyes, eſpecially to thoſe that read much by candle-light. The varniſh muſt be prepared of linſeed-oil, and boiled with frankincenſe, maſtich, and ſandarac.

If you would have the parchment of a clear, tranſparent, and white colour, only waſh, ſtrain, and varniſh it, as above. If you would colour it yellow, ſteep your parchment, after it has been waſhed, in a yellow liquid, made of ſaffron; for which purpoſe, tie ſaffron in a thin linen rag, hang it in a weak ley, and warm it over a ſlow fire; and when you ſee the ley tinctured yellow, it is fit for uſe.

For a tranſparent red.—Take brazil, as much as you will: put it into a hot ley, which is clear, and not too ſtrong, and it will tincture the ley of a fine red; then pour to it about half an egg-ſhell full of clean wine; draw the parchment through the colour; and when it is as deep as you would have it, ſtrain it as before.

For a blue.—Take Lombard indigo, grind it with vinegar on a ſtone, and mix ſal ammoniac among it, to the quantity of a pea; with this wet your parchment, and proceed as has been directed for the green.

For a violet or purple Colour.—Temper two-thirds of the above red, and one-third of the blue, and uſe it as before directed.

For a black Colour.—Take Roman alum, beat it into powder, and boil it in rain-water to a fourth part; add Roman vitriol, or atrament, with ſome Roman galls, and boil them together: with this ſtain your parchment twice or three times over; and, when dry, lay the Spaniſh varniſh over it.

N. B. With theſe tranſparent parchments you may make curious bindings. One ſort, uſed at Rome, is made thus: lay the board or paſteboard over with leaf-gold, leaf-ſilver, ſtanial, metal-leaves, &c. then binding the parchment over it, it will give it an uncommon luſtre and beauty.

Dr Lewis informs us, that, in order to render the ink durable on parchment, a thick piece of it ſhould be ſteeped in water, with ſome oak-bark, for three or four days, and then preſſed ſmooth and dried. When the ſurface of this parchment was pared off, and the internal part written upon, the characters continued of a good black, while thoſe made with the ſame ink, on unprepared parchment, were changed into a yellowiſh-brown. Vellum may alſo be treated in the ſame manner.

It is ſaid, that writing upon parchments decayed by time, may be recovered, and rendered legible, by dipping the obliterated parchment into a veſſel of cold water, freſh drawn from the well; let it be taken out in about a minute, and preſſed between two papers, in order to prevent its crumpling up in drying. As ſoon as it is moderately dry, if it be not legible, repeat the operation two or three times.

Parchment, *Roll of.* See Roll.

PARCHOUR, in *Geography*, a town of Hindooſtan, in the circar of Guntoor; 18 miles S. of Guntoor.

PARCHWITZ, a town of Sileſia, in the principality of Liegnitz, and capital of a prefecturate, containing two Lutheran churches, and a Roman Catholic chapel, and alſo a manufacture of cloth; 10 miles N.E. of Liegnitz. N. lat. 51° 15′. E. long. 16° 20′.

PARCIEUX, Anthony de, in *Biography*, a French mathematician, and member of the Academy of Sciences, was born in the dioceſe of Uzes in 1703. He taught the mathematics at Paris with great reputation, and died there in 1768. His works are "A Treatiſe of Trigonometry," "Eſſays on the Probability of the Duration of Life," and "Memoirs on the Practicability of bringing to Paris the Water of the River d'Yvette." Of the tables of M. Parcieux on the probability of life, great uſe has been made by the writers on the doctrine of annuities. He had a nephew of the ſame name, who was educated at the college of Navarre at Paris, where he ſtudied mathematics and philoſophy, and, at the age of 24, gave public lectures. In 1779 he began a courſe of experimental philoſophy, in the military ſchool of Brienne; after which, he occupied the philoſophical profeſſorſhip at the Lyceum in Paris, where he died in 1798. He wrote an elementary book on Geometrical and Aſtronomical Calculations; and in his youth he is ſaid to have compoſed a tragedy, entitled "Ozorio."

PARCO Fracto, or *Pound-breach*, in *Law*, a writ which lies againſt him who violently breaks open a pound, and takes out beaſts thence, which, for ſome treſpaſs done, were lawfully impounded. See Pound.

PARCOL, or Parcoul, in *Geography*, a lake of Thibet; 25 miles in circumference. N. lat 43° 22′. E. long. 92° 42′.

PARCOS, a town of Peru, in the dioceſe of Guamanga; 25 miles N.E. of Guancavelica.

PARCOU, a town of France, in the department of the Lower Charente; 12 miles E. of Montlieu.

PARCOW, a town of Auſtrian Poland, in Galicia; 36 miles N.N.E. of Lublin.

PARDALIS, in *Zoology*. See Felis *Pardalis.*

PARDALUS, in *Ornithology*. See Tringa *Squatarola.*

PARDANTHUS, in *Botany*, ſo named by Mr. Ker, from παρδος, *a panther*, and ανθος, *a flower;* in alluſion to the beautifully ſpotted tawny-coloured corolla. Ker (late Gawler) in Ann. of Bot. v. 1. 246. Ait. Hort. Kew. ed. 2. v. 1. 122.—Claſs and order, *Triandria Monogynia.* Nat. Ord. *Enſatæ*, Linn. *Irides*, Juſſ.

Gen. Ch. *Cal.* none, unleſs the bracteas be taken for ſpathas. *Cor.* of one petal, ſuperior, wheel-ſhaped, regular, divided to the baſe into ſix equal ſegments, ſpirally twiſted in decay. *Stam.* Filaments three, ſhorter than the corolla, inſerted into the baſe of three of its ſegments, nearly ſtraight, ſpreading; anthers oblong, vertical, ſomewhat approaching each other. *Piſt.* Germen roundiſh; ſtyle thread-ſhaped, aſcending, the length of the filaments; ſtigmas three, ſpreading, dilated, involute, two-lipped. *Peric.* Capſule obovate-oblong, coriaceous, obſcurely triangular, of three cells and three valves, the valves at length revolute. *Seeds* numerous, globoſe, pulpy, inſerted in three double rows upon the edges of a triangular, central, unconnected *receptacle.*

Eſſ. Ch. Corolla regular, divided to the baſe into ſix equal ſpreading ſegments. Capſule with many globoſe, pulpy ſeeds, inſerted into a central, unconnected, triangular receptacle.

1. P. *chinenſis* Chineſe Panther-flower. (Ixia chinenſis; Linn. Sp. Pl. 52. Curt. Mag. t. 171. Gærtn. t. 13. Trew Ehret. t. 52. Moræa chinenſis; Thunb. Mor. n. 19. Willd. Sp. Pl. v. 1. 245. Belamcanda chinenſis; Redout. Liliac. t. 121.)—Native of the Eaſt Indies, China, and Japan. Hardy with us in the open ground, flowering in June and July. *Root* tuberous, perennial. *Stems* ſeveral, about three feet high, round, leafy, ſmooth, panicled at the ſummit. *Leaves* equitant, ſword-ſhaped, pointed, ſtriated, light green, about a foot long. *Flowers* ſeveral, terminal, erect, ſtalked, with ſheathing tumid *bracteas*, very ſhort-lived, inodorous, an inch and half wide, of a pale tawny orange, elegantly ſpeckled with a deeper or reddiſh colour. This *flower* appears to be a favourite with the Chineſe, and is often repreſented on their paper-hangings and ſcreens.

PARDELA, in *Ornithology*. See PROCELLARIA *Capenſis*.

PARDIES, IGNATIUS-GASTON, in *Biography*, a French Jeſuit, and ingenious mathematician and philoſopher, was born in Bearn in the year 1636. He entered the ſociety of Jeſuits when he was about the age of 16, and applied himſelf ſo diligently and ſucceſsfully to his ſtudies, that he was appointed tutor in polite literature, and compoſed many pieces in proſe and verſe, diſtinguiſhed by delicacy of thought and elegance of ſtyle, while he was very young. The bent of his mind was, however, turned to philoſophical and mathematical ſtudies; and to theſe he devoted himſelf with ſo much ardour, that in a ſhort time he made himſelf maſter of the principles of the Peripatetic and Carteſian philoſophy, and became highly eſteemed as a profeſſor of them. Having diſplayed great ſkill in the ſpeculative ſciences, in different provinces, he was called to Paris, to be profeſſor of rhetoric in the college of Lewis the Great. Here he acquired celebrity, and the moſt ſanguine hopes were formed of him, which, however, were blaſted by his early death in 1673, when he was only in the 37th year of his age. This melancholy event was attributed to a malignant diſorder, which he caught while zealouſly diſcharging the duties of preacher and confeſſor at the Bicêtre, during the feſtival of Eaſter. He wrote with neatneſs and conciſeneſs, and in a very good ſtyle. His principal works are "Horologium Thaumaticum Duplex;" "Diſſertatio de Motu et Natura Cometarum;" "A Diſcourſe on local Movement;" "Elements of Geometry;" "A Diſcourſe concerning the Knowledge of Beaſts;" "Statiſtics, or the Science of moving Forces;" "Deſcription and Explanation of two Machines, for facilitating the Conſtruction of Sun-dials." The greateſt part of Pardies' works was printed in a collective form at the Hague, in 1691; and afterwards at Lyons, in 1725. He had a diſpute with ſir Iſaac Newton, concerning his "New Theory of Light and Colours;" and his Letters are preſerved in the Philoſophical Tranſactions for the year 1672.

PARDISIUM, in *Botany*, Burm. Prodr. Fl. Capenſ. 26. Juſſ. 190, is corrected by Linnæus in his copy of Burmann into *Perdiſium*. It ſeems on examination to be his own *Perdicium ſemifloſculare*, Sp. Pl. 1248, of which Juſſieu had no ſuſpicion.

PARDO, or PARDAO, in *Commerce*, a ſilver coin, and money of account, at Goa. A pardo is worth four good tangas, or five bad. The pardo is divided into 300 reas. The ſilver coins are the pardo xeraphim of five good tangas, and the common pardo of four good tangas.

PARDO, in *Geography*, a river of Paraguay, which runs into the Parana.

PARDON, in *Law*, a remiſſion or forgiveneſs of a felonious or other offence, againſt the king, or the laws.

This, our lawyers make twofold: the one, *ex gratia regis;* the other, *per cours de ley*. The firſt is that which the king, out of ſome ſpecial regard to the perſon, or ſome other circumſtance, grants, by his abſolute prerogative or power, either before conviction of the offender, or after.

This power of pardoning is the moſt amiable prerogative of the crown. It was ſaid by our Saxon anceſtors, (L.L. Edw. Conf. c. 18.) to be derived "a lege ſuæ dignitatis;" and it is declared in parliament by ſtatute 27 Hen. VIII. c. 24, that no other perſon hath power to pardon or remit any treaſon or felonies whatſoever; but that the king hath the whole and ſole power thereof, united and knit to the imperial crown of this realm.

Judge Blackſtone obſerves, that this is one of the great advantages of monarchy in general, above any other form of government; that there is a magiſtrate, who has it in his power to extend mercy, wherever he thinks it is deſerved; holding a court of equity in his own breaſt, to ſoften the rigour of the general laws, in ſuch criminal caſes as merit exemption from puniſhment. Some theoriſts, however, maintain, that pardons ſhould be excluded in a perfect legiſlation, where puniſhments are mild, but certain; becauſe the clemency of the prince ſeems to be a tacit diſapprobation of the laws. But the excluſion of pardons muſt neceſſarily introduce a very dangerous power in the judge or jury, that of conſtruing the criminal law by the ſpirit inſtead of the letter (ſee Beccaria, ch. 4. and 46.); or elſe it muſt be holden, what no man will ſeriouſly avow, that the ſituation and circumſtances of the offender, though they alter not the eſſence of the crime, ought to make no diſtinction in the puniſhment. In democracies, however, this power of pardon can never ſubſiſt; for there nothing higher is acknowledged than the magiſtrate who adminiſters the laws; and it would be impolitic for the power of judging and of pardoning to centre in one and the ſame perſon. This, as Monteſquieu obſerves, (Sp. of Laws, book vi. c. 5.) would oblige him very often to contradict himſelf, to make and unmake his deciſions: it would tend to confound all ideas of right among the maſs of the people; as they would find it difficult to tell, whether a priſoner were diſcharged by his innocence, or obtained a pardon through favour. In monarchies, the king acts in a ſuperior ſphere; and though he regulates the whole government as the firſt mover, yet he does not appear in any of the diſagreeable or invidious parts of it. Whenever the nation ſees him perſonally engaged, it is only in works of legiſlature, magnificence, or compaſſion. To him, therefore, the people look up as the fountain merely of bounty and grace; and theſe repeated acts of goodneſs, proceeding immediately from himſelf, endear the ſovereign to his ſubjects, and contribute more than any thing to root in their hearts that filial affection, and perſonal loyalty, which are the ſure eſtabliſhment of a prince. In the exerciſe of this prerogative, however, the ſovereign ſhould be directed by a ſound diſcretion and impartial judgment, and alſo by wiſe and upright counſellors;

ſellors; and the occaſions for the exerciſe of it ſhould be rendered as few and unfrequent as poſſible, by mitigating the ſeverity of our criminal laws, and leſſening their number, and making the penalties annexed to the violation of them more definite and certain.

A pardon may be pleaded in arreſt of judgment; in which caſe it has the ſame advantage, as when pleaded upon arraignment, *viz.* the ſaving the attainder, and of courſe the corruption of blood, which nothing can reſtore but parliament, when a pardon is not pleaded till after ſentence. And certainly, on all accounts, when a man hath obtained a pardon, he is in the right to plead it as ſoon as poſſible.

With regard to the object of pardon, judge Blackſtone obſerves, that the king may pardon all offences merely againſt the crown, or the public; excepting, 1. That, to preſerve the liberty of the ſubject, the committing any man to priſon out of the realm is, by the habeas corpus act, made a præmunire, unpardonable even by the king. Nor, 2. Can the king pardon, where private juſtice is principally concerned in the proſecution of offenders; therefore, in *appeals* (which ſee,) of all kinds, (which are the ſuit not of the king, but of the party injured,) the proſecutor may releaſe, but the king cannot pardon. (3 Inſt. 237.) Neither can he pardon a common nuiſance, while it remains unredreſſed, or ſo as to prevent an abatement of it; though afterwards he may remit the fine. (2 Hawk. P. C. 391.) Neither, laſtly, can the king pardon an offence againſt a popular or penal ſtatute, after information brought; for thereby the informer hath acquired a private property in his part of the penalty. (3 Inſt. 238.) Nor, farther, can the king's pardon be pleaded to any parliamentary impeachment, ſo as to impede the enquiry, and ſtop the proſecution of great and notorious offenders. It was enacted by the act of ſettlement (12 & 13 W. III. c. 2.), that no pardon under the great ſeal of England ſhall be pleadable to an impeachment by the commons in parliament. But after the impeachment has been ſolemnly heard and determined, it is not underſtood, that the king's royal grace is farther reſtrained and abridged.

As to the manner of pardoning, it muſt be under the great ſeal, and it is a general rule, that wherever it may be reaſonably preſumed the king is deceived, the pardon is void; ſo that any ſuppreſſion of truth, or ſuggeſtion of falſhood, in a charter of pardon, will vitiate the whole; for the king was miſinformed. (3 Inſt. 238.) Generally, words have alſo a very imperfect effect in pardons. A pardon of all felonies will not pardon a conviction or attainder of felony, but theſe muſt be particularly mentioned. (2 Hawk. P. C. 383.) Nor will a pardon of felonies include piracy, which is not puniſhable at the common law. (1 Hawk. P. C. 94.) It is alſo enacted by 13 Ric. II. ſt. 2. c. 1. that no pardon for treaſon, murder, or rape, ſhall be allowed, unleſs the offence be particularly ſpecified; and in murder it ſhall be expreſſed, whether it was committed by lying in wait, aſſault, or malice prepenſe.

A pardon may be conditional, or the king may extend his mercy upon what terms he pleaſes. (2 Hawk. P. C. 394.) It may alſo be obſerved, that a pardon, by act of parliament, is more beneficial than by the king's charter; for a man is not bound to plead it, but the court muſt *ex officio* take notice of it (Inſt. 43.): neither can he loſe the benefit of it by his own laches or negligence, as he may of the king's charter or pardon. (2 Hawk. P. C. 397.) The effect of ſuch pardon by the king, is to make the offender a new man; to acquit him of all corporal penalties and forfeitures annexed to that offence, for which he obtains pardon, and to give him a new credit and capacity. Blackſt. Com. book iv.

PARDON *by courſe of Law*, is that which the king grants as the law and equity perſuades, for a ſlight offence; as homicide, caſual, &c.

PARDON, *Charter of.* See CHARTER.

PARDON *for diſcovering Accomplices*, &c. See APPROVER and DISCOVERY *of Accomplices.*

PARDON, in the *Canon Law*, is an indulgence which the pope grants to ſuppoſed penitents, for remiſſion of the pains of purgatory, which they have merited for the puniſhment of their ſins.

The grand time for the diſpenſation of pardons is the jubilee.

In this ſenſe, pardon is properly the angelic ſalutation, ſaid to the Virgin at the ſound of three little ſtrokes of a bell, rung in the morning, at noon, and night, in order for the perſon to be entitled to indulgences.

PARDONERS, in our *Ancient Cuſtoms*, were perſons who carried about the pope's indulgences, and ſold them to the beſt bidders.

PARDOS, or POMPENNY, in *Geography*, a town of Africa, in the diſtrict of Anta, on the Gold Coaſt.

PARDOUX, ST., a town of France, in the department of the Two Sevres; five miles S.S.W. of Partenay.

PARDOUX *la Rivière, St.*, a town of France, in the department of the Dordogne, and chief place of a canton, in the diſtrict of Nontron; four miles S.E. of Nontron. The place contains 1273, and the canton 7860 inhabitants, on a territory of 217½ kiliometres, in ſeven communes.

PARDUBITZ, a town of Bohemia, in the circle of Chrudim, ſituated on the Elbe, well-built and fortified, in which is a manufacture of knives and ſword-blades; five miles N. of Chrudim. N. lat. 49° 55′. E. long. 15° 40′.

PARDUS, in *Zoology*. See FELIS *Pardus.*

PARDUS, in *Conchology*, a name given by authors to a kind of ſhells, of the genus of the volutæ. We have three kinds of this ſhell. 1. A voluta ſpotted with black. 2. Another ſpotted with yellow. And, 3. A very elegant one ſpotted with a reddiſh-colour. They are called *pardi*, or leopard-ſhells, from their diſtinct ſpots reſembling thoſe on the ſkin of a leopard.

PARE′, AMBROSE, in *Biography*, a French ſurgeon of eminence, was born at Laval, in the diſtrict of the Maine, in the year 1509. He commenced the ſtudy of his profeſſion early in life, and practiſed it with great zeal both in hoſpitals and in the army; in the latter he held an appointment, under the captain-general of infantry, in 1536. Subſequently his reputation roſe very high, and he was appointed ſurgeon in ordinary to king Henry II. in 1552; and he held the ſame office under the ſucceeding kings, Francis II., Charles IX., and Hen. III. To Charles IX. eſpecially he is ſaid to have conferred great profeſſional benefits, eſpecially on one occaſion, when ſome formidable ſymptoms had been produced by the accidental wound of a tendon in veneſection, which he ſpeedily removed. His ſervices appear to have been amply acknowledged by the king; for as Paré was a Huguenot, he would have been included in the horrible maſſacre of St. Bartholomew's, had not the king ſent for him on the preceding night, and ordered him not to leave the royal chamber. After having been long eſteemed as the firſt ſurgeon of his time, and beloved for his private virtues, he died in the year 1590, at the age of eighty-one.

Paré was not a man of learning, and was even obliged to requeſt a phyſician to make a French tranſlation of ſome of the books of Galen, which he wiſhed to conſult. Nevertheleſs there are an affectation of much learned reference, and numerous quotations from the ancients, in his writings, which have added nothing to his reputation. There is ſome juſtice in the remark of Van Hoorne, that Paré would have done better, if he had limited his publication to a ſmall volume, containing only the records of his own obſervation and experience. He muſt be conſidered, however, as a man of original mind, and a real improver of his art; and as having greatly facilitated and extended the application of ſeveral principles of practice, which, according to his own acknowledgment, he derived from the Italian writers and practitioners. Though he did not invent, he greatly promoted, the practice of tying divided arteries, which he effected by drawing them out naked, and paſſing a ligature over them. He was the author of a great improvement in the treatment of gun-ſhot wounds, by adopting a lenient method, and rejecting irritants and cauterizations, which were employed by his contemporaries. He was alſo a bold and ſucceſsful operator, and records many inſtructive caſes, in which he diſplayed all the reſources of an enlightened ſurgeon. He did not, however, greatly excel in anatomy, though he had practiſed diſſections; and was chiefly a borrower from the works of Veſalius in this department of ſcience, though not without ſome obſervations of his own.

Paré was the author of ſome works, which were univerſally read and tranſlated into moſt of the languages of Europe. His firſt treatiſe, "Manière de traiter les playes faites par harquebuſes, fleches, &c." was publiſhed at Paris in 1545, and again in 1552 and 1564. He afterwards laboured ſtrenuouſly to put his brethren in poſſeſſion of a body of ſurgical ſcience in their native tongue; and in 1561 publiſhed the firſt edition of his works, in folio. Numerous editions were afterwards printed at Paris and alſo at Lyons; and his pupil, Guillemeau, who was alſo ſurgeon to Charles IX. and Henry IV., tranſlated theſe works into Latin. This tranſlation has been frequently reprinted at various places, with the title of "Ambroſii Paræi, Opera, novis iconibus elegantiſſimis illuſtrata, et Latinitate donata." This volume contains twenty-ſix treatiſes, and there is no branch of ſurgery which is not touched upon in the collection. Eloy Dict. Hiſt. Gen. Biog.

Pare, or **Paræus, David**, a celebrated German Proteſtant divine of the reformed communion, was born at Francoſtein, in Silefia, in the year 1548. He was put apprentice to a ſhoe-maker, but this ſituation did not repreſs the early inclination which the youth had diſcovered for learning, and at length his father permitted him to follow the bent of his inclination. At the age of ſixteen years he was ſent to Hirchberg, where was a college, of which Chriſtopher Schilling was the principal. By his tutor he was converted from Lutheraniſm, in which he had been educated, to the principles of the reformed church, on the ſubject of the *real preſence*, a circumſtance that involved the maſter and the pupil in conſiderable difficulties. In 1566 he was ſent, with ten of his ſchool-fellows, to Heidelberg, and they carried with them ſuch effectual recommendations from their common maſter, that they were all admitted into the college of Wiſdom, of which Zachary Urſinus, profeſſor of divinity, was director. At Heidelberg, Pare made great proficiency in all the branches of learning taught in that place, and in 1571 he was admitted to the miniſtry, in which he officiated many years with great reputation. In 1598, he was nominated divinity profeſſor of Heidelberg. He died in June 1622, and was buried with all the funeral honours which the univerſities of Germany are accuſtomed to beſtow on their moſt diſtinguiſhed members. He wrote ſeveral treatiſes againſt Bellarmine; and commentaries on the ſcriptures. That on the epiſtle to the Romans, being tranſlated into Engliſh, was burnt by order of James I. for containing ſeditious principles. He had a ſon, John Philip, who was born in 1576, at Hembach, in the dioceſe of Worms; and who ſtudied at Neuſtadt and Heidelberg. In 1610 he was made rector of the college at Neuſtadt, where he continued till the town fell into the hands of the Spaniards in 1622, on which occaſion his library was plundered. He died in 1650 He was author of "Lexicon Criticon;" "Lexicon Plautinum, or A Vocabulary to the Comedies of Plautus;" "Calligraphia Romana," and other works. He left a ſon, Daniel, who publiſhed "Mellificium Atticum;" "Hiſtoria Palatina;" "Medulla Hiſtoriæ Eccleſiaſticæ."

Pare, in the *Manege*. To pare a horſe's foot is to cut his nails; *i. e.* the horn and ſole of his foot; which is done with a buttreſs in order to ſhoe him.

In England, the ſmith or farrier holds the horſe's foot between his knees, in which poſture he pares the foot, ſets on the ſhoe, drives the nails, and rivets them, and this all alone, without any aſſiſtance from the groom.

PARECALA, in *Geography*, a fertile province of the iſland of Luçon, rich in mines of gold and precious ſtones. The Spaniards receive tribute from about 7000 perſons.

PARECBASIS, παρεκβασις, in *Rhetoric*, is uſed to ſignify the exaggeration of a crime, and not a digreſſion from the queſtion in hand, as ſome have thought.

PARECHAMPA, in *Geography*, a town of Bootan; five miles N. of Taſſaſudon.

PARECHESIS, παρηχησις, in *Rhetoric*, the too frequent repetition of the ſame ſyllable, thus *perire me malis malim modis*.

PARECHIA, in *Geography*, a ſmall town of the iſland of Paros, built on the ruins of the ancient Paros, on the W. coaſt of the iſland, facing Antiparos; but it preſents no idea of the ancient city, unleſs by the beautiful ruins, which are employed equally without reſerve and without taſte in its conſtruction. Off Parechia, the ſea forms a bight, and a harbour, whoſe entrance is difficult, on account of the ſhoals by which it is obſtructed on the oppoſite coaſt. N. lat. 37° 5'. E. long. 25° 10'.

PAREDES, a town of Spain, in Aſturia; 25 miles N.W. of Oviedo.—Alſo, a town of Spain, in Leon; 13 miles N.W. of Leon.—Alſo, a town of Spain, in New Caſtile; eight miles N. of Siguença.

Paredes, a town of Portugal, in Eſtramadura; 12 miles N.W. of Layria.

PAREDON *del Eſte*, a ſmall iſland near the N. coaſt of Cuba. N. lat. 22° 16'. W. long. 77 80'.

Paredon *del Medios*, a ſmall iſland near the N. coaſt of Cuba. N. lat. 22 16'. W. long. 77° 50'.

PAREDRI, παρεδροι, among the *Athenians*. When the archon, baſileus, or polemarchus, by reaſon of their youth happened not to be ſo well ſkilled in the laws and cuſtoms of their country as might have been wiſhed, it was cuſtomary for each of them to make choice of two perſons of age, gravity, and reputation, to ſit with them upon the bench, and direct them as there was occaſion. And theſe aſſeſſors, or paredri, were obliged to undergo the ſame probation in the ſenate-houſe and public forum with the other magiſtrates; and like them too, to give an account how they had behaved themſelves in their reſpective truſts, when their office was expired.

PAREDRIA, a term uſed by Hippocrates to expreſs an aſſociation of two or more diſeaſes in the ſame patient, making, what we call, a complicated illneſs.

PAREGORICS, παρηγορικα, formed of παρηγορεω, *I appeaſe*,

peaſe, or *mitigate*, in *Medicine*, remedies which aſſuage pain. The ſame with what we otherwiſe call *anodynes* and *opiates*.

PAREGORIC *Elixir*. See ELIXIR *Paregoricum*.

PAREJA, JUAN DE, in *Biography*, was a Meſtizo, (a Spaniſh name given to thoſe who are born of a Spaniſh father, and a mother a native Indian,) whoſe love for the art of painting was ſuch, that though the ſlave of Velaſquez, and employed by him to prepare his colours, and attend upon him while painting, yet he contrived in ſecret to obtain very conſiderable proficiency in the art. He died at the age of 60, in 1670.

PAREIRA BRAVA, the root of a plant which is a ſpecies of Ciſſampelos, growing in the Weſt Indies, chiefly in Mexico and Brazil; formerly eſteemed a ſpecific for the cure of the ſtone and gravel.

The name, which, in the original Portugueſe, ſignifies *wild vine*, or *baſtard vine*, bears a good deal of analogy to the plant which bears branches loaden with leaves perfectly like thoſe of the vine; and which, like them, creep along walls and trees. The Portugueſe value this root on an equal footing with the ipecacuanha. Some druggiſts call it, by corruption, *parada prava*.

The root has no remarkable ſmell; but to the taſte it manifeſts a remarkable ſweetneſs of the liquorice kind, together with a conſiderable bitterneſs, and a ſlight roughneſs covered by the ſweet matter. It gives out great part both of the bitter and ſweet ſubſtance to watery and ſpirituous menſtrua; in evaporating the watery decoction, a conſiderable quantity of reſinous matter ſeparates, which does not mingle with the remaining extract, nor diſſolve in water, but is readily taken up by ſpirit; whence ſpirit appears to be the moſt perfect diſſolvent of its active parts. Both the ſpirituous tincture and extract are in taſte ſtronger than the watery.

The Portugueſe were informed of the virtues of this root by the natives of the Braſils, who infuſed it in water, which they drank freely in all obſtructions of the urinary paſſages; and on trial extolled it above all the medicines in uſe. According to Browne, it is ſtill uſed with this intention by the negroes in Jamaica. Towards the end of the 17th century, ſome of theſe roots were brought over to Europe by the Portugueſe, who recommended them to phyſicians as the moſt effectual remedy hitherto diſcovered in all calculous and gravelly complaints, and various accounts of their efficacy were ſoon after publiſhed. The Portugueſe accounts were too exaggerated to gain credit with the judicious part of the world; but Mr. Geoffroy's experiments ſet its virtues in a much modeſter light, and yet ſhewed them to be very great; and that the root deſerved to be for ever continued in uſe in medicine, and reckoned among the moſt valuable ſimples. The Portugueſe pretended that it diſſolves the ſtone in the bladder; but though this is not true, Mr. Geoffroy found that it was admirable for breaking the common weaker ſabulous concretions in the kidnies and ureters; and that the taking it was always attended with the voiding of large quantities of gravel. He gave it alſo with great ſucceſs to perſons afflicted with ulcers in the kidnies and bladder, and whoſe urine was purulent, and at many times totally ſuppreſſed: theſe ſuppreſſions of urine were always cured by it, and their urine became leſs thick and purulent; many alſo were perfectly cured of theſe complaints by a courſe of it, with the addition of balſam of capivi toward the end of the courſe.

This property of the pareira brava, of diſſolving thick humours, gave Mr. Geoffroy an opinion of trying it in humorous aſthmas; and theſe obſtinate caſes often were greatly abated, and ſometimes perfectly cured by it. The uſual way of taking it was in decoction, ſweetening it in the manner of tea. Of the root in ſubſtance he preſcribed from twelve grains to half a dram, and in decoction or infuſion, two or three drams: this quantity of the root bruiſed he directed to be boiled in a pint and a half of water, till only a pint remains, which is to be ſtrained off, ſweetened with a little ſugar, divided into three portions, and drank as tea at intervals of half an hour. Mem. Acad. Par. 1710.

The facts alleged to evince the utility of the radix pareiræ bravæ in nephritic and calculous caſes, were principally thoſe of Geoffroy, Helvetius, and Lochner. It has alſo been recommended in iſchuria, jaundice, aſthma, and ſome other chronic diſeaſes. The accounts given of the ſucceſsful employment of this root by French writers induced phyſicians to try its effects in this country; but Britiſh practitioners have recorded no remarkable inſtances of its efficacy; and as a proof of its being ſunk into diſrepute, it has no place in our pharmacopeias. Lewis's Mat. Med. Woodville's Med. Bot.

PARELCON, in *Grammar*, a figure, whereby a word or ſyllable is added to the end of another.

PARELLA, in *Geography*, a town of France, in the department of the Dora; 20 miles N. of Turin.

PARELLONES, a cluſter of ſmall iſlands in the Spaniſh Main, near the coaſt of Darien. N. lat. 9° 37′. W. long. 79° 30′.

PAREMBOLE, παρεμβολη, in *Rhetoric*, a figure wherein ſomething relating to the ſubject is inſerted in the middle of a period. All the difference between the parembole and parentheſis, according to Voſſius, is, that the former relates to the ſubject in hand, whereas the latter is foreign to it. An example of each we have in Virgil, and firſt of the parembole.

> “ Æneas (neque enim patrius conſiſtere mentem
> Paſſus amor) rapidum ad naves præmitit Achatem.”

The following is an inſtance of the parentheſis:

> “ ——— ipſique ſuos jam morte ſub ægrâ
> (Di meliora piis, erroremque hoſtibus illum)
> Diſciſſos nudis laniabant dentibus artus.”

See PARENTHESIS.

PARENCEPHALIS, a name given by ſome authors to the cerebellum.

PARENCHYMA, in *Anatomy*, is generally applied to the ſubſtance of glands, and denotes that part of them, which conſtitutes the peculiarity of the organ, the baſis, which would remain, if the veſſels and nerves were removed. It is often uſed more generally, and in application to other parts, and ſignifies the arrangement of the general tiſſues, which is common to all the body, and in which the peculiar matter producing the differences of the organs is depoſited. See FIBRE.

PARENCHYMA *of Plants*. Dr. Grew gives the name parenchyma to the pith or pulp, or that inner part of a fruit or plant, through which the juice is ſuppoſed to be diſtributed.

This, when viewed with a microſcope, appears to reſemble marrow, or rather a ſponge, being a porous, flexible, dilatable ſubſtance.

Its pores are innumerable, and exceedingly ſmall; receiving as much humour as is requiſite to fill and extend them; which diſpoſition of pores it is, that is ſuppoſed to fit the plant for vegetation and growth.

The parenchyma of roots is white at firſt; but it changes its colour, in proportion as the root grows thicker. Thus it becomes yellow in the root of the baſtard rhubarb, and red in that of the biſtort.

PARENT, Parens, a term of relation, applicable to thoſe from whom we immediately receive our being. See Father and Mother.

The duties of parents to legitimate children conſiſt in three particulars; *viz.* their maintenance, their protection, and their education.

The firſt of theſe duties is a principle of natural law; its obligation reſults from their having been voluntarily inſtrumental in giving them exiſtence, which exiſtence they ſhould endeavour, as far as in them lies, to ſupport and preſerve. Children have, therefore, a perfect right of receiving maintenance from their parents. Monteſquieu obſerves (Sp. of Laws, b. xxiii. c. 2.) that the eſtabliſhment of marriage in all civilized ſtates is founded on this natural obligation of the father to provide for his children; for that aſcertains and makes known the perſon who is bound to fulfil this obligation. Moreover, the affection of parents to their children, which is too powerful to be totally ſuppreſſed or extinguiſhed by any deformity of perſon or mind, or by the ingratitude, rebellion, and wickedneſs of children, and the proviſion which nature has prepared in the perſon of the mother for the ſuſtentation of the infant, concerning the exiſtence and deſign of which there can be no doubt, are manifeſt indications of the divine will. We may hence infer the guilt of thoſe, who run away from their families, and by mere idleneſs or drunkenneſs, throw them upon a pariſh, or leave them, at their death, deſtitute of that proviſion for their ſubſiſtence, which, by diligence and frugality, they might have laid up for them; and alſo of thoſe, who refuſe or neglect the care of their baſtard offspring, abandoning them to a condition, in which they muſt either periſh, or become burdenſome to others; for, though it be often not properly regarded, the duty of maintenance, like the reaſon upon which it is founded, extends to baſtards, as well as to legitimate children. The Chriſtian ſcriptures have declared, in explicit terms, the obligation of this duty: "If any provide not for his own, eſpecially for thoſe of his own houſhold, he hath denied the faith, and is worſe than an infidel" (1 Tim. v. 8.), that is, he hath diſgraced the Chriſtian profeſſion, and fallen ſhort in a duty which even infidels acknowledge. We may further obſerve, that the municipal laws of all well regulated ſtates have taken care to enforce this duty. The civil law (Ff. 25 3. 5.) obliges the parent to provide maintenance for his child; and if he refuſes, "judex de ea re cognoſcet." It even carries this matter ſo far, that it will not ſuffer a parent at his death totally to diſinherit his child, without expreſsly giving his reaſon for ſo doing, and there are fourteen ſuch reaſons enumerated (Nov. 115), which may juſtify ſuch diſinheriſon. If the parent alleged no reaſon, or a bad, or a falſe one, the child might ſet the will aſide, "tanquam teſtamentum inofficioſum," a teſtament contrary to the natural duty of the parent.

It is alſo a principle of law, as well as of nature, that every man is obliged to provide for thoſe deſcended from his own loins. By 43 Eliz. cap. 2. the father, mother, grandfather, and grand-mother of poor impotent perſons, ſhall maintain them at their own charges, if of ſufficient ability, according as the quarter ſeſſions ſhall direct; and by 5 Geo. I. cap 8. if a parent runs away, and leaves his children, the churchwardens and overſeers of the pariſh ſhall ſeize his rents, goods, and chattels, and diſpoſe of them towards their relief. But no perſon is bound to provide a maintenance for his iſſue, unleſs where the children are unable to work, through infancy, diſeaſe, or accident: and then is only obliged to find them with neceſſaries, the penalty on refuſal being no more than 20*s.* a month. (See Jews). Our law has made no proviſion to prevent the diſinheriting of children by will; but by the cuſtom of London, formerly univerſal, the children of freemen are entitled to one third of their father's effects, to be equally divided between them; of which he cannot deprive them. Farther, a parent, by our laws, may protect his children by ſupporting them in their law-ſuits, without being guilty of the legal crime of maintaining quarrels (2 Inſt. 564.); and a man may juſtify aſſault and battery in defence of the perſons of his children. (1 Hawk. P. C. 131.) With regard to the education of children, parents are bound to perform this part of their duty in a manner ſuitable to their ſtation in life. This is a duty obviouſly reaſonable, and unqueſtionably important. If this duty be not diſcharged with proper attention and aſſiduity, children muſt be miſerable, and probably will be vicious, when they grow up, either from want of the means of ſubſiſtence, or from want of rational and inoffenſive occupation. Beſides, a perſon left in this condition will be uſeleſs, and at the ſame time he will be generally miſchievous to the community. So that to launch an uneducated child into the world, is injurious to the reſt of mankind; it is little better than to turn out a mad dog, or a wild beaſt into the ſtreets. In the inferior claſſes of the community, this kind of reaſoning condemns the neglect of parents, who do not betimes inure their children to labour and reſtraint, and fit them, as they have ability and opportunity, for ſome honeſt employment, by which they may be preſerved from beggary, vice, and infamy. The municipal laws of moſt countries ſeem to be defective in this point, by not conſtraining the parent to beſtow a proper education upon his children. The charity of the well-diſpoſed has provided aſſiſtance for thoſe parents, whoſe lot is ſo hard, that they cannot by labour provide for their children the means both of ſubſiſtence and education; and although our laws are defective, yet in one inſtance they have made a wiſe proviſion for breeding up the riſing generation; ſince by the ſtatutes for apprenticing poor children, ſuch children may be apprenticed out by the overſeer, &c. (See Apprentice.) And. in the caſe of religion, all parents are under peculiar reſtrictions.

Among the Athenians, if the parent did not put his child into a way of getting a livelihood, the child was not bound to make proviſion for the parent when old and neceſſitous. In the middle orders of ſociety, thoſe parents are moſt reprehenſible, who neither qualify their children for a profeſſion, nor enable them to live without one; and thoſe in the higheſt, who, from indolence, indulgence, or avarice, omit to procure for their children thoſe liberal attainments, which are neceſſary to make them uſeful in the ſtations to which they are deſtined. A man of fortune, who permits his ſon to conſume the ſeaſon of education, in hunting, ſhooting, or frequenting horſe-races, aſſemblies, or other unedifying, if not vicious diverſions, defrauds the community of a benefactor, and bequeaths them a nuiſance. As ſome preparation for future life is neceſſary for youth of every deſcription, thoſe who leave the education of their baſtards to chance, contenting themſelves with making proviſion for their ſubſiſtence, deſert half their duty. Archdeacon Paley obſerves, that a reaſonable proviſion for the happineſs of a child in reſpect of outward condition, requires three things; a ſituation ſuited to his habits and reaſonable expectations; a competent proviſion for the exigencies of that ſituation; and a probable ſecurity for his virtue. The two firſt articles will vary with the condition of the parent. A ſituation ſomewhat approaching in rank and condition to the parent's own; or, if that be not practicable.

ble, ſimilar to what other parents of like condition provide for their children, bounds the reaſonable, as well as (generally ſpeaking) the actual expectations of the child, and therefore contains the extent of the parent's obligation. By vitrue of this rule, a parent is juſtified in making a difference between his children, according as they ſtand in greater or leſs need of the aſſiſtance of his fortune, in conſequence of the difference of their age or ſex, or of the ſituations in which they are placed, or the various ſucceſs which they have met with. Daughters, on account of their peculiar circumſtance, which it is needleſs to ſpecify, ſhould be the particular objects of a parent's care and fore-ſight; and as an option of marriage is not preſented to every female who deſerves it, eſpecially in a country and at a period of time in which a licentious celibacy is faſhionable with the men, a father ſhould endeavour to enable his daughter to lead a ſingle life with independency and decorum, even though he ſubtract more from the portions of his ſons, than is agreeable to modern uſage, or than they expect. A parent, having provided for the exigencies of his children's conditions, next conſiders how to ſatisfy their juſt expectations: and upon this principle he prefers the eldeſt ſon to the reſt, and the ſons to daughters; which conſtitutes the right, and the whole right of primogeniture, as well as the only reaſons for the preference of one ſex to the other. The preference of the firſt born, indeed, has one public good effect: that if the eſtate were divided equally among the ſons, it would probably make them all idle; whereas, by the preſent rule of deſcent, it makes only one ſo; which is the leſs evil of the two. And on the part of ſons it may be obſerved, that if the reſt of the community make it a rule to prefer ſons to daughters, an individual of that community ought to guide himſelf by the ſame rule, upon principles of mere equality. For as the ſon ſuffers by the rule in the fortune he may expect in marriage, it is but reaſonable, that he ſhould receive the advantage of it in his own inheritance. Indeed, whatever the rule be, as to the preference of one ſex to the other, marriage reſtores the equality. And as money is generally more convertible to profit, and more likely to promote induſtry in the hands of men than of women, the cuſtom of this country may properly be complied with, when it does not interfere with the very plain reaſon already explained. The actual expectations of children, together with the expediency of ſubjecting the illicit commerce of the ſexes to every diſcouragement which it can receive, makes the difference between the claims of legitimate children and of baſtards. But neither reaſon will, in any caſe, juſtify the leaving of baſtards to the world, without proviſion, education, or profeſſion: or, what is more cruel, without the means of continuing in the ſituation to which the parent has introduced them; which laſt is to leave them to inevitable miſery.

After the exigencies of a child's ſituation are provided for, a parent may diminiſh his portion, in order to puniſh any flagrant crime, or to puniſh contumacy and want of filial duty in inſtances not otherwiſe criminal; for a child who is conſcious of bad behaviour, or of contempt of his parent's will and happineſs, cannot reaſonably expect the ſame inſtances of his munificence. In caſe of vicious habits that are incorrigible, or of ſuch a diſpoſition to waſte or miſemploy the fortune put into his power, as if he were made an ideot, the parent may treat the child as ſuch; and provide for his ſupport by an annuity equal to his wants and innocent enjoyments, and which he may be reſtrained from alienating: and this, ſays Dr. Paley, is the only caſe in which a diſinheriſon, nearly abſolute, is juſtifiable. But in order to juſtify an inofficious diſpoſition of his fortune, no parent ſhould be allowed to plead, that "every man may do what he will with his own." For though his will, in this caſe, however capricious, will be valid; yet his conſcience will not be abſolved from the obligations of a parent. Nor, on the other hand, when he ſits down to make his will, ſhould any partialities for a favourite child over-rule and miſlead more manly deliberations. When a parent, in order to make ſuitable proviſion for his children by frugality and induſtry, has gained a ſufficiency for this purpoſe, the plea of children furniſhes no juſt excuſe for parſimony. A parent ſhould conſider, that children gain not ſo much as we are apt to imagine, in the chance of this world's happineſs, or even of its external proſperity, by ſetting out in it with large capitals. With reſpect to thoſe who have died rich, many began with little; and with regard to enjoyment, there is no compariſon between a fortune, which a man acquires himſelf by a fruitful induſtry, or a ſeries of ſucceſſes in his buſineſs, and one found in his poſſeſſion, or received from another. It remains to mention another principal part of a parent's duty, which is that of uſing proper precautions and expedients, in order to form and preſerve his children's virtue. But this is a ſubject which is amply diſcuſſed under the ſeveral articles of EDUCATION.

The rights of parents reſult from their duties; and the authority with which they are inveſted, is given them, partly to enable them more effectually to perform theſe duties, and partly as a recompence for their care and trouble in the faithful diſcharge of them. The relation between a parent and his children infers no property in their perſons, or natural dominion over them.

By the ancient Roman laws, the father had a power of life and death over his children; but the rigour of theſe laws was ſoftened by ſubſequent conſtitutions. By our Engliſh laws, parental authority is much more moderate, but ſtill ſufficient to maintain order and obedience. A parent may lawfully correct his child, being under age, in a reaſonable manner. The conſent or concurrence of the parent to the marriage of his child under age was alſo directed by our ancient law to be obtained; but now it is abſolutely neceſſary, and without it the contract is void. A father has no other power over his ſon's eſtate than as a truſtee or guardian; for though he may receive the profits during the child's minority, yet he muſt account for them when he comes of age. He may, indeed, have the benefit of his children's labour while they live with him, and are maintained by him: but this is no more than he is intitled to from his apprentices or ſervants. Moreover, the legal power of a father (for a mother, as ſuch, is entitled to no power, but only to reverence and reſpect) over the perſons of his children ceaſes at the age of twenty-one. Yet, till that age arrives, this empire of the father continues even after his death; for he may by his will appoint a guardian to his children. He may alſo delegate part of his authority, during his life, to tutors and ſchool-maſters.

As it is neceſſary to determine the deſtination of children, before they are capable of judging of their own happineſs, parents have a right to elect profeſſions for them. Parents, having no natural dominion over their children, or property in their perſons, have no right to ſell them into ſlavery. Accordingly, the children of ſlaves are not, by the law of nature, born ſlaves; for as the maſter's right is derived to him through the parent, it can never be greater than the parent's own. Parents not only pervert, but exceed their juſt authority, when they conſult their own ambition, intereſt, or prejudice, at the manifeſt expence of their children's happineſs. Many inſtances might be mentioned of this abuſe of parental power; but ſome of them belonging to countries where Catholic eſtabliſhments prevail, we ſhall ſelect that of urging children to marriages from which they are averſe, with a view of exalting or enriching the family, or for the ſake of connecting eſtates, parties, or intereſts, or the oppoſing of a marriage, in which the child would probably find happineſs, from a motive of pride or avarice, of family hoſtility, perſonal pique, or diverſity of religious opinions. Blackſt. Com. b. 1. ch. 16. Paley's Princ. of Moral and Political Philoſophy, vol. i. ch. 9 and 10. See Child.

Parent, Anthony, in *Biography*, was born at Paris in the year 1666. Great care was taken of his education, and at a very early period he diſcovered a ſtrong propenſity to the ſtudy of mathematics. At the age of fourteen, he accidentally met with a dodecahedron, upon every face of which was delineated a ſun-dial, excepting the loweſt, upon which it ſtood. Struck with the curioſity of theſe dials, he attempted to imitate them, and was led from the practice to inveſtigate the theory, and in a ſhort time he wrote a treatiſe upon "Gnomonics," which, though ſaid to be extremely rude and unpoliſhed, had the merit of being his own invention, as was a work on "Geometry," which he wrote about the ſame time. At the earneſt deſire of his relations, he entered upon the ſtudy of the law, as a profeſſion for his life, but he no ſooner completed his ſtudies in that faculty, than he betook himſelf, with increaſed ardour, to thoſe purſuits which accorded beſt with his genius and inclination. He attended very diligently the lectures of M. de la Hire and M. Sauveur, and as ſoon as he felt himſelf capable of teaching others, he took pupils; and fortification being a branch of ſtudy which the war had brought into particular notice, he was called upon frequently to teach the principles of that ſcience. After ſome time, he began to entertain ſcruples about undertaking to teach a ſubject of which he had no practical knowledge, and communicated them to Sauveur, through whoſe intereſt he made two campaigns with the marquis d'Alegre, during which he had many opportunities to inform himſelf with reſpect to every ſpecies of knowledge on the ſubject. Upon his return to the metropolis, he ſpent his time in a continual application to the ſtudy of natural philoſophy, and all the branches of the mathematics, both ſpeculative and practical, to which he added that of anatomy, botany, and chemiſtry. His great talents, and indefatigable induſtry, enabled him to ſurmount the difficulties attendant on the acquiſition of any ſcience. In 1699, M. Fillau des Billetes having been admitted a member of the Academy of Sciences at Paris, with the title of their academician, nominated M. Parent for his *eleve*, who particularly excelled in that branch of knowledge. It was ſoon diſcovered that he directed his attention to all the ſubjects that came before the academy, and that he was competent to the inveſtigation of every topic which was recommended to their notice. His temper was however very bad, and he expoſed himſelf to many diſputes, which he carried on in a very acrimonious manner, and which was the cauſe, together with the want of perſpicuity in his compoſitions, of the very limited circulation of his various pieces. In the year 1716, the king aboliſhed the claſs of eleves, and on this occaſion he made M. Parent an adjunct, or aſſiſtant member of the claſs of geometry. He lived, however, but a ſhort time to enjoy the honour, being in the ſame year cut off by the ſmall-pox, when he was about fifty years of age. Although he was of a very irritable diſpoſition, he is ſaid to have poſſeſſed great goodneſs of heart, and though his means were extremely limited, he devoted much of his income to acts of beneficence. He was author of a work entitled "Elements of Mechanics and Natural Philoſophy:" "Mathematical and Phyſical Reſearches," a ſort of journal, which firſt appeared in 1705, and which in 1712 was greatly enlarged, and publiſhed in three vols. 4to.; and "A Treatiſe on Arithmetic." Beſides theſe, he was author of a great number of papers in the different French "Journals," and in the volumes of the "Memoirs of the Academy of Sciences," from the year 1700 to 1714, and he left behind him in manuſcript many works of conſiderable reſearch; among theſe were ſome complete treatiſes on divers branches of mathematics, and a work containing proofs of the divinity of Jeſus Chriſt, in four parts. Moreri.

Parent, in *Geography*, a town of Pruſſia, in Pomerelia: 10 miles N. of Marienburg.

PARENTALIA, in *Antiquity*, funeral obſequies: or the laſt duties paid by children to their deceaſed parents.

Parentalia is alſo uſed for a ſacrifice or ſolemn ſervice offered annually to the manes of the dead.

PARENTELA—*De parentela ſe tollere*, in *Ancient Cuſtoms*, ſignified a renunciation of one's kindred and family.

This was done in open court, before the judge, and in the preſence of twelve men, who made oath, they believed it was done for a juſt cauſe.

We read of it in the laws of Henry I. After ſuch abjuration, the perſon was incapable of inheriting any thing from any of his relations, &c.

PARENTHESIS, ϖαρενθεσις, formed of ϖαρα, *inter*, *between*, and ενθεσις, *poſition*, q. d. *putting between*, in *Grammar*, intercalary words inſerted in a diſcourſe, which interrupt the ſenſe or thread, but which ſeem neceſſary for the fuller underſtanding of the ſubject. The politeſt of our modern writers avoid all parentheſes, as keeping the mind in ſuſpenſe, embarraſſing it, and rendering the diſcourſe leſs clear, uniform, and agreeable. Long and frequent parentheſes are intolerable, eſpecially in verſe, which they ever render dull and languid, and like to proſe.

The proper characteriſtic of a parentheſis is, that it may be either taken in, or left out, the ſenſe and grammar remaining entire.

In ſpeaking, parentheſes are to be pronounced in a different tone; and in writing they are incloſed between brackets, ( ), to diſtinguiſh them from the reſt of the diſcourſe.

The character itſelf, whereby they are diſtinguiſhed, is alſo called a parentheſis. See Parembole.

PARENTIS-*de-Born*, in *Geography*, a town of France, in the department of the Landes, and chief place of a canton, in the diſtrict of Mont-de-Marſan; 33 miles N. of Tartas. The place contains 1440, and the canton 4213 inhabitants, on a territory of 632½ kiliometres, in ſix communes.

PARENZA, a ſea-port town of Iſtria, and ſee of a biſhop. The town is well built on a rock, and has a harbour for large veſſels; 35 miles S. of Trieſte. N. lat. 45° 18′. E. long. 13° 40′.

PAREOLA, in *Ornithology*, a ſpecies of *Pipra*; which ſee.

PARER, in the *Manege*, a term formerly uſed as a command to ſtop, but now exploded; all the riding-maſters, when they have a mind the ſcholar ſhould ſtop the horſe, calling out *hola*. See Stop.

PARERE, in *Commerce*, an Italian term, which ſignifies the advice or counſel of a merchant, or negociant; becauſe ſuch a perſon, being conſulted on any point, introduces his anſwer, in Italian, with *mi pare*, i. e. *I think*, *it ſeems to me*.

The method of negociating, eſpecially that of bills of exchange, being borrowed from the Italians, moſt trading cities, eſpecially Lyons, retain the uſe of pareres; which are the advices or opinions of merchants and negociants, and which ſerve as acts before notaries, when given by authority of a judgé conſervator, or at a particular conſultation, for maintaining the right of the conſulter.

M. Savary has an excellent treatiſe intitled, "Parere, on Avis et Conſeils ſur les plus importantes Matieres du Commercc;" containing the reſolution of the moſt difficult queſtions relating to bankrupts and failures, bills of exchange, orders without date, or expreſſion of value, bank-ſignings, renewing of bills of exchange, thoſe drawn or accepted by women in behalf of their huſbands, or during the minority of the drawer, &c.

PARERGA, παρεργα, a term ſometimes uſed in architecture, for additions, or appendages, made by way of ornament to a principal work.

It is ſometimes alſo uſed in painting, for little pieces, or compartiments, on the ſides, or in the corners, of the principal pieces.

PARES CURTIS, or *Pares Curiæ*, peers of the court, an appellation which, in all the feodal inſtitutions, both here and on the continent, diſtinguiſhed the vaſſals of the inferior lords, who were bound by their fealty to attend their domeſtic courts baron (which were inſtituted in every manor, or barony, for doing ſpcedy and effectual juſtice to all the tenants), in order as well to anſwer ſuch complaints as might be alleged againſt themſelves, as to form a jury or homage for the trial of their fellow tenants.

PARE'SIS, from παριγμι, *to relax*, in *Surgery*, a palſy of the bladder, attended either with retention of the urine, or involuntary diſcharge of it.

PARESSEUX, in *Zoology*, a name given by Gautier to the BRADYPUS *tridactylus*; which ſee.

PARETONIUM, in *Natural Hiſtory*, the name of an earth anciently found on the ſhores of Egypt, Cyrene, and the iſland of Crete; and uſed by the ancients in painting.

It had its name either from a part of Egypt, near which it was gathered, or from the name of a town in that kingdom, where it was uſually ſold.

Vitruvius is of the firſt opinion, and Volaternus of the other. Of late we have been taught to think it loſt; but it is ſtill common on moſt of the ſhores of the iſlands of the Archipelago, though not obſerved or regarded; and is truly a very heavy and tough clay, of a fine white colour, found in maſſes of different ſizes, generally as ſoft as the ſofter clays within the ſtrata; and, by rolling about on the beach in this ſtate, it gathers up the ſand, ſmall ſhells, and other foulneſſes we always find about it. It is moſt probable, that there are ſtrata of it fine and pure in the cliffs there, and that the ſea waſhes off maſſes of them in ſtorms and high tides, which are what we find.

PAREWAH, in *Geography*, a town of Hindooſtan, in Oude; 8 miles N. of Bahraitch.

PARFAIT, FRANÇIS, in *Biography*, was born at Paris in 1698, of a diſtinguiſhed family, and died in 1753. His works are, 1. "A General Hiſtory of the French Theatre," in 15 vols. 2. "A Hiſtory of the ancient Italian Theatre," in two vols. 3. "A Dictionary of Theatres," in 7 vols. 4. Several dramatic pieces that were never acted.

PARGAS, in *Geography*, a ſmall iſland in the gulf of Finland, near the coaſt of Sweden, with a town. N. lat. 60° 19'. E. long. 22° 7'.

PARGET, in *Natural Hiſtory*, a name given to the ſeveral kinds of gypſum or plaiſter-ſtone, which, when ſlightly calcined, make what is called *plaiſter of Paris*, uſed in caſting ſtatues, in ſtuccoing floors and cielings, and on many other like occaſions.

The word parget, though generally underſtood of all the gypſums, is, however, by the workman principally applied to the two ſpecies which make up the firſt genus of that claſs, called by Dr. Hill the *pholides*. Theſe are the Montmartre kind, and that of Derbyſhire. See PHOLIS.

PARGETING, in *Building*, is uſed for the plaiſtering of walls; ſometimes for the plaiſter itſelf.

Pargeting is of various kinds: as, 1. White lime and hair mortar laid on bare walls. 2. On bare laths, as in partitioning, and plain cieling. 3. Rendering the inſides of walls, or doubling partition-walls. 4. Rough-caſting on hearth-laths. 5. Plaiſtering on brick-work, with finiſhing mortar, in imitation of ſtone-work; and the like upon hearth-laths.

PARGOIRE, ST., in *Geography*, a town of France, in the department of the Herault; 14 miles S.S.E. of Lodeve.

PARGOW, a town of Hindooſtan, in the circar of Gohud; 9 miles S.S.W. of Kooch.

PARHAM, a town of the iſland of Antigua, and legal port of entry; 5 miles W. of St. John's.

PARHELIUM, or PARHELION, formed from παρα, *near*, and ἥλιος, *ſun*, in *Phyſiology*, a mock ſun or meteor, being a part of the heavens ſtrongly illuminated by the image of the ſun, and appearing like another ſun, but often coloured and drawn out to a conſiderable length, in the form of a tail.

The parhelia uſually accompany the coronæ, or luminous circles, and are placed in the ſame circumference, and at the ſame height. Their colours reſemble thoſe of the rainbow; the red and yellow are on the ſide towards the ſun, and the blue and violet on the other. Though there are coronæ ſometimes ſeen entire, without any parhelia; and ſometimes parhelia without coronæ.

The apparent ſize of parhelia is the ſame as that of the true ſun; but they are not always round, nor always ſo bright as the ſun; and when ſeveral appear, ſome are more bright than others. They are tinged externally with colours like the rainbow, and many of them have a long fiery tail oppoſite to the ſun, but paler towards the extremity. Some parhelia have been obſerved with two, and others with three tails. Theſe tails appear for the moſt part in a white horizontal circle, which generally paſſes through all the parhelia; and if it were entire, would go through the centre of the ſun. Sometimes there are arcs of leſſer circles, concentric to this, touching thoſe coloured circles which ſurround the ſun. They are alſo tinged with colours, and contain other parhelia. Parhelia are generally ſituated in the interſections of circles; but Caſſini ſays, that thoſe which he ſaw in 1683, were on the outſide of the coloured circle, though the tails were in the circle that was parallel to the horizon. M. Æpinus apprehends, that parhelia with elliptical coronæ arc more frequent in the northern regions, and thoſe with circular ones in the ſouthern. They have been viſible for one, two, three, and four hours together; and in North America they are ſaid to continue ſome days, and to be viſible from ſun-riſe to ſun-ſet. When the parhelia diſappear, it ſometimes rains, or there falls ſnow in the form of oblong ſpiculæ, as Maraldi, Weidler, Krafft, and others, have obſerved; and becauſe the air in North America abounds with ſuch frozen ſpiculæ, which are even viſible to the eye, according to Ellis and Middleton, ſuch particles have been thought to be the cauſe of all coronæ and parhelia.

Parhelia are ſometimes double, triple, &c.

Ariſtotle obſerves, that two were ſeen in Boſphorus from morning to evening, though, in general, he obſerves, they are not ſeen, except when the ſun is near the horizon.

Pliny relates under what conſuls this phenomenon was ever ſeen at Rome.

In the year 1629, was ſeen at Rome, by Scheiner, a parhelion of four ſuns, and the ſame number was ſeen by M. Muſchenbroeck at Utrecht; Gaſſendi ſays, that in 1635 and 1636, he often ſaw one mock ſun; in 1661, Hevelius obſerved at Dantzic one of ſeven ſuns; and in 1666, another was ſeen at Arles, of ſix.

Phenomena of this kind have alſo been obſerved by M. de la Hire at Paris, in 1689, and by M. Caſſini, in 1693; by Mr. Grey, in 1700; by Halley, in 1702; and Maraldi, in 1721.

The Roman phenomenon obſerved by Scheiner, is repreſented *Plate* XVII. *Optics*, *fig.* 8, in which A is the place of the obſerver, B his zenith, C the true ſun, A B a plane paſſing through the obſerver's eye, the true ſun, and the zenith. About the ſun C, there appeared two concentric rings, not complete, but diverſified with colours. The leſſer of them, D E F, was fuller, and more perfect; and though it was open from D to F, yet thoſe ends were perpetually endeavouring to unite, and ſometimes they did ſo. The outer of theſe rings was much fainter, ſo as ſcarcely to be diſcernible. It had, however, a variety of colours, but was very inconſtant. The third circle, K L M N, was very large, and all over white paſſing through, the middle of the ſun, and every where parallel to the horizon. At firſt this circle was entire; but towards the end of the appearance it was weak and ragged, ſo as hardly to be perceived from M towards N.

In the interſection of this circle, and the outward iris G K I, there broke out two parhelia, or mock ſuns, N and K, not quite perfect; K being rather weak, but N ſhone brighter and ſtronger. The brightneſs of the middle of them was ſomething like that of the ſun, but towards the edges they were tinged with colours, like thoſe of the rainbow, and they were uneven and ragged. The parhelion N was a little wavering, and ſent out a ſpiked tail N P, of a colour ſomewhat fiery, the length of which was continually changing.

The parhelia at L and M, in the horizontal ring, were not ſo bright as the former, but were rounder, and white, like the circle in which they were placed. The parhelion N diſappeared before K; and while M grew fainter, K grew brighter, and vaniſhed the laſt of all.

It is to be obſerved, farther, that the orders of the colours in the circles D E F, G K N, was the ſame as in the common halos, namely, red next the ſun; and the diameter of the inner circle was alſo about 45 degrees; which is the uſual ſize of a halo.

Ariſtotle (Meteor. cap. 3.) was of opinion, that rainbows, halos, and mock ſuns, were all occaſioned by the reflection of the ſun beams in different circumſtances, by which an imperfect image of his body was produced, the colour only being exhibited, and not his proper figure. The image, he ſays, is not ſingle, as in a mirror; for each drop of rain is too ſmall to reflect a viſible image; but the conjunction of all the images is viſible.

M. Mariotte accounts for the appearance of parhelia from an infinity of little particles of ice floating in the air, which multiply the image of the ſun, either by refracting or breaking his rays, and thus making him appear where he is not; or by reflecting them, and ſerving as mirrors.

The known laws of reflection and refraction have given a handle for geometrizing on theſe phenomena; and M. Mariotte has determined the preciſe figure of the little icicles, and their ſituation in the air, the ſize of the coronæ, or circles, which accompany the parhelia, and the colours with which they are painted, by a geometrical calculus.

The hypotheſis of Deſcartes, to account for that horizontal circle in which mock ſuns appear, has leſs probability than any of his conjectures. He ſuppoſes that a great quantity of frozen vapours, crouded together by contrary winds, form a prodigious cylinder, which reflects the light that falls from it on all ſides, ſo as to exhibit that lucid appearance in all the ſurrounding clouds. M Huygens, on applying his attention to theſe appearances, was ſoon ſenſible that they could not ariſe from ſuch globules as formed the halos; yet ſince parhelia are always attended with halos, he was ſatisfied that their cauſes muſt be much alike. Conſidering, then, what other figures hail-ſtones might poſſibly have, beſides a ſpherical one, he could find no other ſo ſimple as that of a cylinder; and, indeed, he had often obſerved, that ſnow did conſiſt of ſeveral ſlender oblong particles, mixed with thoſe of other ſhapes; and ſeeing that ſmall globules were ſufficient for the production of halos, he imagined that a great number of ſmall cylinders, floating in the air, might produce ſimilar appearances. He alſo remembered that Deſcartes had taken notice of certain ſmall columns, or cylinders, which he had ſeen lying on the ground, the extremities of which were bounded with flat ſtars, conſiſting of ſix rays or points.

The large and white horizontal circle, in the Roman phenomenon, M. Huygens ſuppoſed to be produced by the reflection of the ſun's rays from the outſides of the upright cylinders; ſince, when the ſun ſhines upon a great number of ſuch cylinders, ſuſpended in the air, a white circle muſt neceſſarily appear to paſs through the ſun, parallel to the horizon, and of the ſame breadth with that of the ſun. This he ſhews very diſtinctly by a large figure of a cylinder and by pointing out the progreſs of the ſun's rays reflected from it. For every point of the ſun's vertical diameter, as well as his centre, will illuminate a circle of cylinders, of the ſame apparent height as the illuminating point. It is obſervable that no thick clouds are ſeen in the air when theſe circles appear, but only ſuch as are very thin, and ſcarcely viſible. For in moſt of theſe obſervations the ſky is ſaid to have been very clear and ſerene, which very well agrees with this hypotheſis; ſince theſe minute cylinders muſt conſtitute a very thin cloud, uniformly extended; through which the ſun, and even the blue colour of the ſky, may be ſeen.

M. Huygens ſuppoſes that the parhelia at K and N, (*fig.* 8.) are produced by the ſame upright cylinders which produce the great white circle; but not in the ſame manner as that was cauſed, *viz.* by ſimple reflection, but by means of two refractions, exactly in the ſame manner as halos are produced; the centre of the cylinder being ſnow, and the outer part ice. The interval between theſe parhelia, he ſays, will be greater, as the cylinder of ſnow is thicker in proportion to the whole cylinder; and becauſe the ſun appears brighteſt through thoſe cylinders which are on the outſides of the arch K N; and as this brightneſs decays gradually to a certain diſtance, it exhibits the appearance of a parhelion, with a tail always tending towards the white circle, and making it brighter as far as it extends. The tail N P, of the parhelion at N, is drawn out of this circle; but this was a miſtake, as Hevelius obſerves; and though it is not ſaid that the parhelion at K had any tail, yet it is plain that a certain part of the white circle was its tail, though but a dull one; becauſe this parhelion is ſaid to have been fainter than the other; and it appears, by the obſervations of Hevelius, and his own, that theſe parhelia, or mock ſuns, as well as paraſelenæ, or mock moons, always have tails. Laſtly, the extraordinary brightneſs of theſe parhelia, which was ſaid to rival that of the ſun, he ſuppoſed, might eaſily be accounted for, by conſidering that every cylinder ſhines through its whole length; whereas, the round grains in the halo, or the rainbow, emit but little light; ſo that the cylinder may probably afford more light than ten of thoſe round grains; and if there be great plenty of cylinders in the air, it is no wonder that thoſe images of the ſun ſhould appear ſo bright.

He then proceeds to demonſtrate his hypotheſis, by an accurate conſideration of the refraction of the rays of light through the ſides of ſuch cylinders as have been deſcribed; and he inveſtigates the diſtance at which the parhelia muſt appear from the ſun; ſhewing that it is ſo much the greater, as the internal cylinder of ſnow is thicker in proportion to the whole cylinder; and that this diſtance muſt become greater as the ſun riſes higher; and he ſubjoins a table of theſe diſtances, in proportion to any given altitude of the ſun; from which it appears, that if a ſufficient number of cylinders be placed one above another, (ſome of which are melted more and ſome leſs,) beſides the collateral parhelia next the ſun, two or more may appear farther from him, but ſtill in the ſame white circle, which was alſo confirmed by the obſervations of Hevelius in 1661, and of Scheiner in 1630. It appears alſo, from the ſame tables, that while the cylinders remain in the ſame ſituation, as the ſun riſes higher the intervals between him and the two parhelia will increaſe, which was the very thing which he himſelf had obſerved. But a greater alteration of theſe intervals may happen, if the cylinders be more melted; and from hence might ariſe that very remarkable phenomenon, which is ſaid to have appeared in the time of Auguſtus, when three ſuns were ſeen at the ſame time, all of which were ſoon contracted into one; which, he obſerves, would be effected by the warmth of the air melting the ſnow in the cylinders; by which means both the parhelia would draw nearer to the ſun, till they coincided with it; at which time all the cylinders would be melted, and changed into round drops.

In the next place, our author proceeds to explain the cauſe of that corona in the Roman phenomenon, of which the ſun is the centre. And here his former hypotheſis concerning halos, he acknowledges, will not anſwer the purpoſe. For though, when ſmall cylinders are produced in the air, it is probable that half-thawed globules are lodged there at the ſame time, for the production of coronas; yet it is difficult to conceive how they can be thawed in ſo exact a proportion, as to produce a corona that ſhall paſs preciſely through thoſe very parhelia.

Neither, as he obſerves, can this appearance be produced by cylinders obliquely ſituated, but only by the round ends of upright cylinders. And to ſuppoſe the above-mentioned cylinders to be always terminated by plain baſes, he ſays, is by no means agreeable to nature; for, ſince their tops and bottoms will be thawed, as well as their ſides, and to the ſame degree quite round, the water at their extremities will neceſſarily aſſume a round figure; ſo that not only thoſe upright cylinders which lie on each ſide of the ſun, and produce the collateral parhelia, will tranſmit his rays to the eye; but alſo thoſe that lie quite round beyond him, to a certain diſtance, which will, therefore, produce a corona.

To verify this hypotheſis by experiment, he ordered a glaſs cylinder to be made with round ends; and, incloſing it in an opaque body of the ſame ſhape, he found that it did, in reality, refract the light in ſuch a manner as would produce this appearance. Conſidering, therefore, the neceſſity there is for the cylinders being of this particular ſhape, in order that the rays, paſſing through their extremities, may produce coloured circles, he did not doubt, but that theſe circles are thoſe very coronas. Otherwiſe ſome irregular and ill-ſhaped circles would be ſeen.

Hevelius had remarked, that the circle which paſſes through the parhelia, frequently appears fainter above and below, and brighteſt next the parhelia. The reaſon of this M. Huygens thought to be very plain from his glaſs cylinder, ſince the rays which paſſed through the round tops and bottoms of them produced only a ſmall round image of the ſun, as round grains do; whereas thoſe which paſſed towards the ends of the cylindrical ſurfaces, where they juſt began to turn round, were formed into a broader and brighter pencil, like thoſe which produce the parhelia; and this muſt make the corona grow gradually brighter and brighter towards the parhelia, both above and below, and to be more intenſely coloured.

Having explained the cauſe of this corona, he proceeds to account for the two parhelia L and M, which appeared in the back part of the great white circle. And theſe, he thought, were produced, not by the reflection, but by the refraction of the ſun's rays in the upright cylinders. The inner opaque cylinders, he obſerves, are ſo far from contributing to the production of theſe parhelia, that they ſometimes hinder their appearance. But yet this inner cylinder of ſnow is abſolutely neceſſary, whether the outward ſhell that contains it be made of water or of ice; for, without the ſnow, the watery cylinders would be immediately changed into round drops, and the whole cylinders could not be ice, becauſe then they could not be every where tranſparent, without ſuppoſing them to have been quite liquid before they were frozen, which is inconſiſtent with a cylindrical figure.

He then ſhews, that theſe back parhelia muſt be in the large white circle; and determines, geometrically, that the diſtance between them muſt be ſixty degrees. Indeed, in Scheiner's ſcheme, the diſtance of theſe parhelia exceeds ninety degrees; but it was neither meaſured, nor eſtimated; nor, indeed, ſo much as mentioned, and therefore M. Huygens does not doubt but that it is drawn much too large. In the Roman phenomenon theſe parhelia are ſaid to have been white, whereas, according to this hypotheſis, they ought to have been coloured. M. Huygens ſuppoſes that the whiteneſs aroſe from the weakneſs of their light; on which account halos ſometimes appear white, and ſometimes alſo the lateral parhelia, as appears by the accurate obſervations of Kechelius. But that theſe back parhelia do ſometimes appear coloured, is evident from the account we have of one in Mat. Paris's hiſtory; in which we are told, that, beſides the true ſun, four mock ſuns appeared red, in a great circle, of the colour of cryſtal. That two of theſe were back parhelia, is evident from the figure, though it may be faulty in other reſpects.

The ſcarcity of cylinders, M. Huygens ſuppoſes, may be the reaſon that, in many obſervations, theſe parhelia have not appeared, though the white circle was plain enough to be ſeen. But there is another circumſtance which may hinder their appearance, *viz.* the inner cylinders of the back part of the white circle being too thick in proportion to the water that ſurrounds them. For then the rays, which ſhould produce the parhelia, will be ſtopped; and he found, by calculation, that when the ſun is twenty-five degrees high, if the diameter of the opaque cylinder bear a greater proportion to that of the whole, than 590 to 1000, no back parhelia can appear.

That the back parhelia in the Roman phenomenon appeared rounder than the lateral ones, M. Huygens ſuppoſes to ariſe from this circumſtance, that though ſome cylinders in the arc LM, which lie not far from L and M, do ſend ſome refracted rays to the eye, yet they are not ſo numerous as thoſe which come from the cylinders at L and M; and, therefore, that theſe parhelia can have no tails that are far extended, like the lateral ones. Beſides, the refractions through the cylinders that produced the back parhelia are more regular; for the rays are not confined in their courſe by the opaque cylinders within, but receive their directions from the refractions at the moſt exact figure and poliſh of the outward watery ſurface of the cylinders. For the dark cylinders within, not being exactly equal to one another, are the cauſe of the irregular and inconſtant ſhape of the lateral parhelia. The reaſon of the fluctuating motion of the tail of the parhelion N, he ſuppoſes to be, that ſometimes fewer, and ſometimes more cylinders were carried into that place; which alſo accounts for the corona D E F being ſometimes entire, and ſometimes open below, and that the parhelion K grew brighter while N grew duller. The phenomenon obſerved in 1661 by Hevelius, exhibited in *fig.* 9, ſeems to compriſe all the real varieties of this moſt magnificent ſpectacle, parts of which have often been ſeen ſeparately. The greateſt difference between this appearance and that at Rome, conſiſts in the arcs QGR and THS, which are convex towards the ſun, and which Huygens accounts for by cylinders lying in a horizontal ſituation. The parhelia in theſe inverted arcs, he ſays, are nothing more than the brighteſt parts of them; and therefore they never appear quite diſtinct, nor much brighter than the adjoining parts of the arcs. Accordingly, Hevelius, in all his obſervations of this kind, took notice, that they appeared rather dull, heavy, and faint; and he was not ſure whether there was a parhelion at H, or not. The reaſon why the middle part of the arc ſhould appear a little diſtinct from the reſt, he ſuppoſed to be this, that though there be great plenty of horizontal cylinders in the air, yet they may be ſo ſhort, as to have but little of a cylindrical ſurface, or perhaps may be like oblong ſpheroids. Beſides, it is perfectly agreeable to the obſervations of Hevelius, that the higher the ſun or moon, and conſequently the more the coronas are elevated above the horizon, the flatter theſe inverted arcs appear. It is confeſſed by M. Huygens, that the upper parts of theſe arcs are repreſented by Hevelius as being much leſs than his calculations require them to be; but he imagines that the ſight of the obſerver was impoſed upon, by the arcs being ſo much elevated above the horizon; in conſequence of which they would appear to be parts of much leſſer circles than they really are.

M. Muſchenbroeck ſays, that nothing has been advanced concerning the cauſe of parhelia, more probable than the hypotheſis of M. Huygens, except that frozen cylinders or ſpiculæ are always found tranſparent, and are never opaque at the centre. The coloured arcs that accompany parhelia, he thinks, to be not at all different from the common coronæ, ſo that if there be a quantity of icy ſpiculæ in a thin fog, the whole of this appearance will be produced, the coronæ being formed in the fog, and the parhelia in the ſpiculæ. See Huygen's Diſſertation on this ſubject in Smith's Optics, book i. chap. 11. See alſo Prieſtley's Hiſt. of Light, &c. p. 613, &c. and Muſchenbroeck's Introduction, &c. vol. ii. p. 1038, &c. quarto.

PARHOMOLOGY, παρομολογια, in *Rhetoric*, a figure wherein a part is yielded to the opponent, and the reſt denied: thus, "Sume hoc ab judicibus noſtrâ voluntate: nominem illi propiorem cognatum quam te fuiſſe, concedimus: officia tua nonnulla in illum exitiſſe, ſtipendia vos unà feciſſe aliquamdiù nemo negat; ſed quid contra teſtamentum dicis, in quo ſcriptus hic eſt." See CONCESSION.

PARIA, or NEW ANDALUSIA, in *Geography*, a province of South America, in the government of Caraccas, formerly a part of Spaniſh Guiana, ſituated E. of Cumara, on the N. coaſt of the continent of South America. Between it and the iſland of Trinidad is a large bay, called the "Gulf of Paria;" 80 miles long, and from 30 to 40 broad.

PARIA, a town of South America, and capital of a diſtrict in the viceroyalty of Buenos Ayres, commencing 210 miles N.W. of that city, and about 120 miles in extent. The air is ſo cold, that the country produces little grain, but this deficiency is compenſated by its abundance of all kinds of cattle: the cheeſe that is made here, from the milk both of ſheep and cows, is in high eſtimation, and ſent into every part of Peru. Here are alſo ſome ſilver mines; 18 miles S. of Oruro. S. lat. 18° 50′. W. long. 68° 20′.

PARIAN CHRONICLE. This venerable relic of Grecian literature is occaſionally called, Marmor Chronicon, Marmor Chronologicum, Parium Chronicon, Marmor Epocharum, Stela Epocharum, or the Arundel Marble. (See ARUNDELIAN MARBLES.) It was, in its perfect ſtate, a ſquare tablet of coarſe marble, five inches thick; and when Selden firſt inſpected it, meaſured three feet ſeven inches, by two feet ſeven. The upper part was then imperfect, the lower corner on the right hand having been broken off, which reduced that ſide of the marble to two feet eleven inches. On this ſtone were engraved ſome of the principal events in the hiſtory of ancient Greece, forming a compendium of chronology during a ſeries of 1318 years, which commenced with the reign of Cecrops, the firſt king of Athens, B. C. 1582, and ended with the archonſhip of Diognetus.

It originally contained about one hundred lines, each conſiſting, on an average, of ſixteen words, or one hundred and thirty letters; ſo that the whole might have been compriſed in ſix octavo pages. This venerable monument of antiquity was purchaſed, with many others, by Mr. W. Petty, who was employed by the earl of Arundel, in the year 1624, for the purpoſe of collecting marbles, books, ſtatues, and other curioſities, in Italy, Greece, and Aſia Minor. It appears to have been dug up in the iſland of Paros, and was purchaſed at Smyrna. When brought to England in 1627, it was placed in the gardens belonging to Arundel-Houſe, the ſite of which is now occupied by Arundel, Norfolk, Surry, and Howard-ſtreets in the Strand. The next morning, it was examined, with eager curioſity, by ſome of the moſt diſtinguiſhed literati of that time. Theſe were ſir R. Cotton, Selden, Patrick Young, and Richard [illegible]ames. After much labour it was decyphered, and a copy of it publiſhed by the learned Selden in the year 1628, accompanied with a Latin tranſlation and commentary.

During the civil wars, and the ſubſequent uſurpation of Cromwell, this rare monument of ancient literature was unfortunately broken into ſmaller fragments, and almoſt entirely defaced. The upper part, containing nearly half the original tablet, is ſaid to have been uſed in repairing a chimney-piece, or hearth, in Arundel-Houſe; but luckily the inſcription, or at leaſt as much of it as could be made out, was preſerved in the copy, which Selden had previouſly taken and publiſhed. In the year 1667 the remaining fragments were preſented by the Hon. Henry Howard, grandſon of the firſt collector, to the univerſity of Oxford, and depoſited in the public ſchools, where they ſtill remain.

The genuineneſs of this valuable relic of antiquity was univerſally acknowledged throughout all Europe, as ſoon as its contents were made known: its authority has been conſidered as equal, if not ſuperior, to any other, and writers of the firſt eminence have derived the greateſt advantage from it in their hiſtorical and chronological reſearches. It was not till the year 1788, that its authenticity was impeached by a man of conſiderable learning and induſtry, in an elaborate volume, called "A Diſſertation on the Authenticity of the Parian Chronicle." The author was the Rev. John Robertſon, who founded his doubts and objections on the following conſiderations:

1. The characters have no certain, or unequivocal marks of antiquity.

2. It is not probable that the Chronicle was engraved for private uſe.

3. It does not appear to have been engraved by public authority.

4. The Greek and Roman writers, for a long time after the date of this work, complain that they had no chronological account of the affairs of ancient Greece.

5. This chronicle is not once mentioned by any writer of antiquity.

6. Some of the facts ſeem to have been taken from authors of a later date.

7. Parachroniſms appear in ſome of the epochas, which we can ſcarcely ſuppoſe a Greek chronologer, in the 129th Olympiad, would be liable to commit.

8. The hiſtory of the diſcovery of the marbles is obſcure and unſatisfactory; and

9. The literary world has been frequently impoſed upon by ſpurious books and inſcriptions; and therefore we ſhould be extremely cautious with regard to what we receive under the venerable name of antiquity.

Theſe obſervations are made the ſubject of ſeparate chapters and diſquiſitions, and are illuſtrated with an appearance of much candour and extenſive erudition; and, for a ſhort time, the credit of the Parian Chronicle was ſhaken in the public opinion: but early in the following year, a vindication of it was undertaken by a writer of equal learning and certainly of ſuperior judgment. This was the Rev. J. Hewlett, B. D. who is well known to the public as the author of three volumes of ſermons, that have been much approved, and as the editor of a claſſical and elaborate edition of the bible, with a comment and notes, which will afford very important and uſeful inſtruction to every perſon who wiſhes to acquaint himſelf with the ſacred writings.

Other writers followed Mr. Hewlett on the ſame ſide; but their arguments had for the moſt part been anticipated by him, or illuſtrated with additional learning and ſagacity of criticiſm. It would exceed our limits to enter minutely into this controverſy; but our readers may expect to have the ſummary arguments of the vindication laid before them in the correſpondent order of the diſſertator's doubts and objections.

With reſpect to the firſt, it is truly ſaid, that mere characters can have no certain, or unequivocal marks of antiquity; but that thoſe of the Parian Chronicle bear a general reſemblance to ſuch as appear on the coins of that age, and the moſt genuine monuments of antiquity, without being a ſlaviſh imitation of any: and that a ſingular mode of notation is adopted, which is explained only in an obſcure tract of Herodian; but which occurs in no other author.

With reſpect to the ſecond obſervation, it is remarked, that there is no improbability in ſuppoſing the Parian Chronicle to have been engraved by a private perſon. Monuments on different ſubjects have been engraved and erected by individuals; ſuch are the Apotheoſis of Homer; the Tabula Iliaca; and, particularly, the Marble Tables diſcovered at Paleſtrina, on which Verrius Flaccus had a corrected calendarium engraved.

As to the third remark, it is only neceſſary to obſerve, with Mr. Hewlett, it does not appear that the Parian Chronicle was *not* engraved by public authority, and that, in either caſe, its authenticity cannot be affected by the preſent ſuppoſition.

In anſwer to the fourth, it is ſhewn that the Greek and Roman writers, for a long time after the date of this work, do not complain of their having *no* chronological account of the affairs of ancient Greece: they only complain, that there was not any *authentic* and *conſiſtent* chronology of thoſe ages; a complaint which ſtill exiſts.

In reply to the fifth article, Mr. Hewlett obſerves, that though this Chronicle is not mentioned by any writer of antiquity, yet there are abundant reaſons to prove, that the ancients could have no motive, or fair opportunity, for mentioning it. The remains of ancient literature, in which any notice of a ſmall chronological tablet could be expected, are extremely few and imperfect; beſides, it was not the practice of the ancient writers, as we learn from Pliny and others, to quote authorities, with any accuracy; and no writer who flouriſhed before the Chriſtian era, would appeal to ſo ſhort a compendium of chronology as the Parian Chronicle was, cut on ſtone, and erected in the little iſland of Paros, when he could refer to the voluminous collections of Timæus Siculus, Eratoſthenes, Apollodorus, Julius Africanus, and others. Much ſtreſs has been laid on the omiſſion of Archilochus, who was a native of Paros, in a chronological monument, that was evidently calculated to mark and record the progreſs of literature and ſcience: but profeſſor Wagner has ſhewn, that the name of the Parian ſatiriſt ought to have been inſerted under the proper epocha, where the commentators have arbitrarily filled up the lacunæ on the marble with an event of no importance. Vide Epoch. p. 34.

With regard to the ſixth aſſertion of the diſſertator, it is confidently affirmed, after a minute and critical inveſtigation of the ſubject, that there are no facts in the Parian Chronicle, which ſeem to have been taken from authors of a later date.

On the ſeventh, the reſult of Mr. Hewlett's diſquiſition is, that if there really are parachroniſms in ſome of the epochas, the authorities oppoſed to the Parian Chronicle are extremely doubtful; and that the circumſtance of its differing from the few remaining authors of antiquity, in ſome particulars, is rather an internal proof of its authenticity. After all, no one in vindicating the genuineneſs of this venerable relic of Grecian literature, ever dreamed of proving its infallibility, any more than that of any other chronologiſt.

In anſwer to the eighth objection, it is remarked, that the hiſtory of the diſcovery of the Parian Chronicle, upon the whole, is not unſatisfactory, or obſcure; ſince the commentators, critics, and hiſtorians, who have had occaſion to mention it, and who had a clear idea of what it was, agree as to the time and place of its diſcovery, and with regard to the perſon who procured it. And though we are not preciſely informed of the ſum which was paid for it, (becauſe it formed a part of a collection,) nor are furniſhed with a full account of the particular circumſtances under which it was purchaſed; yet this muſt neceſſarily have proceeded from the negligence and inadvertence, and not the ignorance, or doubts, of the firſt editor. It is ſufficient, that no juſt ground of fraud, or ſuſpicion, attaches to any of the parties in the whole of the tranſaction.

With reſpect to the ninth remark, it is ſaid, that though the literary world has frequently been impoſed on by ſpurious books and inſcriptions, yet ſpurious books apply not to the preſent queſtion; and as to inſcriptions, there is nothing to be found in the whole hiſtory of impoſtures, that bears the leaſt reſemblance in point of learning, labour, and expence, to the Parian Chronicle.

In addition to theſe remarks, let it be obſerved, ſays Mr. Hewlett, that very few men, ſince the revival of learning, have been capable of executing ſuch a literary monument as the Parian Chronicle. Of theſe few, not many, it is hoped, would have had the baſeneſs to attempt it; and others might have been juſtly withheld from doing it, by the labour of the undertaking, and the danger of detection; ſince it would require three months to cut the characters only; and, in executing ſuch a project, it is ſcarcely poſſible, that many perſons ſhould not be privy to it, and that the author ſhould not be guilty of ſome error, or meet with ſome untoward circumſtance, that would have betrayed the impoſition to ſuch a man as Mr. Petty, who purchaſed it, and who is repreſented by Selden, Dr. Chandler, and others, as a perſon of the greateſt judgment and diſcernment, and no leſs diſtinguiſhed for his learning.

Farther, on the ſuppoſition of its being a forgery, it does not appear that the impoſtor received any adequate compenſation for his trouble; and, as no oſtenſible author was held forth, the vanity of learning could not be gratified, for a moment, by the excellence of imitation, or any ſucceſsful competition with works of departed genius; motives which appear to have been general with the impoſtors of antiquity, and no leſs prevalent among thoſe of modern times. Beſides, it is not at all probable, that the fabricator of ſuch an inſcription would have broken it to pieces and defaced it, in the manner that it was when Mr. Petty purchaſed it, unleſs, like the reſt of his fraternity, he had contrived ſome prudent means of being the reſtorer of his own monument, and the interpreter of his own myſteries.

Such are the mere heads of the arguments advanced by the learned and ſucceſsful vindicator of this valuable monument of ancient literature; arguments which are illuſtrated and enforced with varied and extenſive erudition, and great diligence of reſearch, combined with much critical acumen, that is diſplayed in detecting fallacies, expoſing errors, and refuting objections. It is remarkable, that on the appearance of this maſterly vindication, the controverſy almoſt inſtantly ceaſed; and the reſpectable author of it has had the ſatisfaction of ſeeing the Parian Chronicle re-eſtabliſhed on the ſame ſolid baſis, on which it had always reſted from the time of its firſt diſcovery.

PARIAN *Marble*. See MARBLE.

PARIANA, in *Botany*, a name of Aublet's, which, as Profeſſor Martyn remarks, ſeems to have been ſuggeſted by the flowers growing in pairs upon the ſpike. Aubl. Guian. v. 2. 876. Schreb. 650. Willd. Sp. Pl. v. 4. 492. Mart. Mill. Dict. v. 3. Juſſ. 34. Lamarck Dict. v. 5. 13 Illuſtr. t. 776.—Claſs and order, *Monoecia Polyandria*. Nat. Ord. *Gramina*.

Gen. Ch. Male, *Cal.* Glume of two ſhort acute valves, containing a ſingle floret. *Cor.* of two ovate acute valves, larger than the calyx; one of them narrower than the other. *Stam.* Filaments about forty, capillary, inſerted into the baſe of the corolla; anthers linear.

Female, ſolitary in the ſame whorl, *Cal.* Glume of two ovate, concave, acute valves, containing a ſingle floret. *Cor.* of two acute valves, hairy at the ſummit, ſmaller than the calyx. *Piſt.* Germen ſuperior, triangular; ſtyle long, hairy; ſtigmas two, villous. *Peric.* none, except the permanent corolla. *Seed* ſolitary, triangular, inveſted with the glumes.

Eſſ. Ch. Male, Calyx of two valves. Corolla of two larger valves. Stamens forty, inſerted into the baſe of the corolla.

Female, Calyx of two valves. Corolla of two ſmaller valves. Style hairy. Stigmas two. Seed one, triangular.

1. P. *campeſtris*. Aubl. Guian. 877. t. 337.—Gathered by Aublet in woods and by way-ſides in Cayenne, flowering in January. The *root* is perennial. *Stems* ſeveral, reedy, a foot or two in height, ſimple, knotty, leafy. *Leaves* ſolitary at each joint, ovate, broad, pointed, entire, many-ribbed, ſmooth; paler beneath; ſheaths long, ſtriated, cloſely enveloping the ſtem, bearded at the ſummit with copious long reddiſh hairs, and contracted ſuddenly below the leaf, into a ſort of ſlender, ſhort footſtalk, accompanied by a pair of membranous fringed *ſtipulas*. *Spike* terminal, ſolitary, erect, about two inches long, denſe, whorled, each whorl conſiſting of two pair of male flowers, with a ſolitary one, and a ſingle female flower in the centre between them. The great number of *ſtamens* is very extraordinary in the natural order of graſſes, to which this plant belongs.

PARIA-TUBA, in *Geography*, a town of Braſil, in the government of Para, on the river Amazons; 35 miles S.W. of Pauxis.

PARIDSONG, or PHARI, a ſtrong town and mountain of Bootan, on the borders of Thibet; 40 miles N.W. of Taſſiſudon. N. lat 28°. E. long. 89° 13′. The fortreſs of Phari is a ſtrong ſtone building, ſituated on high ground; and on the N. and W. ſides of it is an extenſive ſuburb; on the S. is a large baſin of water; and on the E. a bank of earth projected to a conſiderable diſtance, and falling with an eaſy ſlope from a level with the rampart into the plain. The valley of Phari is very extenſive, being not leſs than ten miles long and four broad, ſurrounded on all ſides with rocky hills. At the foot of the rocks, on the weſt border of the plain, is a large brook, flowing towards the ſouth, called "Mahatchieu," which is ſaid to have a paſſage, through the hills of Nipal, into Bengal. This is the ſtation of Phari Lama, a dependant of Teſhoo Loomboo, who is here a little potentate, being ſuperintendant of a goombah, or monaſtery, and governor of a moſt extenſive range of rocks and deſerts, which yield verdure only in the mildeſt ſeaſon of the year, when his neighbourhood is frequented by large herds of the long-haired, buſhy-tailed cattle. From his character and ſtation, he has great influence among the herdſmen. The muſk-deer, which produce a valuable article of revenue, abound in the vicinity of theſe mountains. The muſk-deer are deemed the property of the ſtate, and hunted only by the permiſſion of government; and of courſe a great part of the muſk, which is a ſecretion formed in a little bag, or tumour, reſembling a wen, ſituated at the navel, and found only in the males, paſſes through the hands of its agents. It is liable to much adulteration; but that which bears the regent's ſeal may be regarded as genuine. The muſk-deer, in the language of Thibet, is called "La;" and the vaſcular covering of the muſk, "Latcha." Turner's Tibet.

PARIESOVATZ, a town of Croatia; 15 miles S. of Bibacs.

PARIETALIA OSSA, in *Anatomy*, two bones of the cranium. See CRANIUM.

PARIETARIA, in *Botany*, ſo named from *paries*, a wall, in alluſion to the place of growth of the moſt common ſpecies, which is uniformly on old ruins, or mouldering, flint walls. Linn. Gen. 544. Schreb. 724. Mart. Mill. Dict. v. 3. Sm. Fl. Brit. 189. Ait. Hort. Kew. ed. 1. v. 3. 429. Tournef. t. 289 Juſſ. 404. Lamarck Dict. v. 5. 13. Illuſtr. t. 853. Gærtn. t. 119.—Claſs and order, *Polygamia Monoecia*, Linn. and Schreb. *Tetrandria Monogynia*, Smith. Nat. Ord. *Scabridæ*, Linn. *Urticæ*, Juſſ.

Gen. Ch. *Cal.* Perianth inferior, of one leaf, four-cleft, flat, obtuſe, half the ſize of the involucrum. *Cor.* none. *Stam.* Filaments four, awl-ſhaped, longer than the flowering perianth, elaſtic, permanent; anthers twin. *Piſt.* Germen ſuperior, ovate; ſtyle thread-ſhaped, coloured; ſtigma pencil-ſhaped, capitate. *Peric.* none, except the elongated, enlarged, bell-ſhaped perianth, whoſe mouth is cloſed by the inflexed ſegments. *Seed* ſolitary, ovate, poliſhed.

Obſ. The claſs *Polygamia* having been much curtailed by Dr. Smith, we have followed him in removing this genus to *Tetrandria*. It may be remarked however that ſome of the flowers are female, and in theſe the calyx undergoes no change.

Eſſ. Ch. Calyx four-cleft, inferior. Corolla none. Stamens elaſtic. Seed ſolitary, incloſed by the elongated calyx.

1. P. *indica*. Indian Pellitory. Linn. Mant. 128. Syſt. Veg. ed. 14. 908. (Cratæogonum majus; Rumph. Amboin. v. 6. book 10. 25. t. 10?)—Leaves lanceolate. Stem erect.—Native of India. The appearance of this ſpecies is very ſimilar to the following one, but the whole herb is more naked. *Leaves* with much longer points, three-nerved and naked. *Flowers* in ſmaller heads. *Bracteas* awl-ſhaped, not ovate. *Styles* longer. *Fruit* ſeſſile, furrowed. Linnæus once took the plant of Rumphius above quoted for a *Spermacoce*, but the deſcription of the ſeed ſeems to prove it a *Parietaria*, though the oppoſite, nearly ſeſſile leaves make us rather ſuppoſe that this ſynonym belongs to *P. zeylanica*, which is now, as well as *P. microphylla*, referred to *Urtica*.

2. P. *officinalis*. Pellitory of the Wall. Linn. Sp. Pl. 1492. Engl. Bot. t. 879. Curt. Lond. faſc. 4. t. 63. Fl. Dan. t. 521. (Ἑλξινη; Dioſc.)—Leaves lanceolate-ovate, without lateral ribs at the baſe. Segments of the involucrum ovate. Stem aſcending.—Native of Britain, on mouldering walls, chiefly in ſheltered places, being rather impatient of cold; common in the ſouth of Europe. It flowers abundantly through the ſummer and autumn. *Root* perennial. *Stem* branched, ſpreading, reddiſh, ſhining, leafy, juicy. *Leaves* alternate, elliptic-lanceolate, oblique, pointed, pale beneath, the lateral nerves all ſpringing from the main rib conſiderably above the baſe of the leaf, in which it eſpecially differs from *judaica* and *indica*. Each *involucrum* is cut into ſeven ovate ſegments, and contains three fertile flowers; the central one female. The elaſtic *ſtamens*, which ſpring from the *calyx* forcibly when touched, ſcatter the pollen by that means all around.

The mucilaginous qualities of this plant have led ſome writers on the Materia Medica, to regard it as an emollient, but in this reſpect it is inferior to the Mallow tribe. Curtis remarks, on the authority of Aurelius Victor, that Conſtantine beſtowed on the emperor Trajan the name of *Parietarius*, becauſe his ſtatues and his inſcriptions, like that herb, were found on all the walls of Rome. Bradley recommends the Pellitory to be laid on the corn in granaries, for the purpoſe of driving away that deſtructive inſect the weevil.

3. P. *judaica*. Baſil-leaved Pellitory. Linn. Sp. Pl. 1492. Villars. Dauph. v. 2. 346. (P. minor, ocymi folio; Tourn. Inſt. 509. Bocc. Sic. 47. t. 24. f. A.)—Leaves ovate. Stems aſcending.—Native of Italy, France, Switzerland, Greece, and Paleſtine. Very ſimilar in habit to the laſt, but different in having ſhorter *ſtalks*, and ſmaller, oval *leaves*. *Flowers* in rather ſmaller cluſters.

4. P. *luſitanica*. Chickweed-leaved Pellitory. Linn. Sp. Pl. 1492. (P. luſitanica annua minima; Tournef. Inſt. 509. P. ſicula alſines folio; Bocc. Sic. 47. t. 24. f. B.)—Leaves ovate, obtuſe. Stems thread-ſhaped, ſtriated, even, procumbent.—Native of Spain and Portugal. Introduced at Kew in 1771, by M. Richard, where it flowers in July. *Root* annual, according to Tournefort, though Boccone ſays it differs only from the laſt, and *officinalis*, in the *leaves*, which are very much ſmaller, and of the form and ſize of Chickweed.

5. P. *urticæfolia*. Nettle-leaved Pellitory. Linn. Suppl. 434. Syſt. Veg. ed. 14. 908.—Leaves oppoſite, ſtalked, ovate, ſerrated, veiny, downy. Flowers axillary.—Found by Commerſon in the Iſland of Bourbon, hanging from the rocks, in repeatedly branched leafy tufts. *Leaves* hardly an inch long, alternate, ſtalked, ovate, rough, ſtrongly ſerrated, with an elongated blunt point. *Flowers* ſmall, in minute axillary panicles.

6. P. *cretica*. Cretan Pellitory. Linn. Sp. Pl. 1492. Sm. Prodr. Fl. Græc. v. 1. 106. Fl. Græc. t. 154. (P. cretica minor, capſulis ſeminum alatis; Tournef. Cor. 38.)—Leaves nearly ovate. Involucrum when in fruit lateral, two-lipped, tubular at the baſe; outer lip very large.—Found originally by Tournefort, and afterwards by Dr. Sibthorp, on the rocks of Crete and Cimoli. Time of flowering not recorded. *Root* perennial? fibrous, ſimple at the upper part, round. *Stems* numerous, very diffuſe, a ſpan long, branched, round, hairy, reddiſh, leafy. *Branches* ſhort, alternate. *Leaves* alternate, ſtalked, ovate or roundiſh, obtuſe, entire, veiny, hairy, dark-green; dotted with minute tubercles on the upper ſide. *Stalks* half as long as the leaves, hairy. *Flowers* axillary, ſeſſile, three together, the middle one female.

7. P. *capenſis*. Cape Pellitory. Thunb. Prodr. 31.—Leaves oppoſite, ovate, ſerrated. Branches diffuſe.—Native of the Cape, and adopted entirely on the authority of Thunberg's Prodromus. We are not acquainted with either a figure or deſcription of this ſpecies.

8. P. *debilis*. Slender Pellitory. Forſt. Prodr. n. 387.—Leaves alternate, ſtalked, ovate, quite entire, rather hairy. Stalks axillary, three-flowered. Stem nearly upright.—Native of New Zealand. *Forſter*.

9. P. *cochinchinenſis*. Cochinchina Pellitory. Loureir. Cochinch. 654.—Leaves ovate, three-nerved, hairy. Stem tufted, diffuſe.—Native of China and Cochinchina, in neglected gardens. *Root* perennial. *Stem* herbaceous, a foot and half high, ſlender. *Leaves* oppoſite, entire, ſmall, hairy. *Flowers* axillary, whorled, in little heads. Loureiro ſays that the natives uſe this plant to put at the mouths of veſſels containing ſalt proviſions, for that it attracts ſuch vermin as would otherwiſe deſtroy the ſalted meat, or fiſh. It is alſo eſteemed an emollient, refrigerant, and diuretic herb.

10. P. *arborea*. Tree Pellitory. L'Herit. in Journ. de Rozier. v. 33. 55. Ait. Hort Kew. ed. 1. v. 3. 429. (Urtica arborea; Linn. Suppl. 417. L'Herit. Stirp. Nov. 39. t. 20.)—Leaves elliptical, pointed, ſlightly three-nerved. Stem arboreous.—Native of the Canary Iſlands, whence it was ſent to Kew by M. F. Maſſon in 1779. It flowers from February to May. *Root* woody, branched, fibrous, reddiſh. *Stem* ſhrubby, five or ſix feet high, upright, round, branched, aſh-coloured. *Branches* villous; red when young with hoary hairs. *Leaves* alternate, ſpreading, entire, veiny, bright green, ſoft and downy; rather paler beneath; the younger ones much wrinkled. *Flowers* in terminal panicles, compoſed of ſimple, axillary, erect, villous ſpikes. L'Heritier originally made this ſpecies an *Urtica*, but, upon further examination, referred it to the preſent genus.

Parietaria, in *Gardening*, contains a plant of the ſhrubby kind for the greenhouſe, of which the ſpecies cultivated is tree pellitory (P. arborea.)

Method of Culture.—This plant may be increaſed by planting cuttings of the young ſhoots in the ſummer ſeaſon, watering them occaſionally till they have ſtricken root. When the plants are well rooted, they may be removed with balls about their roots into ſeparate pots, and have the conſtant protection of the greenhouſe, in which they afford variety.

PARIETES is often uſed, in anatomical deſcriptions, to denote the ſides or *walls* of a cavity; thus we ſpeak of the parietes of the cheſt or abdomen, &c.

PARIGNÉ L'EVEQUE, in *Geography*, a town of France, in the department of the Sarthe, and chief place of a canton, in the diſtrict of Le Mans; nine miles S.E. of Le Mans. The place contains 2636, and the canton 14,712 inhabitants, on a territory of 310 kiliometres, in 12 communes.

PARILIUM, in *Botany*, Gærtn. v. 1. 234. t. 51. f. 1, appears to have received that appellation becauſe the capſule conſiſts of two equal parts, clapped cloſe together, in an advanced ſtate eaſily ſeparable from each other. So the garments of the Romans made of a double ſtuff, were called *parilia*, from *par*, a pair. The genus thus denominated neverthele ſs retains the name of *Nyctanthes*, and its hiſtory is curious. The only ſpecies known is the *Arbor triſtis*, which Linnæus forced into his original *Nyctanthes*, notwithſtanding its capſular fruit; that genus, as at firſt conſtituted, having a berry, and differing from *Jaſminum* only in having eight inſtead of five ſegments to its corolla. (See JASMINUM and NYCTANTHES.) He afterwards ſo entirely forgot the plant, having no ſpecimen in his herbarium, that when he ſubſequently received one, he deſcribed it afreſh in his Mantiſſa, by the name of *Scabrita triflora*, which was ſomehow changed in the Syſt. Veg. to *S. ſcabra*. He was the more readily led into this error, by finding four ſtamens in the flowers; ſo that he placed *Scabrita* in his claſs *Tetrandria*. This character ſeems to be variable, for the plant is deſcribed with two ſtamens in the Hortus Malabaricus, which nobody has contradicted. But it has been found proper to remove all the berry-bearing ſpecies of *Nyctanthes* to *Jaſminum*, there being no certainty in the number of ſegments in the corolla, which in the common *J. officinale* vary from four to ſix, and in others are five, ſix, ſeven, or eight. When the Linnæan herbarium arrived in England, *Scabrita*, which had always been a myſtery, proved, on inſpection, the identical *Arbor triſtis*, for which the generic name of *Nyctanthes* is peculiarly appropriate. Even Juſſieu, to whom Vahl had, rather ſurreptitiouſly as on many other occaſions, communicated this intelligence, thought proper to let that name ſo remain, eſtabliſhing a new genus, under the title of *Mogorium*, for the Jaſmines with eight ſegments to the corolla;. which however has not been adopted. (See MOGORIUM.) Vahl in his Enum. Plant. v. 1. 25, has acceded to the deciſion of Banks and Solander on this point.

PARILLA, in *Geography*, a town of South America, in the province of Panama; 70 miles N.W. of Panama.—Alſo, a town of Peru; 50 miles S. of Truxillo.

PARILOVA, a town of Ruſſia, in the government of Irkutſk, on the Angara; 68 miles N. of Balaganſkoi.

PARIMA, called alſo *Paranapitinca*, or the *White ſea*, a lake of South America, in Spaniſh Guiana, is repreſented by La Cruz, as more than 100 Britiſh miles in length, by 50 in breadth. Its extent, and even its exiſtence, have been doubted, as it was the noted ſeat of the city *El Dorado*, (which ſee,) the ſtreets of which were paved with gold; a fable, which ſeems to have ariſen from a rock of talc reflecting, like a mirror, the golden rays of the ſun. N. lat. 3° 40′. W. long. 45° 20′.—Alſo, a large river, likewiſe called the Rio Blenco, which has its ſource in the abovementioned lake, and which joins the river Negro, and great river Maranon.

PARIMA, *Mountains of*. See ANDES.

PARINA CAUCHA, or *Cocha*, or *Cocas*, a town of Peru, and capital of a juriſdiction in the biſhopric of Guamanga, fertile in cattle, corn, and fruit, but receiving its principal riches from its ſilver and gold mines.

PARINARIUM, in *Botany*, Juſſ. 342, a name formed by that author from the *Parinari* of Aublet, v. 1. 514. See PETROCARYA; alſo MAMPATA and NEOU.

PARING *and* BURNING, in *Agriculture*, the proceſs of paring off the ſurface of lands in the ſtate of graſs, in order to convert them into tillage, by means of fire. It is a practice for the moſt part employed on rough coarſe grounds that are over-run with ſtrong plants of the graſs, moſs, or heath kinds, and on ſome moſſy or peaty lands.

The author of a late practical work ſtates, that "the practice of bringing land into a ſuitable condition for the growth of grain or other crops by means of fire, by paring and burning the ſurface or ſward, is probably a method of cultivation that was adopted at a very early period. It is a proceſs by which various changes are produced in the materials of the ſoils on which it is employed; ſome of which would ſeem to leſſen rather than improve their fertility, while others have obviouſly the power of promoting and augmenting it in a very conſiderable degree." And that "the action of the fire during the time of the combuſtion, eſpecially when carried to a great height, by forcing off and diſpelling much of the moiſture and elaſtic principles that they contain, as well as by reducing the proportions of vegetable and animal matters, which may be mixed and incorporated with them, muſt have the effect of producing ſome degree of deterioration; while, by its converſion of the freſh vegetable products, as the different kinds of coarſe plants and graſſes, into aſhes of an alkaline, ſaline nature, which proceſs has the property of quickly rendering the portions of vegetable materials which may remain, proper for ſupplying the nutrition of plants; and by combining oxygen with the argillaceous, earthy, or other particles contained in them, in ſuch a manner as to be eaſily parted with during the incipient ſtages of vegetation, great advantage and improvement muſt unqueſtionably in many caſes be produced. It would ſeem to be chiefly on the former principle, that the crops are generally found to be ſo abundant after land has undergone this proceſs; as the ſaline ſubſtance contained in the aſhes, though frequently ſmall in quantity, by bringing ſuch parts of the ſoils as were not before in a fit ſtate for the purpoſe of being applied to the ſupport of vegetables, ſuddenly into that ſituation in which they may be taken up by the abſorbent roots of the plants, a vaſt immediate fertility may be given, but which muſt ſoon have the effect of exhauſting the ground, if graſs or ſome other kind of green crops be not cultivated in due rotation upon it. That ſome effect of this ſort takes place in ſuch caſes, is ſhewn by the general experience of the moſt correct practical agricultors." But beſides this, there is alſo another way "in which the ſaline or other matters thus formed may be conducive to the purpoſes of vegetation, which is, by the great ſtimulus which it is known to afford to the roots of growing plants, by which they may be induced to take up a larger proportion of nutrient matters from the ſoils on which they grow. And on lands prepared in this manner, eſpecially where they are of the clayey kinds, it is probable, that in ſome inſtances ſo much oxygen may be combined, by means of the fire, with the particles of clay, as, in particular ſituations and circumſtances, to render it capable of forming nitrous acid; as is the caſe with imperfectly-baked bricks, according to Dr. Darwin, which, where lime is made uſe of at the ſame time with the aſhes, may conſtitute a ſort of calcareous nitre; a ſubſtance which experiment has ſhewn to be highly favourable to the proceſs of vegetation."

Further, that "in the method of cultivating lands, by means of paring and burning the ſurface, ſuch loſſes or deteriorations of ſoil as may be ſuſtained, muſt evidently be produced by the quantity of vegetable or animal materials, which may have been conſumed or diſperſed in the ſtate of carbonic acid or other aerial forms; as it is ſufficiently known, that not a particle of the real earthy matter of the land can be deſtroyed or carried away by the proceſs; it being left in moſt caſes where the buſineſs has been properly performed, probably in a much more mellow and friable condition, than it was before the commencement of the operation, and perhaps more ſuited to the abſorption of elaſtic principles from the ſurrounding atmoſphere." It has, however, been ſtated by the earl of Dundonald, that "the diſadvantage in reſpect to vegetable matter, is nineteen parts out of twenty; but the above author ſuggeſts that, as he has not informed us what is the degree of loſs of ſuch matter by this proceſs, where it is incorporated in the ſtate of ſoil, or the nature of the experiment from which his concluſion was drawn, we are at liberty to believe, that in this mode of preparation it is not by any means ſo great, whatever it may be where the vegetable matters are themſelves ſimply ſubmitted to the action of the fire; eſpecially as in the trials which he has made by burning ſuch ſoils as contained a large proportion of vegetable materials, ſo as nearly to reſemble that of garden mould, conſequently, having conſiderably more than is uſually met with in the lands that are ſubjected to the operations of paring and burning, it has not been nearly in ſuch a proportion even under a high degree of heat, which ought in every caſe to be as much as poſſible avoided." It is further conceived by the noble author, "that as it is only from the aſhes of freſh or growing vegetables that ſaline matters, ſuch as fixed alkaline ſalts, can be procured, none being produced from the burning of dead or decayed vegetable ſubſtances, the proportion of alkaline or other ſaline matters obtained by the proceſs is ſo ſmall, that if the utility or advantage of the practice depended materially upon them, it would be more economical to purchaſe them." "Experience has, however, ſhewn, the firſt writer obſerves, that whatever may be the proportion of ſaline matter which is formed in this way, a great deal depends upon the aſhes which are produced; as it has been found by thoſe who have been largely engaged in the practice of this huſbandry, that on thoſe parts where the aſhes were ſpread out upon the land as ſoon as the proceſs was finiſhed, the crops were highly luxuriant and productive; while on thoſe where they had been from neceſſity taken away, they were very mean and inferior, not being worth more than from an eighth to a tenth of the value of the others."

In reſpect to the nature of the ſaline ſubſtances that are formed during the proceſs of paring and burning, they have been found to be fixed vegetable alkali, and vitriolated tartar: in the latter caſe, the alkali of the conſumed vegetable matters uniting with the ſulphuric or vitriolic acid, which is frequently found to exiſt in ſome ſtate of combination or other in ſoils. Theſe ſubſtances have been found, by the experiments of Dr. Home, to be capable of promoting the growth of vegetables in a conſiderable degree.

And in addition to theſe modes, in which the practice of paring and burning may be beneficially employed in the cultivation of land, there are ſome others which ſeem of a more mechanical nature; ſuch as its reducing the various kinds of coarſe vegetable productions, as heath, furze, different ſorts of dwarf ſhrubby plants, tough benty graſſes, ruſhes, and many other aquatics, into ſuch a powdery carbonaceous ſtate, as that, by the ready action of other ſubſtances upon them when thus reduced in the ſoils, they may become uſeful in promoting the growth of proper kinds of vegetables; but which, without undergoing this proceſs, could not, by any means, from their great elaſticity, and almoſt indeſtructible properties, be prevented, for a very conſiderable length of time at leaſt, from rendering the ground too light and porous for growing any ſort of grain crops. And the ſtate and condition of the ſoils, in ſo far as reſpects their textures, as already ſuggeſted, muſt likewiſe, in many caſes, be greatly improved, being, by ſuch means, when properly performed, rendered much more mellow and powdery, and thereby more proper for the admiſſion of the fibrous roots of the growing plants, as well as more capable of minutely dividing the particles of the manures, of whatever kind they may be, that are afterwards applied to them, and conſequently of affording a more full and equable ſupply of nouriſhment to the crops that may be cultivated. And from the proceſs radically deſtroying, in moſt inſtances, when well performed, all ſorts of plants of the weed kind that may have eſtabliſhed themſelves in the ſoils which are ſubjected to the operation, the lands are left perfectly clean, and therefore in the moſt proper ſituation for affording the whole of the nutritious properties which they contain to the ſupport of the crops that may be grown upon them.

From this view of the manner in which this proceſs may contribute to the improvement of land, the nature of the products that are formed by it, and the effects which they produce on the ſoils, it would appear to be a mode of cultivation more adapted to ſome ſorts of land than others; as where they are light or thin, and there is much vegetable matter accumulated within the ſoil, whether from the decay of ſucceſſive crops or different ſorts of plants, for a great length of time, or the repeated applications of manures, without their having much ſward or coarſe vegetable products, ſuch as have been mentioned, growing upon the ſurface, it may do harm, eſpecially when a great degree of heat is not carefully guarded againſt, and judicious modes of cropping introduced, by leſſening the quantity of uſeful vegetable matter which they contain, without ſupplying any thing as a compenſation. But where they are more ſtiff and heavy, and there is a thick matted ſward, diſpoſed to the production of moſs, or covered with any ſort of rough ſour plants, whether of the graſs or other kinds; it muſt, when cautiouſly practiſed, be a highly beneficial, and perhaps, in many caſes, an indiſpenſable mode of cultivation; not only by rendering them more open and porous in their textures, and reducing the coarſe vegetable maſs into that ſort of form in which it can be readily turned down and incorporated with the earthy materials, but alſo by ſupplying a portion of ſaline or other matter, that may operate ſtill further in promoting their fertility and productiveneſs. Theſe are conſidered as the effects of the proceſs, and the caſes in which it ſhould be made uſe of, or rejected, as is fully ſhewn by the experience of the moſt exact and careful practical farmers. Mr. Donaldſon, an intelligent inquirer, who ſeems to have paid great attention to the effects of the different modes of practice that are employed in different diſtricts in the cultivation of land, it is remarked, he obſerves, that ſuch ſoils as are light and friable, are every where conſidered as unfit or improper for being treated by means of this proceſs. And an experienced writer, who appears to have cautiouſly examined the nature and effects of the operation, aſſures us, he ſays, that he has many doubts about the propriety of extending the practice to ſuch ſoils as have been already fertilized and brought into a proper ſtate of tilth, by the application of manures.

It is ſuggeſted, that there is alſo another ſort of ſoil on which the proceſs of paring and burning muſt be practiſed with equal caution, or perhaps in ſome caſes be wholly rejected, from the danger there is of its reducing the materials of which it is conſtituted in too great a degree. This is that of the peat or moſſy kind. In this caſe, the author mentioned above ſuppoſes, it is not the plants which grow upon it, but the very ſubſtance itſelf, that ſerved as a ſoil on which the plants grew, that is totally deſtroyed by incineration. This ſubſtance is, by burn-baking, amazingly diminiſhed in quantity; and the little that remains, inſtead of ſoil, after this deſtructive proceſs, is an inert earth, which is more unfit for the purpoſes of vegetation than any other that has ever fallen under his obſervation. There cannot, however, be any doubt but that, in ſome caſes, moſſy ſoils may be ſubjected to the proceſs of paring and burning with much benefit to the cultivator, provided that it be performed with proper care and attention. And it is unqueſtionably practiſed in various diſtricts without any injury being produced by the deſtruction of the materials that conſtitute ſuch ſoils.

In caſes where the ſoils are of the ſour, heavy, ſtiff, and fenny kinds, and where overgrown with ſuch coarſe vegetable productions as have been already mentioned, there cannot be the leaſt doubt of the propriety of adopting ſuch a method of practice in breaking them up and bringing them into a ſtate of cultivation.

Mr. Young has well obſerved in his Calendar of Farming, in regard to the contradictory opinions held on this practice, that by one ſet it is pronounced, contrary to every principle, that it is a waſteful, extravagant operation, which diſſipates what ſhould be retained; annihilates oils and mucilage; calcines ſalts, and reduces fertile organic matter into aſhes of very weak efficacy; that the vegetable particles which are brought into play at once, for the production of a ſingle crop, by leſs deſperate management might be huſbanded to the ſupport of many. On the contrary, the advocates for this management aſſert, that theſe objections are all founded on vain reaſoning, and philoſophical theory; that practice the moſt decided, and experience the moſt extended, pronounce it to be an admirable ſyſtem; and that the miſchiefs often quoted as flowing from it, are to be attributed merely to the abuſe of the method, and by no means neceſſarily connected with it. And he muſt, without the leaſt heſitation, declare, that the latter of theſe opinions is that to which he muſt ſubſcribe. To truſt to reaſoning in matters of agriculture, is a moſt dangerous reliance. He ſhall leave others to detail their philoſophical ſpeculations, and reſt what he has to offer ſolely on the practice, various and extenſive, of numerous agriculturaliſts, and on the common huſbandry of many ſpacious diſtricts. Theſe agree in declaring, and it is moſt particularly to be had in remembrance, for the enemies of the practice admit it, that by paring and burning you may command two or three good corn crops in ſucceſſion. The fact cannot be denied; for whether you examine the peat of the Cambridge fens, or the ſhallow chalk ſoils of the downs and wolds of Hampſhire, Glouceſter, and the Eaſt Riding, it is known, that bad farmers do act thus abſurdly. They get great crops, but they too often take them in ſucceſſion, to the injury of the ſoil, though not to its ruin, unleſs that can be eſteemed the ruin of land, which enables the tenant to pay a double rent for it. Such farmers have been in the habit of burning for wheat, and then taking two crops of ſpring corn; all good. Now, it might be aſked, how is it poſſible that that huſbandry can have all the philoſophical evils detailed above, of annihilation, diſperſion, converſion, and deſtruction, which enables a ſoil, naturally poor and weak, to give two or three good crops of corn? Their argument evidently proves too much. The effect ſhews that there is a powerful cauſe or agent in burning, which they do not underſtand; which eſcapes from the retort of the chemiſt, and from the *rationale* of the theoriſt. That operation or manure which will give a good crop of wheat, will give a good crop of turnips or cabbages; and he, who having made this commencement for the food of ſheep on the land, and knows not how to go on preſerving the advantage he has gained, is a tyro in the art of huſbandry. The farmers that are railed at, know it as well as their philoſophical inſtructors; but avarice, united with the baneful effect of ſhort, or no leaſes, make them practiſe againſt their judgments. It is maintained, that paring and burning will, on all ſoils, give turnips or cabbage; theſe fed on the land by ſheep, will ſecure barley or oats, and ſeeds; the ſeeds fed with ſheep, whether for a ſhort or a longer duration, will ſecure another crop of corn adapted to the ſoil; and in this ſtage of the progreſs the ſoil will have gained much more than it has loſt. To inſtance caſes which he has ſeen, and to quote authorities for theſe aſſertions, would be tireſome. He could produce inſtances from more than half the counties of the kingdom in ſupport of it.

But further, it has been often contended that burning leſſens the ſoil. If this happens any where it muſt be in peat; yet in the fens in Cambridge, this huſbandry has been repeated once in eight years for a century and a half, and the proofs of a loſs of depth are extremely vague, in every inſtance he has met with, and hardly to be diſtinguiſhed from that undoubted ſubſidence which takes place in drained bogs of every deſcription. In all other ſoils the aſſertion may be ſafely and poſitively denied. He has calcined pared turf, not calcareous, after careful ſeparation and weighing, and in a heat far exceeding what is ever given in denſhiring heaps, and on re-weighing, found the loſs too minute to be attributed to any thing but loſs of water intimately combined, but driven off by heat, and re-expoſing the earth to the atmoſphere, free from rain, found an increaſe rather than a diminution of weight. The vegetable particles only are reduced to aſhes. Theſe, in any method of putrefaction, would diſſolve, and combining with water, be exhaled by heat, or abſorbed by the veſſels of plants. In aſhes, theſe are in a more fixed ſtate, relatively to the influence of the atmoſphere. That plants feed on them, the great crops that ſucceed offer abundant proof. In concluſion, it is noticed that there are men who are timid in acknowledging truth, who admit the practice to be good, in poor ſoils, and in peat, and ſedgy bottoms, but fear it on better land. Experiment is againſt them, for in Yorkſhire, land of 20*s.* and 30*s.* an acre, has been thus broken up with great ſucceſs; but in what manner do they reaſon? Rich ſoils are full of vegetable fibres. Then there will be the more aſhes. Theſe are in proportion to the organic matter. Peat, which theſe men admit to be burnt, is the richeſt ſoil in the world, and therefore burning the moſt univerſally practiſed on it. The ſoil itſelf is not reduced; if it was rich before burning, aſſuredly it will be rich after it. And in addition to theſe circumſtances, is the capital one, of deſtroying inſects, grubs, and weeds. Theſe are apt to abound moſt in the richer ſoils, no reaſon for abſtaining from this huſbandry on ſuch. He ventures therefore to conclude, that paring and burning, with a proper courſe of crops, is ſafe on any ſoil; and eſſentially neceſſary on ſome. He however well remarks, that very rich ones will do exceedingly well in many caſes without it. This diſtinction, therefore, ſhould be made. There is, in ſome caſes, no *neceſſity* for it; there *is* in others.

It is obſerved in the twelfth volume of the Annals of Agriculture, that on incloſing the waſte lands in the pariſh of Bows, in Yorkſhire, large portions of the ground were ſubjected to the proceſs of paring and burning; and the few perſons who ploughed up the ground without previouſly employing this method, had reaſon to regret it. And it has been ſtated by a writer, in ſpeaking of bringing into cultivation the chaſe lands in the county of Middleſex, that the impropriety of breaking up this kind of land, without paring and burning, is manifeſted in the neighbourhood of Beech-hill, where land, after twenty years incloſure and cultivation, is in a worſe ſtate than it was originally. Well would it be for the owners of ſuch allotments, if they could now pare and burn it; but it has been ploughed, and not reducing more than what the vermin deſtroyed, laid down in ſo rough a ſtate to graſs, as to be incapable of being pared and burnt; the original wiry bent and dwarf ſhrubs are now growing in full vigour; and that on the incloſure of Stanwell, in the ſame county, the allotments on Hounſlow-heath ſucceeded well under the perfect practice of paring and burning, and ill, where the turf was ploughed without the application of fire. In the former caſe the land was immediately fit for turnips, tares, barley, and clover: in the latter, the tough, wiry bent, heath, and dwarf furze, kept the land too light and ſpongy for any crop. Even rolling, he aſſerts, cannot keep it down, for its elaſticity raiſes the ſoil ſoon after the roller has paſſed over it, and it is of ſo imperiſhable a nature, that it is likely to plague the farmer for many years. The difference between the two methods of breaking up rough ground, is more than the value of the freehold in favour of paring and burning, whereas the other proceeding leads to nothing but expence and diſappointment. It is likewiſe added that paring and burning has more merit than any other manure, in its property of converting heath, furze, ſhrubs, and wiry bent, into coal, moſt fitly prepared for the food of plants; and that it will pulverize ſuch a ſoil as much in two years as all other means can effect in twenty. And others contend, that on any ſort of ſoil which has not before been reclaimed from a ſtate of waſte, and where furze, broom, brambles, ferns, ruſhes, &c. abound, theſe operations, when properly performed, are productive of the moſt beneficial conſequences. That there is perhaps no other method that could be deviſed, ſo well adapted for preparing land in a ſtate of nature, and incumbered with ſuch productions, for valuable crops with expedition and certainty; and that, on this account, paring and burning might well be conſidered by Virgil, and other ancient writers, as a ſure means of improvement. And that, in ſuch caſes, they are ſo at this period, may, it is thought, be proved by the concurring teſtimony of thoſe to whoſe lot it falls to cultivate the common or waſte lands in many of the new incloſed diſtricts of the kingdom. It is further ſtated, that inſtances are frequently met with of great advantage, reſulting from this mode of management; and that wherever land is rendered unfit for cultivation by the incumbrances that have been mentioned, the Devonſhire mattock and the paring-ſpade may be uſed with the greateſt propriety, and the beſt effects.

In the Agricultural Survey of Suffolk, it is ſtated, that in that diſtrict they could not cultivate without this capital aſſiſtant. It is ſcarcely poſſible, profitably, to bring boggy, moory, and peat ſoils, from a ſtate of nature into cultivation, without the aſſiſtance of fire, which is the moſt effective deſtruction of the ſpontaneous growth, and never fails, unleſs the men employed do not pare deep. However, of late years an opinion againſt it has prevailed much in ſome counties. Several of the nobility and gentry of very large eſtates have interdicted the practice, not allowing their tenants to pare and burn under any pretence whatever. The reaſon aſſigned for this conduct is an apprehenſion, that the depth of the ſoil decreaſes from it, that you burn *the land*, and reduce half an inch to half a line, a great evil when the land is perhaps only three or four inches deep on a lime-ſtone rock. But this reaſoning, many very ſenſible and experienced farmers know to be falſe. They, on the contrary, urge the univerſal circumſtance of no land ever being pared till it has acquired a turf, which with natural graſſes will be from ſeven to twenty years, and with ſainfoin the duration of the crop, which is from ten to twenty years; that it is not the *ſoil* which is burnt, but the bulbs of the plants, the roots and net-work of graſs roots; the earth which is intermixed is not burnt, it is calcined but not reduced to aſhes, all of which ariſe from bulbs and roots: hence the fact that the ſtaple of the ſoil rarely ſuffers from paring and burning. If this reaſoning be not true, whence the known fact that ſoils not four inches thick, and which have remained at the ſame thickneſs as long as the oldeſt man can remember, have yet been pared and burnt regularly four or five times in a century? and as the ſame huſbandry is known by record to have been practiſed for ages in the ſame land, the ſtaple muſt have left three inches every hundred years; in other words, it muſt have been totally gone long ago, and nothing but rock remained; all which is evidently falſe, the ſoil at this day being as thick as ever. We may hence conclude, what ſuch farmers aſſert to be true, that the earth ſuffers no diminution, thoſe roots and bulbs only being reduced to aſhes, which in breaking up by the plough alone would rot away.

In ſpeaking of the objections which have been made to this practice in fen diſtricts, from the idea that it has the tendency of reducing the ſoil greatly, as is ſhewn by the ſinking of drained lands that have been pared, the ſame writer adds, that it has been found that a ſeries of ploughing and cropping ſtiffens, concentrates, and diminiſhes the lighter kinds of fen ſoils; and that the ſtratum of black peat earth, which on their firſt breaking up was conſiderably deeper than the plough ran, has been within the memory of the preſent occupiers, without any freſh paring or burning, ſo far reduced, that without taking more mould, or ploughing deeper than they formerly had been accuſtomed to do, they have not only paſſed the whole of the black peat ſtratum, but have ploughed up two or three inches of the clay beneath it; and that if it be granted, which will ſcarcely be denied, that the ſurface of the adjacent depaſtured fen lands, from the decay of vegetables, dung of animals, and the ſoil brought thither by the waters from the neighbouring high lands, has been continually, though ſlowly, increaſing, there will then appear other reaſons for their preſent different level than mere paring and burning. It is well known, that earth is not to be diſſipated by combuſtion; it is more likely this appearance proceeds, in the firſt place, from the light peaty earth of a fen ſoil being gradually conſolidated by alternate cultivation and paſturage, ſo as to ſink below the level it formerly preſerved in its uncultivated ſtate; and in the next place, may it not proceed from the commons gradually riſing higher by the accumulation of mud and ſoil depoſited by the upland waters? All theſe facts, which obviouſly reſt upon the foundation of practical experience, ſufficiently demonſtrate that little danger is to be apprehended from the deſtruction of the ſoil, when the proceſs is properly performed, and a correct method of management purſued with the land.

The effects of the proceſs may, however, be examined a little further, as they ſtand in reſpect to the different ſorts of ſoil.

Clayey Soils.—Mr. Young ſuppoſes that many appropriate reaſons have not been brought againſt the practice on this ſort of land; the only one that merits the leaſt attention, is the aſſertion, that it converts what is properly ſoil, into pieces of infertile brick. The fact is not ſo, for every one that ever burnt clay for manure, knows that though there are many lumps of the ſubſtance which they allude to, yet, that the maſs of the heaps conſiſts of aſhes, properly ſo called; but when the tenacity of this ſoil, which is one of its greateſt evils, is conſidered, it will be found that bricks are an excellent addition to the ſoil, to looſen and open its ſtubborn adheſion. He has ſeen and examined carefully heaps of clay aſhes, amounting to many hundreds of loads, that have been burnt and applied to great profit on this ſoil. By paring and burning you have, therefore, on it the common manure found in vegetable aſhes, and you have in addition a ſubſtance which acts mechanically. Hitt, he ſays, who wrote from practice, and whoſe writings abound with many juſt obſervations, remarks: I recommend burning of the ſurface as the cheapeſt manure, and moſt effectual of any; for it not only adds ſalts to the ſoil, which the burning of graſs-roots produces, but it opens part of the ſtratum of clay next the ſoil ſo much, that the roots of vegetables can afterwards feed therein; for when the turf of a piece of land has been burnt in heaps, at four or five yards apart, though all the aſhes be taken away with ſome of the clay, and ſpread over the other parts of the land, yet neither corn nor turnips will grow ſo vigorouſly there, as on thoſe places that were only opened by heat.

Alſo near Guilford, Mr. Birbeck has found this practice highly uſeful on clayey ſoils. After remarking that by the proceſs, that portion of the turf, which contains from three-fourths to four-fifths of the undecayed fibres, is at once converted into a ſubſtance the moſt favourable to vegetation; he has had the moſt deciſive proofs of the preference of paring and burning, to fallowing and to ſowing on the freſh turf on both clays and loams, and that he has never had occaſion to notice the impoveriſhment from the former, which he had ſuſpected; on the contrary, the reverſe has been ſo obvious, as to amount, in his judgment, to very ſtrong evidence, if not demonſtration. And he believes, that if the crops on equal quantities of land ſubjected to theſe different proceſſes, were accurately weighed for two, or perhaps three years, it would be found that the produce of the pared and burnt land would exceed that of the fallowed, by more than the amount of the whole turf conſumed.

Near Beverley in Yorkſhire, Mr. Moſs likewiſe gives an inſtance, within his own knowledge, of a farmer breaking up ſeveral cloſes of old ſward, one of the beſt of which, about twelve acres, he ploughed out, and pared and burnt the reſt. The firſt year he loſt 100*l.*, the ſecond 100*l.*, and the third 50*l.*, for want of paring and burning; the whole loſs 250*l.*, being more than 20*l.* *per* acre, at that time about two-thirds the value of the land. This was a fine ſweet ſward, and has not been ſuperior ſince to the pared and burnt land, on account of cropping about twenty years.

And on poor clay near Horncaſtle, Mr. Elmhurſt, after properly draining ſuch as wanted it, pares an inch, or an inch and a half thick, about Lady-day, and gets it well burnt. So ſoon as all or a good part of the piece is burnt, he ſpreads all the ant-hills as level as poſſible upon the ground betwixt the aſh-hills. He then has the aſhes all evenly ſpread, and as ſoon as a tolerable rain comes, he has the whole well harrowed, and ploughed ſhallow-furrow for turnips; and for the moſt part has had very good crops; which he always eats off with ſheep. As the land is not broken up too deep, as ſoon as the turnips are eaten off, and the land is dry enough, he has it ploughed up again into ſmall lands, about two inches and a half, not more than three deep; and with two more ploughings and harrowings in good time for ſowing it with cole-ſeed, and then barley. He has often had more than ſix quarters *per* acre, and the next year from five to ſix quarters *per* acre of wheat, upon poor land by this proceſs; and in various parts of the country, where he has for many years occupied ſuch lands, paring and burning ſuch ſort of land is the very beſt practice that can be uſed, as it tends to the enriching of it, by the greateſt quantity of manure that can be obtained.

Alſo on poor cold clay, the ſame thing has been experienced by Mr. Maxey, in Bedfordſhire. Thirty years back he broke up a piece of ſward of this deſcription, one part of which he pared and burnt, another he ploughed with horſes, and a common plough, ground ſharp, as thin as it could be, which part he alſo burnt; the remaining part was fallowed the ſucceeding winter. The part that he had ploughed by horſes, which was about five acres, abounding with ant-hills which conſiſted entirely of clay, he was under the neceſſity of burning in large heaps, whereby a large portion of the eſſence was deſtroyed. On this he had more aſhes than could be uſed to advantage thereon, and from which, after ſpreading a double portion, he manured eight acres in an adjacent field. Now, were burning ſo prejudicial as has been repreſented, this piece muſt have been utterly ruined. The two pieces thus burnt were prepared for wheat, and in due ſeaſon ſown therewith; the other with oats, which was a very poor crop, owing in ſome meaſure to the grub and other inſects, to which this kind of land is ſubject; and which in a great meaſure are deſtroyed by the preceding proceſs; the wheat on both peices was very fine, but that which was ploughed by hand was ſomewhat better, which he aſcribed to the ſuperior quality of the aſhes, they being the product of the ſurface only and burnt in ſmall heaps. In the courſe of cropping that followed, the parts burnt were ſo much ſuperior to the other, that he ſhall not exaggerate if he ſays, he had more profit from an acre of that burnt in three years, than in five from the other part. It is worthy of remark, that thoſe ſpots where the large heaps were burnt, on which the whole ſurface or ſtaple quite to the clay was conſumed to aſhes, yet by their ſituation not to that degree as was the bulk of the heaps, the fire not being ſo ſtrong next to the ground, but ſo as to retain its eſſence, not only produced the moſt luxuriant crops at firſt, inſomuch that he has been under the neceſſity of mowing them down twice, and yet has had ſo much at harveſt; but continued for a number of years ſuperior to any part of the field. When he has manured this field, he has avoided laying any dung thereon, and yet it is at this time, after a lapſe of thirty years, equal to any part of the land. This confirmed him many years back in the propriety of burning, as it is a demonſtrative proof of its efficacy and advantage, and a full refutation of all the objections which he has heard advanced to that practice. The advantage in burning in many inſtances is much greater than he has deſcribed, as much depends upon the ſeaſon. If it ſhould prove a fine dry time, the turf may be burnt much more quickly, and in ſmaller heaps, whereby the quality is rendered far ſuperior than it can be, in wet unfavourable ſeaſons, when it cannot be burnt in ſuch ſmall quantities. He particularly recommends it to be burnt in as ſmall quantities as the ſeaſon will admit; it only ſcorched the better. For the above reaſons, he recommends paring by hand in preference to that by the plough. In further proof of the advantage of burning, he ſtates a recent experiment of two neighbours in an adjacent pariſh where an incloſure took place five years back, at which time they had each a portion of waſte or common laid to their allotments adjoining to each other of equal quality: the one who is the proprietor pared and burnt, and ſowed in ſucceſſion with cole-ſeed, barley wheat, wheat, barley: all of which were good crops. The land is at this time under winter tares, which he propoſes feeding off with ſheep, and ſowing it with wheat again in the autumn. Although he cannot recommend ſuch a courſe of cropping, yet he doubts not, as the prices of the produce have been, but that he will profit very much thereby; and that its own produce of dung will more than compenſate the expence. The other farmer, who is a renter, (probably like the majority of renters, under ſome injudicious reſtraints laid down by ſome farmer's land *taſter*), fallowed his land in the winter, ſowed barley, oats, cole-ſeed, and barley, all of which were very poor crops. The former calculates that he has made a profit from fifteen to twenty pounds an acre more than the latter, and that his land is in a far ſuperior ſtate for any ſucceeding crop. It is objected that land which is burnt will not bear clover, the fallacy of which he has proved in many inſtances, having always found the clover on ſuch land to be equal to that on land which is not burned; but this he has alſo diſcovered, that no land of this deſcription whilſt new, either burnt or not, will bear clover to advantage; it muſt firſt go through a courſe of cropping of at leaſt five or ſix years, when it will be of a better texture for that purpoſe.

Loamy Soils.—Theſe are, Mr. Young ſays, eſpecially when good, thoſe upon which the practice has been moſt condemned; but here we have ſome experiments to recur to, which, in his eſtimation, ſet the matter in ſo clear a light, that nothing more is neceſſary than to recite them very ſhortly. Mr. Wilkes, of Meaſham, in Derbyſhire, has for many years been in the practice of ploughing old rough paſtures, the ſoil a ſtiffiſh loam, eight or nine inches deep, and burning the old furrow in heaps of thirty or forty buſhels each, the fires lighted by a few coals, and coal-ſlack; the effect was very great, and the improvement immenſe and durable. Mr. Wilkes is of opinion, from the experience of many years, that even this burning, which is twenty times the depth of common paring, does not waſte the ſoil in the leaſt, but does no more than break the texture of ſtiff ſoils, expelling a great quantity of water; that by expoſition to the atmoſphere the land re-abſorbs its water, and by the great immediate fertility, fills itſelf preſently with more vegetable particles than it had before. Thirty years ago his father burnt at Overſeal, exactly in the manner deſcribed, a field of ten acres, which was not then, and has not ſince been treated with any more favour than the fields adjoining, yet it has ever ſince retained a ſuperiority. And the writer, in 1790, hollow-drained an old graſs-field of four acres and a half, of cold, wet, poor loam, on a clay-marle bottom; the rent 9*s.* an acre, and not worth more in its then ſtate, perhaps, than 7*s.* In 1791 he ploughed four acres of it four inches deep, which was the whole depth of the ſoil or ſurface, of different colour from the ſtratum beneath, between that ſurface and the clay-marle, and burnt the whole furrow of the part ſo ploughed. Having no coal-ſlack, and wood being dear, he made but four heaps in the field; the conſequence was, the heat and degree of calcination were far beyond what is ever practiſed in common, and many perſons who knew and approved of paring and burning in the common way, pronounced the field completely ruined. The aſhes were ſpread, and ploughed in with a ſhallow furrow, and turnip-ſeed ſown, and very ſlightly buſh-harrowed. The crop was very fine, worth, to ſell for feeding on the land, at leaſt 50*s.* an acre. The crop on the burnt part double to that of the half acre.

And after feeding them with ſheep, the land was ploughed thrice, and ſown with oats and graſſes. The oats produced above ſeven quarters an acre, and the graſs has ever ſince been much better worth 20*s.* an acre than it was worth 5*s.* before. The oats on the half acre were not threſhed ſeparately, but judged by thoſe that viewed them to be much inferior to the reſt. About half the field has been ſince dreſſed with earth and road ſullage, and once dunged ſlightly. It is remarkable, that in three years creſted dog's tail, an excellent graſs, common in the country, the ſeed heavy, and which, therefore, could not be carried by the wind, began to appear, and has been increaſing ever ſince. There is at preſent no perceptible difference between the part burnt and the other not burnt; if any thing, the burnt is beſt. Theſe two experiments prove, if any thing can, that paring and burning does not leſſen the ſoil, in its moſt exceſſive application, and that it works a very great improvement on loams.

Likewiſe on ſtone-braſh and light loams, near Briſtol, the Rev. Mr. Swayne has experienced the advantage of this proceſs; he, indeed, has remarked, in more inſtances than one, the beneficial effects of combuſtion, in promoting the growth of vegetables on red or yellow ferruginous clay or till, which have long been ranked among the moſt unfertile of ſoils. It is that the mineral oil, with which theſe ſoils abound, and which in its natural ſtate may be the cauſe of infertility, is by the action of the fire wholly diſſipated, in the caſe of the clay being burnt red, and converted into carbonaceous matters, when that is burnt to a black cinder:—or, is this effect, he aſks, produced chiefly from the mere admiſſion of water owing to the alteration made by fire in the contexture of the clay? However he may be unable chemically to account for it, he is well aſſured of the fact.

But the following detail of a field pared and burnt, may poſſibly be thought of more conſequence to the preſent inquiry, than the before-mentioned ſmall and unfiniſhed experiment. A ſmall cloſe of old graſs lay of between two and three acres, the ſoil a lightiſh hazel loam, of about eight inches ſtaple, upon a clay ſubſoil, underneath which, at the depth of two or three feet, ſeveral ſtrata of ſtones, which will burn to brown lime, was let, in the year 1796, to a common labourer, for the term of five years, at the rate of five guineas *per* acre *per annum*, to be ploughed up for potatoes, or any other crop he might chooſe to raiſe. In the month of February the turf was pared with a breaſt-plough, and burnt in the month of March, the aſhes then ſpread, and the ground immediately ploughed. In the months of April and May it was planted with potatoes. The ſummer being rainy, it was found that the potatoes had been planted too thick. The ſtrength of the freſh ground manured with the burnt ſward, cauſed them to run too much to haulm. However, fifty-ſix ſacks of potatoes were dug from fifty perches of ground. The ſecond year it was again planted, the greater part with potatoes, ſome part with wheat. The produce was not aſcertained. After the potatoes were dug up, part of the ground, exactly half an acre, was ſown with wheat in the beginning of December. The wheat was hoed in; that is, drills were opened with the potatoe-hoes, at about nine inches apart. When one drill was opened, the ſeeds were ſcattered therein as evenly as poſſible by hand, after the rate of about one buſhel to an acre. In making a ſecond drill, the earth hoed thereout covered the wheat ſown in the firſt, and ſo on. The crop of wheat, owing to the uncommonly wet ſeaſon, run much to ſtraw, but its produce was ſixteen buſhels, or after the rate of thirty-two buſhels an acre; a very lare crop in that unpropitious ſeaſon. The reſt of the field was planted with potatoes: no account taken of their produce. The fourth ſeaſon, two roods and a half were ſown with wheat, the ſort red lammas, in the ſame manner as in the former year: the produce nineteen buſhels. A better crop, by fifteen buſhels an acre, than any farmer's in the neighbourhood. The ſtraw was purchaſed by the writer at two guineas and a half.

Sandy Soils.—In regard to ſandy ſoils, it is remarked by Mr. Young, that Hitt, a practiſer of this huſbandry, obſerves, that it improves ſandy ſoils as much as any other; and he has ſeen ſome fields thus worked in Suffolk and in Cambridgeſhire, and improved by it, though under a courſe of crops by no means admiſſible. There is not the leaſt reaſon, from analogy, to doubt the effect on this, or indeed on any ſoil.

And in Suſſex, Mr. Baldock found vaſt advantage from the uſe of this mode of breaking up poor ſandy ſoils on an extenſive ſcale. In the courſe of twelve years, the land broken up in this manner has coſt near 60*l. per* acre, but the produce which has been afforded has been fairly eſtimated at 120*l. per* acre in the ſame time.

Alſo, on thin ſkinned warren land, near Spilſby, Lincolnſhire, Mr Kerſhaw has found this practice beneficial. In the year 1782, he entered upon a farm of nearly ſeven hundred acres of land, which had chiefly been in a warren, and was at that time of very ſmall annual value. A conſiderable portion of this land was pared and burnt, and found to anſwer his moſt ſanguine expectation. The crops were full as much more as from the land which was broken up and ſown in the common courſe of huſbandry. In order to prove this aſſertion, he mentions two or three circumſtances of the proceſs and conduct. At Michaelmas 1782, he entered on the largeſt part of the farm; he had, amongſt other lands, a walk containing forty-five acres, valued to him by the quitting tenant, from that time till May-day 1783, at forty ſhillings. He mentions this to ſhew the poverty of the land, which was ſo thin ſkinned, that to have pared and burnt it was not practicable; he therefore, the year following, ploughed it up and ſowed it with oats, the crop of which was ſcarcely worth the labour. The ſummer after, working it well, and getting it into good condition, he ſowed it with cole, and it produced but a ſcanty crop. The ſpring following he laid thirty acres of it down with ſainfoin, of which he had good crops for ſeveral years. When it was worn out, having a good deal of rough graſs upon it, he pared and burnt it, and got a good crop of turnips, conſidering that it was a very dry ſeaſon; after which, he ſowed it with oats, and had a remarkably good crop for that kind of land, more than ſix quarters *per* acre. The year following he ſowed it with turnips and cole, which were decent crops; eat them off at Michaelmas, and ſowed the land with wheat. The middle of February he laid about three quarters of ſoot *per* acre, and the latter end of April laid it down with a ſtone of white clover, and two buſhels of rye-graſs *per* acre, and harrowed the ſeeds in upon the wheat; the latter yielded near a chaldron *per* acre, and a finer crop of ſeeds could not be ſeen. He has continued them ever ſince, and the land has kept three times the ſtock it was ever known to do before. This clearly ſhews the utility of paring and burning; in proof of which the thirty acres ſo cultivated, part of the forty-five valued at forty ſhillings, are now worth from ſix to eight ſhillings *per* acre, for the ſame period of time.

The other fifteen acres of the beſt land he worked in the common way, without being able to get any turnips; the crops of corn were ſcanty, and the ſeeds did not afford more than a proportion of two-thirds for the feed of ſheep. In the year 1791, he pared and burnt another piece of ſainfoin, about eighteen acres; alſo a piece of graſs ſeeds tweuty-five acres, on both of which he had remarkably fine crops of turnips.

Likewiſe on poor, gravelly heath land, Mr. Wright, in Rutlandſhire, has found this practice to anſwer perfectly. In March 1799, he began grubbing, paring, and burning a twenty-four acre piece of this heathy land: in June, ſowed it with turnips, on one ploughing, not ſuffering the plough to exceed the depth of two inches, leſt the aſhes ſhould be buried, and out of reach of the turnip to taſte. As harrowing this tough ſod would have made it lie worſe inſtead of better, the ſeed was ſown, and only buſh-harrowed. The plants came up true and well; but, after hoeing, the places where the fires had been, grew, if poſſible, ten times as faſt as thoſe where there had been none, notwithſtanding there were no aſhes left on thoſe ſpots. This ſhews the amazing fertility of fire, and is a leſſon to him and all future burners, to make their heaps as ſmall as poſſible, ſo as to enable the fires to cover as much of the ſurface as may be; for, if all the aſhes be ſwept off, and even ſome of the ſurface pared off, it will ſtill be ſuperior to the aſhes, as he fully experienced. Another advantage ariſes from making the heaps ſmall, which is the quality of the aſhes; the larger the heaps, the more intenſe the fire, and the centres of ſuch heaps get too much burned, as may be ſeen by the redneſs of the aſhes; thoſe on the outſide being perfectly black, and very little inferior to ſoot. This gronnd produced a moſt excellent quality of turnips (as indeed all burnt ground does), 2*l.* 10*s. per* acre. He afterwards ſowed with barley on one ploughing, in March: a finer crop he never ſaw (quality of land conſidered); it was eſtimated at five quarters *per* acre, throughout the piece, but not yet threſhed; clearing to him as much in one year (and conſequently a proportionate benefit muſt accrue to the nation), as it would have done by paſturage, in its original ſtate, in a century.

Chalky Soils.—Mr Young obſerves, that in reſpect to theſe, we have a much more ample field of experience, for it has been, and is the common method of breaking up downs in every part of England. On the Cotteſwold hills, in Glouceſterſhire, it is the common huſbandry, and often repeated. The ſheep walks and warrens on the wolds of the eaſt riding of York, and of Lincoln, have thus been brought moſt profitably into culture, though not with the attention in cropping that ought to have been given. In Hampſhire and Wilts, the ſame huſbandry prevails. In theſe counties he has been ſhewn lands that have been pronounced ruined by this huſbandry. The cropping was bad, but ſtill the rent had been doubled by the practice. It is ſtated in his Eaſtern Tour, that, in the weſt riding, colonel St. Ledger remarks, that if burning waſted the ſoil, his lime-ſtone lands, only four inches deep, would have been gone long ago, as it had been pared and burnt for ages.

In Kent, he lets Mr. Boys ſpeak for himſelf: who obſerves, that if any perſons who condemn paring and burning ſhould come into Kent this ſummer (1795), he can ſhew them ſeveral ſcores of acres of wheat, barley, oats, and ſainfoin, now growing on land which has ſeveral times undergone that operation. The crops of ſufficient value to buy the land at more than forty years' purchaſe, at a fairly eſtimated rent before the improvement. It is humbly preſumed, that Meſſrs. Kent, Claridge, and Pearce, the great enemies of paring and burning, will not pronounce this land *ruined* by that *execrable* practice.

And in the experience of Mr. Birbeck, near Guildford, in Surrey, on a chalky ſoil, two fields, making together about fifty acres, were laid down in an exhauſted ſtate. When they had acquired a turf, one received a ſummer's and winter's fallow, the other was pared and burnt; and both were ſown with barley and ſeeds. The effect was ſtrikingly in favour of the latter, both in the barley and ſeeds which followed.

And another field of the ſame quality, twenty-two acres, was pared by the plough in the ſpring of 1799; and about half of it was harrowed repeatedly during the ſummer: the wetneſs of the ſeaſon prevented the burning; but as the turf was completely killed, and much broken by the harrow, this part of the field became a good fallow. The remainder, not being diſturbed, ſet again; and, the following ſpring was nearly as green as before. In the ſucceeding ſummer, the operation of burning was thoroughly performed: where it had not been previouſly broken by the harrow, the entire turf, down to the chalk, was ſubjected to the fire; and in the other, though nearly decompoſed by two years' fallowing, enough was burnt to produce a tolerable ſprinkling of aſhes, to ſtimulate vegetation, if that were their property. This field affords a fair opportunity of deciding betwixt the two modes of reducing old turf to tillage. He expected that, in this inſtance, the fallow would have taken the lead by the help of the aſhes; but in the turnips now growing, the ſeeds are very much in favour of the pared and burnt land.

Peaty Soils.—Mr. Young ſtates, that whatever variety of ſentiments there are on this method, for other ſoils, here there can be none. The univerſal practice, from the flat fens of Cambridge to the ſwelling bogs of Ireland, the mountainous moors of the north of England, the rough ſedgy bottoms, in almoſt every part of the kingdom, when they are broken up by men of real practice and obſervation, are always done by paring and burning. Regiſtered experiments of doing it by fallowing, are to be met with in various works. The Board's reports of the North Riding of York, and of Somerſet, detail ſome; others are to be found in his Tours; and the reſult is either loſs, or a profit ſo very inferior, that the queſtion ought to be conſidered as ſettled and done with. Let it ſleep for ever, except for the wrong-headed individuals who will, upon every queſtion, ariſe in every age to contradict the common ſenſe of mankind.

Paring.—In the method of performing the proceſs there are ſome ſlight differences in the practice of different diſtricts; and perhaps in managing this buſineſs, an attention to the nature of the lands may be as neceſſary as in other caſes of huſbandry: as it would ſeem that ſome, as thoſe of the more clayey and heavy kinds, would be moſt benefited, by having the fire to come as much as poſſible into contact with the whole of the ſuperficial parts of them, without being carried too far; as by that means they may be rendered more proper for the reception of the roots of vegetables, after being ſlightly ploughed, as well as more ſuitable for ſupplying nouriſhment to them; while in others, as thoſe of the more light and thin deſcriptions, it might be moſt advantageous to merely conſume the thin paring of ſward after being piled up for the purpoſe; without permitting the fire to exert its influence upon the mould or ſoil immediately below, as in this way there would not probably be ſo much danger of injuring the ſtaple by deſtroying the vegetable matters contained in ſuch ſoils. Of courſe, that in the firſt of theſe modes of burning the ſward, the ſods or parings ſhould be piled up as little as poſſible into heaps, the advantage of a ſuitable ſeaſon being taken to apply the fire to them in the ſtate in which they lie, or are ſet at firſt after being cut up, or after a few only have been placed together, as happens in ſome inſtances, where they are, immediately after being cut, ſet on edge to dry, and placed in ſerpentine directions, in order to prevent them from falling over; but in the latter caſes they ſhould be formed or built up into little circular heaps or piles, ſomewhat in the form and ſize of the little cocks made in hayfields, the ſods being placed the graſs-ſide downwards, in order to admit air; but the openings both at the bottoms and tops, after they have been fully ſet on fire by ſome combuſtible ſubſtance, ſuch as ſtraw, &c. are to be cloſed up, as well as thoſe in other parts covered by an addition of ſods; ſo as that the combuſtion may proceed in a ſlow, ſmothering manner, ſuch as is practiſed in the making of charcoal. When the whole of the earth in each of the piles has been acted upon by the fire, the heaps may be ſuffered to extinguiſh themſelves by ſlowly burning out.

And there is another method of practice of this kind, which is much in uſe in ſome diſtricts, as in Devonſhire and Cornwall, for breaking up and preparing graſs lands for the reception of what have been termed fallow crops, which is that of ſkirting; in performing which, a part of the ſward or ſurface is alternately left unturned, upon which the next thin furrow-ſlice is conſtantly turned, ſo that the ſwards of each come in contact, by which means the putrefactive fermentation is ſpeedily excited, and the greateſt part of the graſſy vegetable matter converted into manure; what ultimately remains undeſtroyed being, after repeated croſs-cuttings with the plough, and harrowings, all the mould or earthy matter having been previouſly well removed from the roots of the plants by ſhaking, collected into ſmall heaps, (which is done either by the hand, or with iron-headed rakes, conſtructed for the purpoſe,) and burnt, the aſhes being then ſpread evenly over the land. The operation, when managed in this way, is termed beat-burning, and would appear to be the moſt proper and uſeful on land, where the turf or ſward is not very tough or matted together, and where there is little or no coarſe vegetable products growing upon the ſurface of it.

In ſeparating the ſward from the ſurface of the ſoil, different implements are made uſe of in different parts of the iſland: that which was the moſt employed in the infancy of the art, was a kind of curved mattock or adze, about ſeven or eight inches in length, and five or ſix in breadth; and which, from its ſhape, would appear to have been better adapted for cutting up the roots of bruſh-wood, furze, broom, or other coarſe ſhrubs, than for paring off the ſurface of a field free from ſuch incumbrances. This inſtrument is, however, it is ſaid, common in the ſouth-weſtern diſtricts; and that, though it no doubt retains in a great meaſure the ſhape of the inſtruments firſt uſed for the purpoſe in that part of the country, when the lands were in very different ſtate; yet the labourers, who are in the practice of uſing it, are able to pare off the ſod with great dexterity and diſpatch. But in other diſtricts, where the ſod is pared off by manual labour, the ordinary breaſt-ſpade, (in ſome places called the breaſt-plough, and in Scotland the ſlaughter-ſpade,) is moſtly employed. The iron, or cutting part of this implement, is about eight or nine inches in length, and from ten to twelve inches in breadth, having frequently a kind of edge riſing up a few inches at the right-hand ſide of the turf, next the unmoved ſward. This inſtrument, which is formed with a fine edge, is forced forward by the ſtrength of the arms of the perſon uſing it. and by preſſing the breaſt againſt that part of the frame or ſhaft which is held in the hand. In working the tool, the labourer generally cuts the ſods at about an inch or an inch and a half thick, and from ten to twelve inches broad; and when the ſpade has run under the ſod to the length of about three feet, he throws it off by turning the inſtrument to one ſide, and proceeds in the ſame way, cutting and throwing over the ſods, the whole length of the ridge. In this way of performing the operation, the labourers, by following each other with a ſlice of the ſward or ſurface of the land, accompliſh the buſineſs with much eaſe.

There is another implement that is ſometimes uſed for paring the ſod, which is the *horſe-paring-plough*, and is made of different conſtructions, according to the circumſtances of the ground to be pared. In the fenny diſtricts on the eaſtern coaſts, where paring and burning are practiſed on a large ſcale, they have ploughs conſtructed for the purpoſe of a particular form, but which vary from the common ploughs chiefly in the breadth and ſharpneſs of the ſhare or ſock. They are admirably calculated for paring off the ſward or ſod of ſuch grounds as are level, and where neither ſtones, bruſh-wood, ant-hills, nor other impediments obſtruct their progreſs; but where ſuch obſtructions preſent themſelves, the breaſt-ſpade, or common team-plough, with a ſmall alteration of the ſhare, will be found preferable, both in reſpect to the extent of ground that can be pared, and the ſuperior manner in which the work in ſuch caſes can be performed. Ploughs, from their great expedition and regularity of performing the buſineſs, ſhould always be made uſe of where the nature and ſituation of the land will admit them, in preference to ſuch tools as require manual labour. In ſome of the weſtern counties the common plough only is uſed. There the old graſs fields, when it is propoſed to burn the ſward, are rib or ſlob-furrowed about the beginning of winter; and being again croſs-ploughed the following ſpring, the ſods are collected and managed in the manner mentioned in ſpeaking of ſkirting. In thoſe caſes the plough has, however, a wing turned up on the furrow-ſide of the plough-ſhare, by which the furrow is cut any breadth required. The work is alſo ſometimes done by means of the ſpade, mattock, and breaſt-plough, in ſuch caſes.

Mr. Young ſtates, that in the fens of Cambridgeſhire, upon a peat ſoil, free from large roots and ſtones, the work of paring is always done with a plough, which they make on purpoſe for the work, and which executes it in the completeſt manner that can be imagined. It turns off a furrow, from 12 to 16 or even 18 inches broad, and not more than an inch deep. The uſe of this admirable tool brings down the whole expence of paring, burning, and ſpreading the aſhes, to 9*s.* or 10*s.* *per* acre. But upon thoſe ſoils, when they have not been in a ſtate of cultivation, ſuch a plough would not work.

But in old meadows and paſtures, this ſort of work is done with the breaſt-plough, as it is called, which is puſhed on by ſtrength of body, the thighs being armed with wooden guards. It is hard work, and now commonly paid for, including burning and ſpreading, from 25*s.* to 40*s.* *per* acre. An inch, or an inch and a half, is the common depth; but ſome farmers prefer two inches, for the ſake of more aſhes. The thinner it is pared, the more certain the burning, ſhould the weather prove unfavourable. Conſiderable tracts of heath and down-land, on a weak, thin, loamy ſand, with a calcareous bottom, have, within the laſt five years, been thus broken upon Newmarket-Heath, at the expence of 36*s.* *per* acre, and immenſe crops the conſequence. And the moors and mountains of the north of England, Wales, Devonſhire, &c. when broken up for cultivation, are often, and ought always to be reduced by this practice. It has long been common huſbandry in thoſe counties, and is, therefore, done cheaper, from 24*s.* to 30*s.* *per* acre. However, draining ſhould precede it.

The months in which the greateſt quantity of land is pared and burnt, are April, May, and June. The particular period muſt, however, always depend much on the ſtate of the weather, the nature of the crop, and the farmer's convenience. When the eaſt winds prevail, in February and March, this ſort of buſineſs may ſometimes be carried on. But for accompliſhing the work with the greateſt diſpatch, and alſo with the leaſt trouble and expence, a dry ſeaſon is obviouſly the beſt. The prudent farmer ſhould not embark in the undertaking, unleſs there be a reaſonable probability of his accompliſhing it while the weather keeps dry and favourable. The latter end of May, or the beginning of June, when the hurry of the ſpring ſeed time is over, in the more northern diſtricts, when a number of hands can be moſt eaſily procured, may upon the whole be conſidered as the beſt and moſt convenient ſeaſon; as at this period the green vegetable products are in their moſt ſucculent and full ſtates, and of courſe may probably afford more ſaline matter; but in the more ſouthern counties either a much earlier ſeaſon muſt be taken, or the interval between the hay ſeaſon and the harveſt time muſt be fixed upon, the latter of which is, on the principle juſt ſtated, evidently the beſt, where the extent of ground to be burnt is not too large. In other ſeaſons it would frequently be impoſſible to procure a ſufficient number of hands for performing the buſineſs. In bringing waſte lands into cultivation, where an extenſive tract of ground is to undergo this proceſs, the autumn may, in many caſes, afford a convenient opportunity for the operation.

As the crops, that are ſown after paring and burning, are various, and as the ſeaſon for performing the proceſs, in many caſes, depends, in ſome meaſure, on their nature, it may be obſerved, that when rape or turnips, which are the moſt prevailing crops in ſuch circumſtances, are to be cultivated, the end of May or the beginning of June will be the moſt proper time: but if barley or oats are to be ſown, the paring and burning muſt be completed as early in ſpring as the nature of the ſeaſon will admit; and when lands are pared and burned as a preparation for a crop of wheat, July, or even the beginning of Auguſt, may, in favourable ſeaſons, anſwer; but it is better to have the ground ready ſooner if poſſible.

The depth to which lands of different qualities may be pared with the moſt advantage differs much; but as it can hardly be proper to pare light, thin, ſtapled ſoils, to the ſame depths as thoſe of the more deep and heavy kinds, it ſhould, in ſome degree, be regulated by their particular nature, and their differences in reſpect to depth and heavineſs. Mr. Boys, however, who is in the habit of breaking up thin chalky ſoils, and ſuch as have been in tillage this way, obſerves, that in Kent, where the method of paring moſt in uſe is with down-ſhares or breaſt-ploughs, they take off turfs as thick as the nature of the ſoil will admit, from half an inch to two inches; the thicker the better, provided there be a ſufficient portion of vegetable matter contained within them to make them burn well. The moſt uſual depths of paring are from about one to three inches.

Burning.—When the ſeaſon is not very wet, the turfs will commonly be ſufficiently dried in about a fortnight or three weeks, even without being turned; but in rainy weather they require a longer time, and muſt be turned more

than

han once to prevent their ſtriking out roots and ſhoots, vhich might hinder them from burning. And that as ſoon s the turfs have fully undergone the proceſs of burning, nd are reduced to the ſtate of aſhes and a powdery earthy natter, the whole ſhould, as ſoon as poſſible, be ſpread out ver the land in as regular and equal a manner as the nature f the work will admit of; for, without great attention in his reſpect, great inequality in the crops may take place; eſides, the ſoil will be made lighter in ſome places than in thers, which may be diſadvantageous in the ſame way. The ſpreading, where it can by any means be accompliſhed, hould always be performed before any rain falls; as where his point is not attended to, a great loſs may be ſuſtained y the ſaline matters being carried down in a ſtate of ſoluion, and their beneficial effects in a great meaſure loſt beore the crops are in a condition to receive them. In order o ſecure the full influence of the aſhes, the land is frequently lightly ploughed over immediately after the aſhes are ſpread ut. And Mr. Donaldſon ſtates, that thoſe, who are more than ordinarily attentive in this reſpect, only rib or ſlob-furrow the field, ſo that the aſhes may be got covered up with the greater expedition and diſpatch. By this mode they cannot probably, however, be ſo equally mixed with the ſoil as by that of ploughing the whole field with a very ſlight furrow, ſo as juſt to cover them. It is remarked by Mr. Young, that in this buſineſs, the heaps ſhould not be made large, twelve or fifteen buſhels of aſhes are large enough; twenty may be admitted, but if much larger, the turfs will be too much burned. This muſt, however, depend, in ſome meaſure, on the weather, for the worſe that is, the larger the heaps muſt be. It will alſo depend on the thickneſs of paring. Thin flags will burn in ſmaller heaps than thick ones.

It is evident that the expence of the operation of paring and burning muſt vary according to the nature and ſituation of the land, the method in which it is performed, and the cuſtoms of the diſtrict in regard to the price of labour. On the thin ſort of chalky ſoils it is ſtated by Mr. Boys, who is accuſtomed to have ſuch land prepared by this means, that the expence for paring at a moderate thickneſs, where the land is not very flinty, is twenty ſhillings *per* acre; for laying it up in heaps and burning, ten ſhillings; and for ſpreading the aſhes, three ſhillings; and that a coat of manure is thus produced on the land of from eighty to one hundred and ſixty cart loads *per* acre, for the trifling expence of thirty-three ſhillings. A hundred cart-loads of dung purchaſed from neighbouring towns and villages, at the diſtance of three miles from the land, would coſt, carriage home included, ten times the price of down-ſharing, and yet would not improve the land more. But that, where the land is well covered with turf, it may be ploughed for burning about two inches deep, with a common plough, drawn by a pair of horſes, early in the ſpring, and as ſoon as a drying wind ſets in, the turf be laid in heaps, and burnt by labourers for one pound one ſhilling *per* acre, which will produce near two hundred cart loads.

In ſome fen diſtricts, where the original ſurface is rough and unequal, from great tufts of ruſhes, &c. called haſſocks, Mr. Young ſtates, that ſome perſons cut them with ſpades at the expence of five or ten ſhillings an acre, and others with the plough. Paths for the horſes are in that caſe to be cut by hand, and the plough made on purpoſe, and called a haſſock plough, cuts laterally much beyond the line of its draught. But opinions are ſaid to be in general, that the hand-work is the cheaper; in either caſe, the haſſocks are dried, heaped, burnt, and the aſhes ſpread. After this they go over it again with a very complete and effective tool, called a fen-paring plough, the furrow of which is burnt: the expence of this buſineſs in different caſes has been ſhewn above.

Cropping.—In the management of land by this proceſs, it is neceſſary to attend to ſuch a mode of cropping as will tend to its improvement, whatever may have been the manner or kind of ſoil in which the proceſs was performed. Without a nice and exact attention in this reſpect, much injury may frequently be done, and an uſeful practice be brought into diſrepute. Where the nature and ſituation of the land will admit of them, as in the lighter ſorts of ſoils, the growing of turnip or rape crops, to be conſumed on the ground, would ſeem to be moſt proper for the firſt year; then a white or grain crop, as oats, or wheat; after that turnips again, or, in ſome caſes, peas, beans, or ſome ſort of green crop, to be eaten off, if poſſible, by ſheep; and laſtly, a grain crop with graſs ſeeds: but on the heavier ſorts of lands, where the turnip huſbandry cannot be ſo well introduced, cole, clover, and bean crops, may often be interpoſed between thoſe of the grain kinds with the moſt propriety and advantage. And it would ſeem that the interpoſition of green crops ought on the whole to be more frequent in the former ſorts of ſoil than in thoſe of the latter, on account of their containing, in general, a leſs proportion of vegetable matter. It is often attended with great advantage to apply ſome ſort of manure, ſuch as lime, with the ſecond crop of turnips in caſes of theſe kinds. It has been obſerved by Mr. Young, that upon high moors, in undertaking new improvements, it may be of ſingular importance to gain ſtraw. In that caſe, to ſow oats upon the firſt burnt lands may be admitted, but in general it is much more correct to leave the aſhes ploughed in for ſowing turnips, upon all the land burnt in March, April, or May. This preparation is unexceptionable for potatoes, ſo that if this root be wanted, it may be planted in April on the land burnt in March.

It is ſtated to be the practice in ſome of the weſtern diſtricts, where the method of paring and burning is much practiſed, and in high eſtimation, that old ſainfoin lays, and all ſuch ſwards as are of a ſufficient texture, are uſually broken up in this way. Turnips are frequently the firſt crop; and from the freſhneſs of the land, and the good effects of the aſhes, a large crop is moſtly produced. But as in thoſe caſes the time is too ſhort to get the land in proper tilth for the ſucceeding crops of barley, graſs ſeeds, and other ſimilar crops, it is often adopted as a better method to ſow wheat in the firſt inſtance on one ploughing; after which, from the aſhes being ſtill freſh in the ground, a crop of turnips may be as certainly depended on, and there is a ſufficient length of time to get the land into a complete ſtate of tilth. Mr. Young ſpeaks of this as the beſt method, on account of the danger of grain crops being deſtroyed by the red worm, which abounds much in ſuch layers. Wheat ſtubbles, of the more graſſy kinds, which will produce a tolerable quantity of aſhes, are alſo frequently pared and burnt for turnips with a conſiderable degree of ſucceſs. In ſhort, when this practice is properly followed up with the turnip and clover huſbandry, its good effects cannot, it is conceived, be diſputed in any reſpect. And in other diſtricts cole-ſeed is ſown on a ſhallow ploughing, and never harrowed. This is intended either for a crop of ſeed, or for ſheep-food: in the latter caſe, it ſells in ſome places for a guinea an acre; in the former, for two or three guineas. Oats are then ſown; the crop is productive, and the land, if well laid down to graſs, becomes good meadow. But the management in this reſpect is frequently, it is obſerved, very bad, only clover and ray-graſs being ſown, and after ſix or ſeven years pared and burnt again; inſtead of which, if proper ſeeds were ſown, the land would be ever after in a ſtate of improvement. On this, Young remarks, that, one peculiar circumſtance attending the breaking up of graſs lands, whether old turf or ſainfoin lays, in this manner, is the bringing them into order for turnips with only one ploughing; and it is a general and very juſt obſervation, both in the north and weſt of England, where this huſbandry is moſt common, that turnips ſcarcely ever are known to fail on burnt lands: the fly on ſuch is nearly unknown. Now any farmer muſt be ſenſible of the vaſt importance of thus bringing turf lands by only one ploughing to a turnip crop; much tillage is thus ſaved as well as a great expence, and the turnips are generally a crop that repays the expences of the operation with profit. In a word, this huſbandry deſerves the warmeſt praiſe.

An able writer ſtates, that where there are poor, wet, cold, hungry paſtures and neglected meadows, over-run and filled with all ſorts of rubbiſh, and abounding with too few good plants to render their improvement eaſy without breaking up, that theſe ſhould be pared and burnt; not to keep under the plough, to be exhauſted and ruined, which is infallible, and the land left in a worſe ſtate beyond all compariſon than it was before, but to be laid immediately to graſs, that is, as ſoon as the courſe of huſbandry neceſſary will admit. This, it is conceived, ought to be without variation, under any pretence whatever, in this courſe of crops: 1ſt. Pare and burn for turnips to be fed on the land with ſheep: but in moiſt-bottomed lands, rape will often ſucced better than turnips: and the ſheep feed better with rape upon ſuch lands. 2dly. Oats; and with theſe oats the graſs ſeeds ſhould be ſown. The oats and the turnips, it is aſſerted, would more than pay all the expence of a previous hollow draining, ſhould that be neceſſary; of the paring and burning, and every other charge; and the change, from a very bad paſture to a very fine one, would all be neat profit. The tenant, it is contended, would be greatly benefited, and the landlord find his eſtate improved, if let, as farms ought to be let, with an abſolute excluſion of ſelling a lock of hay under any pretence whatever. And that this method is practiſed with great ſucceſs in the fen land in Lincolnſhire, the buſineſs being performed by means of the plough, and cole-ſeed afterwards ſown. In ſome caſes, horſes and ploughs are found, and the labour put out, which, including a ploughing in order to turn in the aſhes, is done at ſeven ſhillings an acre: the cole is fed with ſheep, and is worth three pounds an acre; but the ſelling price forty to fifty ſhillings. Then oats, eight quarters an acre, and ten quarters have been had; then cole and oats again; being laid down with fourteen pounds of white clover, and one peck of ray graſs, lets at twenty ſhillings. It is found to be a great and laſting improvement of the land. This is conceived to be a low eſtimate, from the land keeping five ſheep an acre, from Lady-day to Michaelmas, and one and a half on the acre in the winter. Where then, it is inquired, is the ſuppoſed miſchief of this practice?

And there are other ſorts of lands, as dry, rough ſheep-walks, covered with ling, furze, broom, &c. which ſhould alſo be broken up in the ſame manner, but univerſally to be laid down again with the graſſes ſuitable to the ſoil and to ſheep. On weak, thin, ſtapled land, two crops of corn, after paring and burning, may often be pernicious. Perhaps they might be well laid down without a ſingle one, which would be a better method of management. It is alſo ſuppoſed by ſome able agricultors, that it would be better to take, in ſuch caſes, two or three ſucceſſive crops of turnips, in order to completely eradicate all the ſeeds of the ling, furze, and broom, before the land is laid down to graſs, as otherwiſe theſe plants may appear with redoubled vigour. Theſe obſervations ſeem juſt, and to be founded in good ſenſe, reaſon, and experiment; they place the abſurdity of indiſcriminately condemning this mode of agricultural improvement in the cleareſt point of view; as the injury that may take place in ſome caſes may be occaſioned by an injudicious and improper method of cultivation. In Kent, Mr. Boys obſerves, that, of all the improvements in the cultivation of land that have hitherto been made uſe of in that diſtrict, this ſtands foremoſt; ſome of the very worſt land having been made to produce excellent crops; and poor chalky downs, of ſcarcely any value in their original ſtate, are by it made to produce good turnips and clover, and crops of corn often equal in value to double the fee ſimple of the land. Inſtead of the land being injured by the operation, as ſome theoretical writers have imagined, provided it be under a proper ſyſtem of management and fairly dealt by, it is put into a progreſſive ſtate of improvement from the time of its ſurface being burnt. It has frequently happened, that land after burning has been ſown with corn four or five years in ſucceſſion without being folded with ſheep, or any part of its produce ever returned in manure; even charlock and other weeds have been ſuffered to remain, by which it has been annually burthened with a double crop: hence it has been left in an impoveriſhed ſtate, and the burning is unjuſtly condemned for the miſchief done by the negligence and rapacity of the cultivator. Let the land, when burnt, be perfectly cleaned from charlock and other weeds, by growing turnips until the weeds are totally eradicated by hoeing, &c. Let the turnips be fed off the land, by ſheep lying on the land day and night; then ſow it with barley and clover: the latter to be fed off with ſheep, folding them on the land for wheat. Laſtly, return the ſtraw produced upon the land in manure, mixed with clay or loam, or any other freſh earth that is near at hand, for a ſecond Norfolk rotation, which may be repeated; or the land may be ſown with ſainfoin, to remain till a turf is formed fit for paring and burning again. This plan being purſued, the practice of burning the ſoil will not give any cauſe of complaint either to landlord or tenant. Theoriſts exclaim that by paring and burning, the ſtaple of the land is reduced, and the ſoil is waſted; which may be ſomewhat true: but all this is very immaterial, if fine crops of corn can be produced where none ever grew before, and the land at the ſame time be improved.

Mr Young, in ſpeaking of cropping repeatedly with white or grain crops after paring and burning, ſtrongly remarks, that if a dung-hill were given to a bad farmer, and it was uſed on ſimilar principles, it would almoſt equally exhauſt the ſoil; yet who has found out that dunging land is bad huſbandry? Paring and burning give a dung-hill alſo; it is bad management alone that converts it into an evil. Make it the preparation for graſs, and all is ſafe. It has alſo been ſtated, that the practice of paring and burning is ſo advantageous in ſome caſes, as to render lands, the produce of which was not worth two ſhillings and ſixpence, in the courſe of four years capable of producing two valuable crops of corn, and as many turnips, and to be rented at twenty ſhillings *per* acre.

A very intelligent farmer, in the fifteenth volume of the Annals of Agriculture, has given the following ſtatement of the expences and returns of breaking up freſh land of a ſtiff loamy quality by means of this proceſs, and cropping it with oats and peas. The ſummer in this inſtance was loſt for preparing the ground for a wheat crop. The crops are here charged with rent and taxes for two years.

I. *Oat Crop.*

	£	s.	d.
Rents *per* acre, two years poor rates, and road levy	1	4	0
Striking the buſhes and levelling willocks	0	10	6
Paring and burning, and ſpreading the aſhes	1	10	6
Once ploughing and harrowing	0	12	0
Seed oats four buſhels, at 29*s.*	0	11	0
	4	8	0
Sold ſeven quarters of oats at 1*l.* 1*s.* 0*d.* *per* quarter	7	7	0
Seeds and expences	4	8	0
Profit *per* acre	2	19	0

Straw not charged, but ſet againſt the expences of mowng and threſhing, which it more than defrayed.

II. *Pea Crop.*

	£	s.	d.
Expences the ſame as for the oat crop, with the addition of 5*s.* for four buſhels of ſeed at 3*s.*	4	3	0
Sold four quarters of peas at 32*s.*	6	8	0
Profit	2	5	0

And from the ameliorating nature of pea crops, and the xcellent ſtate in which they leave the land for a crop of wheat, they will, it is ſuppoſed, be on the whole more advantageous than the oats.

In Yorkſhire, the expences and profits on cold, moſſy, old meadow land, with a north-eaſt aſpect cultivated in this manner for turnips, as given in the ſame work by the writer of the Middleſex Survey, is this:

Expences and Profits.

	£	s.	d.
Paring, drying, and burning, with ſpreading the aſhes, *per* acre	0	15	0
Ploughing once over and harrowing	0	8	0
Seed ¾ lb. and ſowing with weeding, which in land thus prepared is but little required	0	1	0
Rent, tythe, taxes, and aſſeſſments	0	18	0
	2	2	0
Turnip crop plentiful, large ſizes, about a foot diſtance, eſtimated in feeding ſtock by the acre at	5	0	0
Seeds and Expences	2	2	0
Profit *per* acre	2	18	0

It is noticed, that in that neighbourhood, the uſual agiſtment price is ſixpence a week for fattening wethers, and three-pence a week for hogs (lambs of the preceding year) to eat the broken turnips and ſhells left by the wethers.

Theſe expences of the proceſs of paring and burning are much too low for the preſent period.

In what reſpects the kind of graſs-ſeeds that may be proper after this operation, they muſt probably be different, according to the nature and quality of the ſoil. In the light ſorts of land, thoſe kinds of graſſes that cover the earth well may be moſt ſuitable. On chalky ſoil, ſainfoin may frequently be employed. In the fenny ſorts of ſoil, marl-graſs with a little meadow fox-tail graſs, will often be found beneficial. And a ſmall mixture of the fineſt ray-graſs, or darnel, is likewiſe found to anſwer well. Marl-graſs, though it has ſome reſemblance to red clover, is materially different in its effects; the former being found unfriendly to all natural graſſes, while the latter is quite the reverſe. This is a fact that has been eſtabliſhed by extenſive experience. One other very material advantage reſulting from the cultivation of marl-graſs, is, that neat cattle are not ſo liable to ſwell by eating it in moiſt weather, as they are with red clover. The heavy or clayey ſoils will in moſt caſes require the largeſt proportion of graſs-ſeeds to be ſown upon them, in laying them down after being prepared by the proceſs of paring and burning.

In ſhort, it may be concluded, that from the great eaſe and expedition with which all thoſe coarſe ſorts of land, which have been mentioned as proper for being broken up by this means, are rendered fit for the growth of crops of different kinds, ſuch as thoſe of grain, rape, turnips, &c. as well as from the very abundant produce which is generally the caſe after ſuch preparation, that where proper attention is paid to the proceſs, and the method and management afterwards, it muſt be highly beneficial, and probably the beſt that can be adopted. It has indeed been remarked, in the able Survey of the North Riding of Yorkſhire, that when the huſbandry that ſucceeds paring and burning is judicious, no mode of improvement can be compared with it; for it is *certain* to produce *great* crops of turnips and grain, and theſe are *certain* means of future fertility in the hands of a judicious farmer.

Paring-*Plough*, an implement of great utility in many caſes, where the ſyſtem of paring and burning is practiſed. At *figs.* 1 and 2 in the plates on ploughs, are two ſide views of a paring-plough, recommended by Mr. Young for rough land. It has the ſhare ſix inches in width, by means of the pivot *a*, which ſcrews into the holes *b*. It is ſaid to be capable of performing its work in a good manner, where the fen paring-plough cannot ſtir at all. It is ſaid to have been in uſe at Sheffield Place, the ſeat of lord Sheffield, thirty years ago, having been obtained from Cheſhire, where it had been made uſe of on the farm of ſir George Warren. See the preceding article.

Paring-*Spade*, a ſort of ſpade which is made uſe of in paring land for burning, being made with a crooked handle, ſo as to be puſhed forward in uſing by the breaſt. It is ſometimes termed a breaſt-plough.

Paring *the Hoves of Horſes*, in the *Manege*, a kind of operation in ſhoeing, performed on the feet of theſe animals, with the intention of adapting or ſuiting them to the ſhoes. The buſineſs is executed with a ſort of edge tool, which is called a butteris, and is often done to the great injury and prejudice of their feet. As it is unqueſtionably the object in ſhoeing horſes to preſerve the hoof, as well as to defend the ſole, it cannot, of courſe, be neceſſary to pare away what is wanted to be kept in a ſtate of preſervation. This is conſequently a practice that ſhould never be ſubmitted to either with farm or other horſes, except in caſes where the horny ſole is ſo very uneven, that the ſhoes cannot be otherwiſe made to bear equally upon the feet, which would take off from the requiſite firmneſs of them. It may perhaps ſometimes be proper in ſuch inſtances as theſe, but in other caſes it is highly abſurd and miſchievous, being not unfrequently the occaſion of great injury and inconvenience to the animals. See HORSE and SHOEING.

PARING *the Sole*, in ſhoeing horſes, an improper operation which is too often performed on the horny parts of the feet of theſe animals in fixing the ſhoes upon them, and from which injury not unfrequently ariſes.

PARINO, in *Geography*, a town of Mexico, in the province of Culiacan; 42 miles E. of St. Miguel.

PARIPE, a town of Braſil, in the government of Bahia.

PARIPURA, a river of Braſil, which runs into the Atlantic, S. lat. 9° 42′. W. long. 35° 26′.

PARIS, MATTHEW, in *Biography*, an early Engliſh hiſtorian, was a monk of St. Albans, who flouriſhed during the middle of the 13th century. He is deſcribed as a man of almoſt univerſal accompliſhments; he was a mathematician, poet, orator, theologian, painter, and architect. He was employed to viſit the monaſteries and revive their decayed diſcipline, and without heſitation he cenſured what he found wrong in all orders of people. His principal work is his "Hiſtoria Major," which is a hiſtory of Engliſh affairs from the conqueſt to the 43d year of Henry III. It was publiſhed by archbiſhop Parker at London in 1571. It is ſuppoſed originally to have had a firſt part commencing with the creation, and coming down to William the Conqueror. It is reckoned a very valuable work, compoſed with exactneſs and much candour; and diſplaying great freedom in expoſing the uſurpations of the Roman ſee, upon the prerogatives of the Engliſh kings, on which account it incurs the cenſure of Baronius, who otherwiſe is inclined to give it great commendation. It was republiſhed with additions, and the author's lives of the abbots of St. Albans, in 1606, by Dr. William Watts. Matthew Paris alſo compoſed a "Hiſtoria Minor," being an abridgment of the former, with additional circumſtances. He wrote other works, which are loſt or lie concealed in libraries.

PARIS, FRANCIS, generally known by the name of the *abbè Paris*, and rendered famous for a time by the impoſtures and deluſions which were practiſed at his tomb, was the eldeſt ſon of a counſellor to the parliament, and born at Paris in the year 1690. His father wiſhed to bring him up to the law, in order that he might have him for an aſſiſtant in his buſineſs, and that eventually he might become his ſucceſſor, but he preferred embracing the eccleſiaſtical life, and was accordingly admitted to deacon's orders. Upon the death of his father, he renounced all claim to his patrimonial inheritance, in favour of a younger brother, and devoted himſelf to what he thought was a life of meritorious poverty. Having made trial of different places of ſolitude, he at length fixed upon a houſe in the ſuburb of St. Marcel, at Paris, where he ſpent his time in prayer, and the moſt rigorous acts of penance; hence he acquired a character for extraordinary ſanctity with the ſuperſtitious populace, who thought ſuch mortifications the very perfection of virtue. He died in 1727, at the age of thirty-ſeven. His brother erected a tomb to his memory in the cemetery of St. Medard, and ſo highly was his piety eſteemed, that many perſons who had, during his life, been edified by his inſtructions, went to viſit his monument, and ſome pretended to be cured of their diſeaſes on their approach to the grave. This induced others to do the ſame, and ſo great was the deluſion, that government was under the neceſſity to order the cemetery to be cloſed up with lofty walls. Accounts were publiſhed of at leaſt an hundred miracles ſaid to have been wrought on the ſpot. The abbè Paris was author of a "Commentary on the Goſpel of St. Matthew," and "An Explication of ſome of St. Paul's Epiſtles."

PARIS, in *Geography*, the metropolis of France, is ſituated on a plain, through which the river Seine flows in a moſt pleaſing and pictureſque manner.

Hiſtory and Extent.—Cæſar is the firſt hiſtorian who makes mention of this city. In the ſeventh book of his Commentaries, that conqueror relates that he ſent his lieutenant Labienus towards Lutetia, which was the name given by the Gauls to the capital of the Pariſii. It was then entirely contained within that iſland on the Seine, which, at the preſent day, is called l'Ile du Palais; and in compariſon with the capitals of the other provinces of Gaul, Lutetia was but a ſorry village; its houſes were ſmall, of a round form, built of wood and earth, and covered with ſtraw and reeds. When the Romans had conquered Lutetia, they embelliſhed it with a palace, ſurrounded it by walls, and erected at the head of each of the two bridges leading to it, a fortreſs, one of which ſtood on the ſcite of the priſon called "Le Grand Châtelet;" and the other, on that of "Le Petit Châtelet." The Yonne, the Marne, and the Oiſe, being rivers which join the Seine, ſuggeſted the idea of eſtabliſhing a trading company by water, in order to facilitate, by thoſe channels, the circulation of warlike ſtores, and proviſions. The merchants were called "Nautæ Paraſiaci." The Romans alſo erected, near the bank of the Seine, a magnificent palace and aqueduct. This palace was called Thermæ, on account of its tepid baths. Julian, being charged to defend Gaul againſt the irruptions of the barbarians, took up his reſidence in theſe Thermæ in the year 360, two years before he was proclaimed emperor, in the ſquare which was in the front of the palace. "I was," ſays he, in his work entitled "Miſopogon," or *the Enemy of the Beard*, which, ſays Gibbon, ſtill remains a ſingular monument of the reſentment, the wit, the humanity, and the indiſcretion of Julian, "in winter quarters in my dear Lutetia. Thus is named, in Gaul, the little capital of the Pariſii." And by another ancient writer, it is deſcribed as an inconſiderable iſland, ſurrounded by walls, the foot of which is bathed by the river. The entrance to it, on each ſide, is by a wooden bridge. Towards the middle of the fifth century, this city paſſed from the dominion of the Romans to that of the Franks, and in 508, Clovis declared it the capital of his kingdom, and he contributed very much to the embelliſhment of it. Charlemagne founded in it a celebrated ſchool, and in a ſhort time after, another was eſtabliſhed in the abbey of "St. Germain-des-Près." In the courſe of the ninth century, it was beſieged and pillaged three times by the Normans. Philip Auguſtus ſurrounded Paris with walls, compriſing in the encloſure a great number of ſmall towns and hamlets in its vicinity. The undertaking occupied about twenty years, having been begun in 1190, and finiſhed in 1211, and this monarch was the firſt who cauſed the ſtreets to be paved. The wars with the Engliſh required new fortifications, and in the reigns of John, and Charles V., in the fourteenth century, ditches were dug, and the Baſtile erected. Francis I., the reſtorer of literature and of the arts, neglected nothing that might conduce to the embelliſhment of this capital. He cauſed new ſtreets to be made, many Gothic edifices to be pulled down, and was, in France, the firſt perſon who revived Greek architecture, the remains of which, buried by the hand of time, or mutilated by that of barbarians, being collected, began to improve the genius of celebrated artiſts, and in the ſequel led to the production of many fine maſter-pieces of art. The ſucceſſors of Francis executed a part of his projects, and this extenſive city imperceptibly loſt its irregular and Gothic aſpect. Henry IV. was the firſt of the kings of France who embelliſhed Paris with regular ſquares, or open ſpaces, decorated with the different orders of architecture. Having nearly finiſhed the Pont Neuf, he built the Place Royale, and alſo the Place Dauphiné. During the reign of this king ſeveral handſome ſtreets were built and finiſhed in a year. In the reign of Lewis XIV. Paris knew no limits. Its gates were converted into arcs of triumph, and its ditches, being filled up and planted with trees, became public promenades. Paris, however, was not the favoured city of this prince, for had he expended on it a fourth part of the money which he laviſhed on Verſailles, it would have become the moſt aſtoniſhing city in Europe. It muſt however be admitted, that its great extent and population, magnificent edifices, celebrated national eſtabliſhments of learning and ſcience, rich libraries, curious cabinets, where leſſons of knowledge and genius preſent themſelves to thoſe who have a taſte for them, together with its theatres, and other places of public entertainment, have long rendered Paris deſerving of the admiration of enlightened nations. Before the revolution, Paris contained 46 pariſh churches, and 20 others anſwering the ſame purpoſe, 11 abbeys, and 133 monaſteries or convents of men and women, 13 colleges, 15 public ſeminaries, and 26 hoſpitals. To theſe muſt be added the three royal habitations, the Louvre, the Thuilleries, and the Luxembourg, alſo the Hotel des Invalides, the Palais Royal, and the Palais Bourbon. Since the revolution ſeveral of theſe buildings have been deſtroyed; almoſt all the monaſteries and convents, together with the churches belonging to them, have been ſold as national property, and either demoliſhed for the ſake of their materials, or converted to different uſes.

Population.—The number of houſes in Paris, many of which are from five to eight ſtories in height, has been eſtimated at upwards of 80,000, and by an official ſtatement a few years ſince, the number of inhabitants, excluſive of foreigners, was about 630,000. During the laſt year of the republic, the number of males born at Paris was 9296; and that of females 9177, making the total number of births to be 18,473, of which 3644 were born out of wedlock, that is, nearly one in five. The number of perſons who died in the ſame period was 10,446 males, and 10,301 females, making together 20,747, cauſing an annual decreaſe in the population of 2274. The number of marriages was 3826, and that of divorces 720, nearly two in eleven.

Diviſions and Barrières.—Paris is divided into twelve mayoralties, each of which is preſided over by a central officer of the municipal police. The fauxbourgs retain their ancient names, but thoſe of many of the ſtreets have been changed ſince the revolution. In proportion as the limits of the capital became extended, the real gates were removed, but they re-appeared under the name of *barrières*. Theſe edifices, many of which were very coſtly, were conſtructed during the miniſtry of Calonne, under the direction of Ledoux, the architect, who has taken pleaſure in varying their form and character. One repreſents an obſervatory; another, a chapel; ſome have the appearance of ruſticated buildings; others of temples. There are about ſixty of theſe barrières, which, during the revolution, were frequently ſhut to ſerve the purpoſes of party, and to favour the arreſt of particular perſons: they are now occupied by cuſtom-houſe officers, whoſe buſineſs is to collect duties, and to watch that no contraband goods find their way into the city.

The Seine and Quarries.—The river Seine, to which we have already referred, is juſtly eſteemed one of the moſt beautiful in France; it is of a light ſea-green hue, a ſingularity which adds to the effect of the noble bridges and quays. This colour is not obſervable before the junction of the Seine and Marne, where it may be clearly obſerved to belong to the latter ſtream, the Seine being of a brown or muddy appearance, while the green hue of the Marne continues unpolluted for a conſiderable ſpace. Towards the north this plain is bounded by a ſemicircular range of gentle elevations, moſtly compoſed of gypſum, or alabaſter, which by combuſtion yields the noted *plaiſter of Paris*. This ſubſtance is much uſed in the conſtruction of houſes. The calcareous free-ſtone, with which the ſuperior hotels are built, is drawn from quarries on the ſouth of the city. The ancient quarries are without the ſouthern bounds of the original city, in the form of catacombs, or narrow paſſages of great regularity.

Soil, Climate, and Streets.—The ſoil on which the city ſtands is various. On the ſouth of the river it is calcareous free-ſtone, frequently intermixed with ſhells; while on the north, as far as the ſtreets that riſe in the ſkirts of Mont Martre, it conſiſts of alluvial ſand to a conſiderable depth, followed by the gypſum of Mont Martre. "It is," ſays Mr. Pinkerton, "a well-known ſingularity in geology, that the banks of the rivers are often compoſed of different ſubſtances, owing, probably, to ſome natural incoherence, which afforded an eaſier courſe for the water to penetrate." The foſſil bones found at Mont Martre are, by Cuvier, ſuppoſed to belong univerſally to different ſpecies and ſizes of an animal now extinct but approaching neareſt to the tapir of America. And the ſea-ſhells, ſome of them unknown at preſent in the Atlantic, diſcovered at Grignon, to the weſt of Verſailles, in a bed of ſand, under a layer of ſolid lime-ſtone, indicate changes in the globe which it is impoſſible to account for. The climate of Paris differs from that of London in the ſuperior heat of the ſummer, which matures the grape in the open vineyard, a circumſtance totally unknown in England. The general warmth of the year is much the ſame at Paris as at London, the ſuperior cold of the winter balancing the heat of the ſummer. In the winter of 1802-3, the river Seine was frozen over during a fortnight, and the cold was intenſe. Pinkerton ſays, that he always thought that the environs of Mont Martre were colder than any other part of Paris, not only from the greater height of the ſituation, but from the proverbially cold nature of the alabaſter. In Paris the ſtreets are very narrow and crowded, yet even amidſt the inconveniences ariſing from theſe circumſtances, the ſuperior magnificence of the houſes and public buildings is very ſtriking, eſpecially to a perſon who, after a long reſidence at Paris, returns to London. While the latter is enveloped in clouds of ſmoke, none is perceivable at the former, except at the moment of lighting the fires in the morning; and a ſpectator from a neighbouring eminence is dazzled with the white ſplendour of the houſes and towers. The Pariſians have an univerſal prejudice againſt the uſe of coal, which they conceive to be very unhealthy, and hurtful to the lungs. The ſmoke of wood, though more prejudicial to the furniture, the colour of which it ſoon changes, is yet ſcarcely viſible in the open air, while that of coal blackens the ſurrounding objects, as appears but too certainly from the dark hue of our London churches and other ſtone buildings. The Pariſian edifices, on the contrary, are of ſuch dazzling whiteneſs, that in the ſummer the eye is fatigued, and ſeeks for the repoſe of ſome milder colour.

Public Buildings.—It has often been made a queſtion, whether Paris or London is to be reckoned the finer city; according, however, to a well-informed traveller, London is ſaid to be the more impoſing to the eye as a whole, but Paris will better bear diſſection. The wide ſtreets and broad foot pavements in London give a general impreſſion of grandeur, but the public buildings that can be noticed as really fine ones are few. At Paris, while the city does not give an impreſſion of grandeur as a whole, the objects which, taking it in detail, claim particular attention, are grand and numerous. There is nothing in London which can be compared to the quays at Paris along the Seine, from the Pont Neuf to the end of the town on the weſt, particularly the quay on the right bank; along which run, in ſucceſſion, the Louvre, the great gallery of which joins it to the Thuilleries, the Thuilleries itſelf with the gardens, the Place de la Concorde, and the Champs Elyſées. The origin of the Louvre, as well as the etymology of its name, is loſt in the darkneſs of time. It exiſted under that name in the reign of Philip Auguſtus, who ſurrounded it with ditches and towers, and made it a fortreſs. The great tower of the Louvre, celebrated in hiſtory, was inſulated, and built in the middle of the court. All the principal feudatories of the crown derived their tenure from this tower, and came hither to ſwear allegiance, and pay homage. It was likewiſe a priſon previouſly prepared for them, if they violated their oaths. The Louvre received alſo from this enormous tower a melancholy and terrifying aſpect, which rendered it not at all adapted to a royal reſidence. Charles V. endeavoured to enliven it, and made it commodious for thoſe times. Several foreign monarchs ſucceſſively lodged in it, ſuch as Manuel, emperor of Conſtantinople; Sigiſmund, emperor of Germany; and the emperor Charles V. The large tower of the Louvre, which, at different periods, had ſerved as a palace to the kings of France, as a priſon to the great lords, and as a treaſury to the ſtate, was at length taken down in 1528. The part of the palace which at preſent is denominated the Old Louvre, was begun under Francis I., but was firſt inhabited by Charles IX., under whom it became the bloody theatre of treacheries and maſſacres, on the infamous St. Bartholomew's day, which time will never, and ought never, to efface from the memory of mankind, and which, till the mercileſs reign of Robeſpierre, were unexampled in the hiſtory of that country. In after-times this palace became the quiet and happy cradle of the arts and ſciences, the ſchool for talents, the arena for genius, and the aſylum of artiſts and literati. The centre pavilion over the principal gate of the Old Louvre, was erected under the reign of Lewis XIII. from the deſigns of Mercier, as well as the angle of the left part of the building, parallel to that built by Henry II. The eight gigantic *cariatides* (ſee the article), which are to be ſeen there, were ſculptured by Sarraſin. The ſeveral parts of this palace which were conſtructed under the reigns of Charles IX. and Henry III., partake of the taſte of the times, in regard to the multiplicity of the ornaments; but the interior announces, by the majeſty of its decorations, the refined taſte of Lewis XIV. The part of the Louvre, which, with two ſides of the old building, forms the perfect ſquare about 400 feet in extent, called the New Louvre, conſiſts in two double façades, which are ſtill unfiniſhed. The colonnade of the Louvre, which is the maſter-piece of French architecture, and the admiration of Europe, was built by Perrault. The façade of this colonnade, which is of the Corinthian order, is about 525 feet in length; it is divided into two periſtyles, and three avant-corps. The principal gate is in the centre avant-corps, which is decorated with eight double columns, crowned by a pediment, whoſe cornices are compoſed of two ſtones only, each fifty-four feet in length by eight in breadth, though no more than eighteen inches in thickneſs. They were taken from the quarries of Meudon, and formed but one ſingle block, which was ſawed in two. The other two avant-corps are ornamented with ſix pilaſters, and two columns of the ſame order, and diſpoſed in the ſame manner. On the top, inſtead of a ridged roof, is a terrace, bordered by a ſtone baluſtrade, the pedeſtals of which are intended to bear trophies intermixed with vaſes. In front of this magnificent colonnade, a multitude of ſaleſmen erect their ſtalls, and diſplay their various articles. This contraſt ſtill ſpeaks to the eye of the attentive obſerver. It is the image of all the reſt,—grandeur and beggary ſide by ſide. The front to the river is handſome, but not to be compared to the other, and that is unfiniſhed. The other two fronts are ſo encompaſſed by houſes, that they are ſcarcely ſeen at all. The inſide of the court, like the reſt of the building, will be handſome, and extremely grand, if it be ever finiſhed.

The great Gallery which joins the Louvre to the Thuilleries is more than 1200 feet long. The Palais des Thuilleries was ſo called, becauſe a tile-kiln formerly ſtood on the ſcite where it is erected. At that time, this part of Paris was not compriſed within its walls, nothing was to be ſeen in the vicinity of the tile-kiln, but a few coppices and ſcattered habitations. The conſtruction of this palace was begun in May 1564. At firſt, it conſiſted only of the large ſquare pavilion in the centre of the two piles of building, which have each a terrace towards the garden, and of two pavilions, by which they are terminated. Henry IV. enlarged the original building, and in 1600 began the grand gallery which joins it to the Louvre. Lewis XIII. made ſome alterations in the palace, and in 1664, Lewis XIV. directed it to be finiſhed, by making the additions and embelliſhments which have brought it to its preſent ſtate. Theſe deviations from the firſt plan have deſtroyed the proportions required by the ſtrict rules of art; nevertheleſs the architecture, though variouſly blended, preſents, at firſt ſight, an *enſemble* which is magnificent and ſtriking. The whole front of the palace conſiſts of five pavilions, connected by four piles of building, ſtanding on the ſame line, and extending for the ſpace of more than 1000 feet. The firſt order of the three middle piles is Ionic, with encircled columns. The two adjoining pavilions are alſo ornamented with Ionic pillars; but fluted, and embelliſhed with foliage from the third of their height to the ſummit. The ſecond order of theſe two pavilions is Corinthian. The two piles of building, which come next, as well as the two pavilions of the wings, are of the Compoſite order, with fluted pillars. An iron paliſade divides the court of the Thuilleries from the Carouſel; in this are three gateways, the two end ones of which are ornamented by the four celebrated bronze horſes, ſuppoſed to have been the work of Lyſippus, and which, previouſly to their occupying their preſent ſtation, had ſucceſſively ornamented the arch of Nero at Rome, the Hippodrome at Conſtantinople, and the church of St. Mark at Venice. The gardens of the Thuilleries are always open to the public, and are the principal promenade of this part of the town. Among the decorations of the gardens are many fine ſtatues, bronzes, and caſts. The Place de la Concorde, at the end of the gardens of the Thuilleries, between them and the Champs Elyſées, is one of the fineſt ſpots in Paris. The Garde Meuble, which forms one ſide of the Place, is little inferior in beauty to the grand façade of the Louvre; the deſign of it ſeems indeed to have been taken from the latter building, only that in the Garde Meuble there is an arcade below the colonnade which is not the caſe in the Louvre; a ſtreet leading to the Boulevards divides the length of this building. At the end of this ſtreet is ſeen the church of La Madelaine, begun ſome years ago upon a very beautiful deſign, but like many other fine buildings it is only half finiſhed. Four very fine marble groups decorate the gates which lead from the gardens of the Thuilleries, and from the Champs Elyſées to the Place de la Concorde. Thoſe on each ſide the gates of the Thuilleries are Mercury and Fame; thoſe to the Champs Elyſées are wild horſes broken by ſlaves.

Bridges.—Of all the bridges, ſays Sterne, it muſt be acknowledged that the grandeſt, the lighteſt, the longeſt, and the broadeſt, that ever joined land to land, is the Pont Neuf. The firſt ſtone of this bridge was laid by Henry III. in 1578, and the foundation of the piles was begun to be formed on the oppoſite ſide, when the troubles of the League forced the architect, De Cerceau, to withdraw to foreign countries. The work was not reſumed till the reign of Henry IV.; it was finiſhed in 1674. The length of the bridge is 1020 feet and its breadth 72 feet, which is ſufficient to admit of five carriages paſſing abreaſt. It is formed of twelve arches, ſeven of which are on the ſide of the Louvre, and five on the ſide of the Quai des Auguſtines, extending over the two channels of the river, which is wider in this place, from their junction. In 1775 the parapets were repaired, and the footway lowered and narrowed. Soufflot, the architect of the Pantheon, availed himſelf of the opportunity to build, on the twenty half-moons which ſtand immediately above each pile, as many rotundas, in ſtone, to ſerve as ſhops. On the outſide, above the arches, is a double cornice, which attracts the eye of the connoiſſeur in architecture, notwithſtanding its mouldering ſtate, on account of the ***fleurons*** in the antique ſtyle, and the heads of ſylvans, dryads, and ſatyrs, which ſerve as ſupports to it, at the diſtance of two feet from each other. As the mole that forms a projection on this bridge, between the fifth and ſeventh arch, ſtands facing the Place Dauphine, which was built by Henry IV. it was choſen for erecting to him a ſtatue, which was the firſt public monument of the kind that had been raiſed in honour of French kings. To the eaſt of Pont Neuf the ſmall iſlands in the middle of the Seine are connected to its banks by ſeveral bridges; to the weſt there are two; of theſe the firſt is the Pont National, formerly called the Pont Royal, from its having been built by Lewis XIV., and the expences defrayed out of the privy purſe, to ſupply the place of one of wood, ſituated oppoſite to the Louvre, which was carried away by the ice in 1684. It is reckoned one of the moſt ſolid bridges in Paris, and, till the exiſtence of the Pont de la Concorde, was the only one built acroſs the river, without taking advantage of the iſlands. It ſtands on four piles, forming, with the two abutments, five elliptical arches of a handſome ſweep. The ſpan of the centre arch is ſeventy-two feet, that of the two adjoining ſixty-ſix, and that of the two outer ones ſixty. On each ſide is a raiſed pavement for foot paſſengers, in the middle there is breadth ſufficient to admit of four carriages paſſing abreaſt. The north end of the Pont National faces the wing of the palace of the Thuilleries, diſtinguiſhed by the name of the Pavillion de Flore. From the middle of this bridge the city is ſeen in a moſt ſtriking point of view. Following the banks of the Seine towards the weſt we next come to the Pont de la Concorde, which was begun in 1787, and finiſhed in 1790. It is 462 feet in length, by forty-eight in breadth. Like the Pont National it conſiſts of five elliptical arches, the ſpan of the centre arch is 96 feet, that of the collateral ones 87, and that of the two others near the abutments 68. Under one of the latter is a tracking-path for the facility of navigation.

Boulevards.—This is the name given to the promenades with which Paris is, in part, ſurrounded, for an extent of more than 12,000 yards. They are diſtinguiſhed by the names of the Old and New. The Old, or North Boulevards, commonly called Les Grands Boulevards, were begun in 1536, and intended to ſerve as fortifications againſt the Engliſh, who were ravaging Picardy, and threatening the capital. Hence the name Boulevard, which ſignifies a bulwark. The extent of the Old Boulevards is about 5000 yards: they were firſt planted in 1660, and are formed into three alleys by four rows of trees. The middle alley is appropriated to carriages and perſons on horſeback, and the two lateral ones are for foot paſſengers. The New Boulevards, ſituated to the ſouth, were not finiſhed till 1761: they are about 7000 yards in extent, and though laid out much in the ſame manner as the Old, there is little reſemblance between them. Near the middle of the North Boulevards ſtand two edifices, which owe their erection to the vanity of Lewis XIV. In the gratification of that paſſion did he conſole himſelf for his numerous defeats and diſappointments, and the age in which he lived being fertile in great men, his diſplay of it was well ſeconded by their ſuperior talents. Previouſly to his reign, Paris had ſeveral gates, ſome of which being taken down, arches of triumph, in imitation of thoſe of the Romans, were erected in their ſtead, by Lewis the Great, in commemoration of his exploits. Such was the origin of Porte Saint Denis. The magnificence of the architecture of this building claſſes it among the firſt public monuments in Paris. It conſiſts of a triumphal arch, inſulated in the manner of thoſe of the ancients: it is 72 feet in diameter as well as in elevation, and was executed in the year 1672. On each ſide of the principal entrance riſe two ſculptured pyramids, charged with trophies of arms. Underneath each of the pyramids is a ſmall collateral paſſage for perſons on foot. The arch is ornamented with two bas reliefs: the one facing the city repreſents the paſſage of the Rhine; the other the capture of Maeſtricht. On arriving from Calais, you enter Paris by the Porte St. Denis; and it was by the Porte St. Denis that kings and queens made their public entry. On theſe occaſions, the houſes in all the ſtreets through which they paſſed were decorated with ſilk hangings and tapeſtry, as far as the cathedral of Notre Dame. Scented waters perfumed the air in the form of jets d'eau, while wine and milk actually were made to flow from different public fountains. At a ſhort diſtance from Porte St. Denis is Porte St. Martin, which was erected in 1764, as a triumphal arch, but it is not at all equal in magnificenee to the other. It is pierced with three openings; the centre one is eighteen feet wide, and the two others nine. The whole ſtructure, which is fifty-four feet both in height and breadth, is ruſticated, and in the ſpandrils of the arch are four bas reliefs, which are crowned by an entablature of the Doric order, ſurmounted by an attic. The Porte St. Martin is the grand entrance into Paris from all parts of Flanders.

Public Libraries.—The moſt ſplendid of theſe collections has had different names according to the nature of the government. Under the kings it was the Royal Library; during the republic it was called the National Library; and it is now the Imperial Library. The building itſelf is very large, its length being more than 500 feet, and its breadth upwards of 120. The principal floor of the building which ſurrounds the large court is entirely filled with books, from the bottom to the cieling. At the window, and in different parts of one of the wings, tables are placed for the accommodation of readers. The library is open every day from ten till two. In a ſmall receſs of one of the four ſides of the library, is a group of about five feet in height,

and

and ſix in breadth, erected in the time of Lewis XIV. It repreſents Parnaſſus with Apollo and the Muſes. There are likewiſe in the library ſome buſts of celebrated French literati. This library traces its origin to a very remote era. Charles V. added about 900 volumes to a ſmall collection left by his father John. This collection, placed in a tower of the Louvre, was called "La Tour de la Librairie," and was lighted every night by thirty ſmall chandeliers and a ſilver lamp, ſo that ſtudents and the learned might be accommodated every hour. The library was after this diſperſed; for in 1429, when Paris was in the hands of the Engliſh, under the command of the duke of Bedford, that nobleman bought the 150 volumes, of which it conſiſted, for 1200 livres. Lewis XI. collected the ſcattered remnants of this library, and profited by the reſources which the invention of printing preſented to him. Charles VIII. added to it what the conqueſts of Italy allowed him to collect. Lewis XII. enriched it with the library of Petrarch: Francis I. with Greek manuſcripts; and Henry II. augmented it, in conſequence of the decree of 1556, enjoining bookſellers to furniſh the royal libraries with a copy on vellum of every book publiſhed. Hence it became ſo large, that many years ago it was allowed to equal, if not to excel, every other collection extant. It is now much enriched by the ſpoils of Venice, Florence, and Rome. It conſiſted, fifteen years ago, of more than 300,000 volumes, and is divided into five departments. The firſt, containing the printed books, is on the firſt ſtory. The ſecond department compriſes manuſcripts, to the number of 80,000; of which 25,000 are in learned and foreign languages, and 30,000 on the hiſtory of France, chiefly from the reign of Lewis XI. The five great rooms on the ſecond ſtory contain the genealogies, and are filled with 5000 port-folios. The cabinet of medals is decorated with three large pictures, repreſenting Thalia, Calliope, and Terpſichore. There are alſo three pictures repreſenting Pſyche, the inventrix of the flute, led by Hymen, and the three patrons of the Muſes. The cabinet of antiques, ſituated on the third ſtory, contains buſts, vaſes, inſcriptions, and inſtruments of ſacrifices collected by the celebrated Caylus. Oppoſite to the entrance, various Egyptian antiquities meet the eye. At one end of the room are warlike inſtruments of different Indian nations. On the floor ſtands a large antique marble table. The walls are decorated with the ſhields of Scipio and Hannibal. In the middle of this cabinet of antiques is a long table, covered with Etrurian vaſes of ſuperior beauty. On the third floor are two apartments, which contain Etrurian vaſes of extraordinary magnitude, a bathing veſſel of porphyry, ſacrificing knives, lamps, &c. Two rooms belonging to the library are filled with a collection of 5000 volumes of prints.

The library of the Arſenal is ſuppoſed to contain 75,000 volumes, and 6000 manuſcripts. It formerly belonged to the count d'Artois, now forms part of the library at the Luxembourg, and contains many MSS. beautifully illuminated on vellum. The library of the Pantheon conſiſts of 100,000 printed volumes, and 2000 MSS., and is decorated with different marble buſts of French literati. The library of St. Victor was opened in 1652, and among its numerous MSS. is a collection of the proceedings againſt the celebrated Jeanne d'Arc. Beſides theſe, all the public bodies have their reſpective libraries, to which acceſs may be readily had by foreigners as well as natives.

Literary Inſtitutions.—The National Inſtitute is the principal of the learned ſocieties of Paris. Its main object is to improve the arts by uninterrupted inquiries; by the examination of literary and ſcientific labours, and by correſpondence with foreign and learned ſocieties. "It is impoſſible," ſays an American traveller, "for a foreigner and a ſtudent to be a week in the French capital, without having his imagination abſolutely overpowered, and his enthuſiaſm wound up to the higheſt pitch, by the eclat which he ſees attendant on ſcience and literature, and the facilities which he finds open to him for the culture of all the branches of human knowledge. For beſides the libraries, and other eſtabliſhments already mentioned, all of which are acceſſible upon the eaſieſt terms, there are innumerable gratuitous lectures read at the expence of government at all hours in the day: a garden of plants, and a muſeum of natural hiſtory, the moſt perfect in the arrangement, and the moſt ample in the materials, to be found in the world; and the branches of knowledge to which they relate are daily explained to all viſitors, by men illuſtrious for their ſkill and their diſcoveries; public exhibitions to excite literary emulation, and national rewards to give ſpirit to literary induſtry." Of the National Inſtitute (ſee INSTITUTE), his imperial majeſty himſelf is a member, and the reputation of this learned body exceeds that of any other learned ſociety in the world. This body is but an incorporation of the old academies of Paris, and is now divided into four diſtinct claſſes correſpondent to thoſe academies. The *firſt* claſs is that of the phyſical and mathematical ſciences; the *ſecond*, that of the literature of France, and of the French language; the *third*, that of hiſtory and ancient literature; and the *fourth*, that of the fine arts. The members, together with the foreign aſſociates, amount to the number of two hundred. When a nomination is to take place, the claſs by which it is to be made ſelects two candidates, between whom the emperor makes choice. Each claſs has one public ſitting annually; at this prizes are diſtributed, memoirs read, &c. The firſt claſs has a private ſitting every Monday, from three o'clock until ſix in the evening, to which ſtrangers are admitted when introduced by a member. The members receive an annuity from government of about fifty pounds. Moſt of them, however, and particularly thoſe who belong to the firſt claſs, are inveſted with public employment, ſo as to be furniſhed with an eaſy ſubſiſtence. Upon ſome of them the higheſt honours of the ſtate have been laviſhed. For ſome time after his acceſſion to the government, Bonaparte found the Inſtitute the moſt unmanageable of all the public aſſociations of France. It was filled with men who had taken an active part in the revolution, and ſome of whom were enthuſiaſtically devoted to the principles of freedom. His efforts to mould them to his purpoſes, and to render them completely ſubſervient to the conſolidation and increaſe of his power, were for a long time ineffectual. After employing the means of intimidation without ſucceſs, he had recourſe to a ſyſtem of patronage and corruption, which he has found much more efficacious. The laborious *ſavans*, and the indigent literati, were converted into ſenators, counſellors of ſtate, legiſlators, inſpectors, and even miniſters, and the majority of the whole body inveſted with the croſs of the legion of honour. A complete victory over the Inſtitute was of ſome importance to the views of Bonaparte, but of a moſt pernicious tendency with regard to the intereſts of freedom and ſound literature. The ſubordinate claſſes of this body embrace, with few exceptions, thoſe who are moſt deſervedly eminent throughout the empire for their learning. The firſt claſs, as a ſcientific aſſociation, ranks higher than any other in the world. The public meetings of the National Inſtitute are held in a very extenſive and magnificent room. Both its ſides are adorned by beautiful colonnades, and the ceiling is finely painted and decorated. Between the columns are fourteen marble ſtatues, highly finiſhed, of the moſt celebrated perſons whom France ever produced, *viz.* Conde, Tourville, Deſcartes, Bayard, Sully, Turenne, Dagueſſeau, L'Hopital, Roſſuel, Duqueſne, Catinat, Vauban, and Fenelon. At the ends are two ſitting figures of Paſcal and Rollin. In the antichamber are the ſtatues of Moliere, Racine, Corneille, La Fontaine, and Monteſquieu. The hall is extremely well lighted ; the floors are covered with carpets, and tables are placed parallel to the four walls of the hall, at which the members of the Inſtitute take their places. The preſident of the Inſtitute is ſeated at the upper end of the hall ; in the middle, and rather on one ſide of him, is a tribune, from whom, whatever is propoſed is received by the preſident, who does not leave his chair. The place allotted for members is ſurrounded by a rail, between which and the walls there is, round the hall, a row of benches, where the ſpectators take their ſeats. Each claſs annually propoſes two prize queſtions, and in theſe general meetings the anſwers are made public, and the premiums diſtributed. The united ſections of painting, ſculpture, and architecture elect the pupils, who, at the expence of the republic, are to travel to Rome, in order to ſtudy the fine arts. Twenty young men are elected by the Inſtitute to travel in France, and in foreign countries, for the purpoſe of ſtudying rural economy. Six members, alſo, of the Inſtitute itſelf, are to travel at the public expence to collect information, and to acquire experience in the different ſciences.

In the Muſeum of French monuments, the ſeveral ſubjects are diſtributed in different apartments ; and by their arrangements they exhibit the ſtate of ſtatuary in France from the earlieſt periods to the preſent time. They are arranged according to their reſpective antiquity, each department containing ſpecimens of a ſingle century, which is numbered at the entrance ; and receiving light through the windows of painted glaſs, executed during the ſame period. The Muſeum of Natural Hiſtory conſiſts of a botanic garden, of a library for natural hiſtory, of a menagerie, or collection of foreign animals, and of an amphitheatre, or lecture room. Profeſſors deliver public lectures in rotation during the ſummer months.

Public Inſtruction.—After the ſuppreſſion of the colleges and univerſities exiſting under the monarchy, the National Convention, by a decree of the 14th of January 1795, eſtabliſhed Normal ſchools throughout the republic. Profeſſors and teachers were appointed to them, and it was intended, that in theſe nurſeries youth ſhould be prepared for the higher ſchools, according to the new plan of inſtruction. However, in the courſe of a few months, theſe Normal ſchools were ſhut up, and primary, ſecondary, and central ſchools, were ordered to be eſtabliſhed in every department. In the primary ſchools, reading, writing, and arithmetic formed the chief part of the inſtruction. Owing to various cauſes, the ſecondary ſchools were not eſtabliſhed. In the central ſchools, the whole of the inſtruction was divided into three claſſes or ſections In the firſt are taught drawing, natural hiſtory, and ancient and modern languages. In the ſecond, mathematics, phyſics, and chemiſtry. In the third, univerſal grammar, the fine arts, hiſtory, and legiſlation. In the firſt claſs, the pupils were to be received at the age of twelve ; into the ſecond, at fourteen ; and into the third at ſixteen. To each central ſchool are attached a library, a botanic garden, and an apparatus for chemiſtry and experimental philoſophy. The profeſſors are examined and choſen by a jury of inſtruction, and that choice confirmed by the adminiſtration of the department. Beſides theſe, there are ſpecial ſchools, in which are taught the uſeful ſciences, juriſprudence, medicine, and natural hiſtory. There are likewiſe ſchools appropriated to different profeſſions, ſolely devoted to the public ſervice, and which require particular knowledge in the arts and ſciences. Hence they bear the name of " Schools for public Services." In order to be admitted into any of theſe ſchools, the candidates muſt prove themſelves qualified by the preliminary inſtruction required in the examinations at the competition preſcribed for each of them. The pupils of theſe ſchools receive a ſalary from the nation. At the head of them is the *Polytechnic School,* which is the grand nurſery whence the pupils, after they have attained a ſufficient degree of perfection, are tranſplanted into the other ſchools for public ſervices. Next come the *Schools of Artillery,* of which there are eight in the places where the regiments of artillery are garriſoned. The pupils who are ſent thither as officers, after having been examined, apply their knowledge to the arts ; to the conſtruction of works ; and to the manœuvres of war dependent on artillery. Each ſchool, in which the pupils muſt remain two years longer, is under the ſuperintendance of a general of brigade of the corps. The ſchool of military engineers, united to that of miners, is eſtabliſhed at Metz. Its labours relate to the application of the theoretical knowledge which the pupils have imbibed at the Polytechnic ſchool. The object of theſe labours is the conſtruction of all ſorts of works of fortification, mines and countermines, mock repreſentations of ſieges, attack and defence, the drawing of plans and military ſurveys, and all the details of the duty of engineers in fortified places, and in the field. The number of pupils is limited to twenty : they have the rank and pay of ſecond lieutenants. They undergo a ſtrict examination reſpecting the objects of inſtruction, which examination is entruſted to a jury, compoſed of the commander-in-chief of the ſchool, a general or field officer of the corps, appointed every year by the miniſter at war, and one of the permanent examiners of the Polytechnic ſchool. This jury forms the liſt of merit which regulates the order of promotion. The ſchool of bridges and highways was founded, in 1787, by Trudaine, and continued under the direction of Perronet, chief engineer of the corps, till his death, in 1794. By his will he bequeathed to this ſchool, for the inſtruction of the pupils, his library, his models, his manuſcripts, and his port-folios. This ſchool unites the depôt, or repoſitory of plans and models, canals and harbours, for trade. The number of pupils is fifty. They are taken from the Polytechnic ſchool, and retain the ſalary which they received there. The inſtruction given to them chiefly conſiſts in the application of the principles of phyſics and mathematics to the art of planning, and conſtructing works relative to roads, canals, and ſea-ports, and the buildings belonging thereto ; the means of execution ; and the mode of forming plans and eſtimates of the works to be executed, and the order to be obſerved in keeping the accounts. The practical ſchools of mines are eſtabliſhed, one at Geiſlautern, in the department of La Serre, and the other at Peſay, in the department of Mont Blanc. The director and profeſſors form a committee for the working of the mines of Peſay, as well as for the inſtruction of the pupils. In conſequence of the report of this committee, the council of mines, eſtabliſhed at Paris, propoſes to the government the meaſures neceſſary to be adopted. Twenty pupils, who have paſſed their examination at the Polytechnic ſchool, are attached to the practical ſchools for the purpoſe of applying the theoretical part of their inſtruction. The ſchool of Naval Engineers is for pupils who have been ſtudents, at leaſt two years, in the Polytechnic ſchool. The examination of the candidates takes place every year, and the preference is given to thoſe who excel in deſcriptive geometry, mechanics, and the other branches of knowledge appropriated to the firſt year's ſtudy at ſchool. When the pupils have proved, in the repeated examinations which they muſt undergo, that they are ſufficiently qualified, they are then ſent to Breſt, in order to apply the theory they have acquired to the different works carried on in that port, where they find both the example and the precept, and are taught every thing relative to the conſtruction of ſhips of war and merchant veſſels. The pupils admitted into it receive a ſalary of 1800 francs, or about 75*l. per annum*. The ſchools of mathematics and hydrography, eſtabliſhed for the navy of the ſtate, and the ſchools of hydrography deſtined for the merchant-ſervice, bear the name of Schools of Navigation. Every year there is a competition for the admiſſion of candidates for naval employment. The hydrographical examiner makes a general tour to the different ports, where he interrogates the pupils in arithmetic, algebra, geometry, ſtatics, and navigation. According as they prove themſelves worthy by their examinations, they are admitted to the rank of *aſpirans de marine*, or midſhipmen; captains of merchants'-ſhips for long voyages; maſters of coaſting veſſels; pilots, &c. Beſides theſe, there are ſpecial ſchools of painting and ſculpture; of architecture, muſic, &c.

Hoſpitals and other charitable Inſtitutions.—The civil hoſpitals in Paris form two diſtinct claſſes: the one comprehends the hoſpitals of the ſick; the other, thoſe for the indigent: the former are devoted to the relief of the afflicted, the latter ſerve as an aſylum to children, to the infirm, and to the aged indigent. All perſons who are not ill enough to be admitted of neceſſity into the hoſpital neareſt to their reſidence, are obliged to preſent themſelves to the Bureau Central d'Admiſſions. Here they are examined, and if there be occaſion, they receive a ticket of admiſſion for the hoſpital where their particular diſorder is treated. At the head of the hoſpitals for the ſick ſtands the Hôtel-Dieu. Formerly this was rather a charnel-houſe than an hoſpital. It was founded, as far back as the year 660, for the reception of the ſick and maimed of both ſexes, without any exception of perſons. All of every country, and of every religion, were admitted without form or recommendation. Though it contained but 1200 beds, the number of patients very often exceeded 5000, and on the average it was never leſs than 2500. Till the year 1786, no ſteps were taken for enlarging the hoſpital, or providing elſewhere for thoſe who could not be conveniently accommodated in it. The air of the neighbourhood was contaminated by the noiſome exhalations continually ariſing from this abode of peſtilence, and that which was breathed within the walls of the hoſpital was ſo contagious, as to turn a trifling complaint into a dangerous diſorder, and a ſimple wound into a mortification. In 1785, the attention of the government being called to this ſerious evil by various memoirs, the Academy of Sciences was directed to inveſtigate the truth of the bold aſſertions made in different publications. A report was made, and the hoſpital enlarged, ſo as to contain 2000 beds. Since the revolution, the improvements introduced into the interior government of the Hôtel-Dieu have been great and rapid. Each patient now has a bed to himſelf. Thoſe attacked by contagious diſorders are transferred to the Hoſpice St. Louis. Inſane perſons are no longer admitted; men, thus afflicted, are ſent to a ſpecial hoſpital eſtabliſhed at Charenton, and the women to Salpêtrière. At the Hôtel-Dieu every method has been put in practice to promote the circulation of air, and expel the noxious miaſmata. In all the French hoſpitals, one ward, at leaſt, is now always kept empty. The moment it becomes ſo by the removal of the patients into another, the walls are lime-whitened, and the air is purified by the fumigation with ſome of the mineral acids, according to the plan firſt propoſed by Guyton-Morveau. This operation is thus alternately performed in each ward in ſucceſſion; that which has been the longeſt occupied being purified the firſt, and left empty till it is wanted. The number of hoſpitals in Paris has of late years been conſiderably augmented. They are all ſupported by government, and not, like thoſe in England, by private benefactions. Sick children of both ſexes are no longer admitted promiſcuouſly into different hoſpitals; but are received into a ſpecial hoſpital, extremely well arranged, and in a fine airy ſituation beyond the Barrière des Sevres. Two inſtitutions have been formed for the aged, infirm, and indigent, who pay on entrance a moderate ſum. An hoſpital for gratuitous vaccination is open for the continual treatment of the cow-pox, and the diſtribution of the matter to all parts of France. In general, the charitable inſtitutions in Paris have, within the laſt twenty years, undergone very conſiderable improvements. The male orphans admitted, to the number of two thouſand, into the aſylum formerly called La Pitie, uſed to remain idle, or employed only to follow in funeral proceſſions, but are now kept at work, and are inſtructed in ſome uſeful trade. A new inſtitution for female orphans has alſo been eſtabliſhed. The palace of the Hoſpital des Enfans-Trouves is ſupplied by an eſtabliſhment on a large ſcale, called the Hoſpice de la Maternitè, which is divided into two branches, each of which occupies a ſeparate houſe. The one for foundlings, in the rue de la Bourbe, is intended for the reception of children abandoned by their parents. Here they are reared, if not ſent into the country to be ſuckled. The other, in the rue d'Enfer, which may be regarded as the General Lying-in Hoſpital of Paris, is deſtined for the reception of pregnant women. From 1500 to 2000 are here delivered every year. No formality is required for the admiſſion of new-born infants.

Marriages and Funerals.—The civil act of marriage is entered into at the office of the municipality. But this is not to be confounded with the contract drawn up by the notary, and containing the ſtipulations, clauſes, and conditions. The former ſignifies merely that ſuch a man and ſuch a woman take each other for man and wife. There are but few, if any perſons married, who do not repair from the municipality to the pariſh church, or go thither the next morning; the civil act being conſidered by individuals only as the ceremony of the betrothing; and till the prieſt has given the nuptial benediction, the relations take care, that the intended bride and bridegroom ſhall have no opportunity of anticipating the duties of marriage. At the church maſs is ſaid in a low voice, during which the prieſt, or rector, receives the promiſe of the wedded pair. With little exception the ceremony is the ſame for all. Thoſe who pay well are married at the high altar; the rector addreſſes to them a ſpeech, in which he exhorts them to live happily together; the beadles perform their duty, and the organiſt ſtrikes up a voluntary. With regard to funerals, it depends on the relations to have the corpſe preſented at the pariſh-church; but there are many perſons who diſpenſe with this ceremony. The prieſt receives the corpſe at the door of the church. It is carried thither in a *corbillard*. Each municipality has its own, and there are twelve municipalities in Paris. Some of them have adopted the Egyptian ſtyle, ſome the Greek, and others the Roman, for the faſhion of their *corbillard*, according to the taſte of the municipality which ordered its conſtruction. It is drawn by two horſes abreaſt, capariſoned ſomewhat like thoſe of our hearſes. An officer of the police, clothed in black, and holding a cane with an ivory head, walks before the corbillard or hearſe. Each corpſe has its particular coffin furniſhed by the municipality. The relations follow on foot, or in carriages: few of them are in mourning, and ſtill fewer wear a cloak. Before the revolution, the church-yards in Paris were not numerous, the burials being often in the churches themſelves. That of the Innocents was the largeſt and moſt remarkable, a predilection for its preſumed holineſs having been adopted by the devout. Since the law ordaining that the dead ſhould not be buried in churches, nor even in the city, only two church-yards are open for this populous capital. One ſerves for the ſouthern half of the city, including Hôtel Dieu: the other, for the northern half, is in a ſmall irregular vale, on the ſouthern declivity of Mont Martre. The latter repoſitory is not only in a pictureſque ſituation, but variegated by the unevenneſs of the ground; it is ſurrounded with a wall of moulded clay, capped with flat tiles, to protect it from the weather, and ſupported by ſo many buttreſſes, that a ſtone wall would probably have been cheaper. On entering this place you ſee to the left a ſandy elevation of the natural ſoil, declining towards the weſt. The coffin is let down on the edge of this declivity to a ſhelf at a ſmall depth, and covered with a few ſhovels-full of ſand. If the body come from an hoſpital, it is only encloſed in a ſack, and borne by two men on a hand bier, over which two half hoops ſupport a linen cloth. The rapidity with which burials are haſtened deſerves the ſevereſt reprobation, the bodies being kept at no time 24 hours, ſo that the death can ſcarcely be aſcertained: the bodies are, however, expoſed in the gateway of the hotel, with tapers and holy water, which is ſprinkled over the coffin by devout viſitants. Towards the right, or eaſtern part of Mont Martre, there is a little vale, planted with weeping willows and ſhrubs interſperſed with tombs of ſtone. This part is reſerved for thoſe of a ſuperior claſs: the epitaphs are elegant and conciſe.

Government and Police.—Of the ſeveral officers at the head of the government in Paris, one is denominated the *miniſter of juſtice*, who is charged with the printing and diſtribution of the laws, proclamations, and orders of the government; he correſponds with the various tribunals, and their commiſſaries; he ſubmits to the councils of ſtate the new queſtions which may ariſe relating to the adminiſtration of juſtice, and ſuperintends its adminiſtration. The *miniſter of the home department* correſponds with the prefects of the departments. All acts relative to priſons, hoſpitals, roads, bridges, public works, canals, commerce, induſtry, agriculture, manufactures, arts, inventions, public ſchools, muſeums, and national feſtivals, are under his immediate direction. What particularly regards the government of the city of Paris is the department of the police, of which the miniſter or director, for it matters not the name he is called by, has a moſt arduous taſk. "He has not," ſays a cloſe obſerver, "a moment that he can call his own; he is every day obliged to puniſh; he is afraid to give way to indulgence, becauſe he does not know that he may not one day have to reproach himſelf with it. He is under the neceſſity of being ſevere, and of acting contrary to the inclination of his heart. Not a crime is committed, but he receives an exaggerated account of it. Not an accident happens but he muſt preſcribe the remedy; he has but a moment to deliberate and act, and he muſt be equally fearful to abuſe the power intruſted to him, and not to uſe it opportunely. Popular rumours, flighty converſations, theatrical factions, falſe alarms, every thing concerns him. He muſt be anſwerable for every thing; he muſt trace the robber, and the aſſaſſin, for the magiſtrate appears blameable, if he has not found means to deliver him up quickly to juſtice. The time that his agents have employed in this capture will be calculated, and his honour requires that the interval between the crime and the impriſonment ſhould be the ſhorteſt poſſible. What dreadful duties! What a laborious life! He muſt daily make up for the imperfection and tardineſs of the civil laws, but he muſt, at the ſame time, uſe this rare privilege with extreme circumſpection. The chief of the police is become a miniſter of importance; he has a ſecret and prodigious influence; he knows ſo many things, that he can do much good, or create a deal of miſchief, becauſe he has in his hand a multitude of threads, which he can entangle or diſentangle at his pleaſure; he ſtrikes or he ſaves, he ſpreads darkneſs or light; his authority is as delicate as it is extenſive. He exerciſes a deſpotic ſway over the *mouchards*, or *ſpies*, who are found diſobedient, or who make falſe reports; as for theſe wretches, they are of a claſs ſo vile, that the authority to which they have ſold themſelves, has neceſſarily an abſolute right over their perſons. This is not the caſe with thoſe who are apprehended in the name of the police; they may have committed trifling faults, but are frequently detained without the ſanction of any law. A few real advantages compenſate for the irregular forms to which every one is ſubject, and, as an excuſe for the arbitrary impriſonment of individuals, it is ſaid 'there are an infinite number of irregularities which the ſlow and grave proceſs of the tribunals can neither take cognizance of, nor put a ſtop to, nor foreſee, nor puniſh. The audacious or ſubtle delinquent would triumph in the winding labyrinth of our civil laws. The laws of the police, more direct, watch him, preſs him, and ſurround him more cloſely. The abuſe is contiguous to the benefit, I admit, but a great many private acts of violence, baſe and ſhameful crimes, are repreſſed by this vigilant and active force, which ought, nevertheleſs, to publiſh its code, and ſubmit it to the inſpection of enlightened citizens.' Could the miniſter of police communicate to the philoſopher all he knows, all he learns, all he ſees, and likewiſe impart to him certain ſecret things, of which he alone is well informed, there could be nothing ſo curious, and ſo inſtructive, under the pen of the philoſopher. But this magiſtrate is like the great penitentiary; he hears every thing, relates nothing, and is not aſtoniſhed at certain delinquencies in the ſame degree as another man. He is in a perpetual ſtate of miſtruſt; and in the main he ought to poſſeſs ſuch a character; for he ought to think nothing impoſſible, after the extraordinary leſſons which he receives from men and things. The ſpies of the police are a regiment of inquiſitive fellows, with this difference, that each individual belonging to it has a diſtinct dreſs, which he changes frequently every day, and nothing ſo quick, or ſo aſtoniſhing as theſe ſorts of metamorphoſes. The ſame ſpy who figures as a private gentleman in the morning, in the evening repreſents a prieſt; at one time he is a peaceable limb of the law; at another a ſwaggering bully. The next day, with a gold-headed cane in his hand, he will aſſume the deportment of a married man buried in calculations: the moſt ſingular diſguiſes are familiar to him. In the courſe of twenty-four hours he is an officer of diſtinction, and a journeyman hair-dreſſer; a ſhorn apoſtle and a ſcullion. He viſits the dreſs-ball, and the loweſt ſink of vice. At one time with a diamond ring on his finger, at another with the moſt filthy wig on his head; he almoſt changes his countenance as he does his apparel; he is all eyes, all ears, all legs; for he trots over the pavement of every quarter of the town. Sometimes, in the corner of a coffee-room, you would take him for a dull, ſtupid, tireſome fellow, ſnoring till ſupper is ready; he has, however, ſeen and heard all that has paſſed. At another time he is an orator, and the firſt to make a bold ſpeech; he courts you to open your mind; he interprets even your ſilence; and whether you ſpeak to him or not, he knows what you think on any particular proceeding. Such was the univerſal inſtrument employed in the reign of Lewis XVI. for diving into ſecrets; and ſuch unqueſtionably is the ſyſtem now carried on for the ſame purpoſe. There may be variations in the manner, as there muſt be different characters to perform their parts, but the police is, at leaſt, as ſtrict as it ever was in the reigns of the moſt arbitrary monarchs, and the means purſued for the purpoſe as hoſtile to the rights and liberty of the ſubject."

Paris, *Department of*, one of the new diviſions of France, including the city of Paris and its immediate environs.

Paris, a town of Pruſſia, in the province of Bartenland; eight miles N.N.E. of Raſtenburg.

Paris, a thriving poſt-town of America, in the ſtate of New York, and county of Oneida, incorporated in 1792, and containing, in 1800, 4721 inhabitants. Iron ore is found in its vicinity, and the land is excellent. It has an academy and a pariſh church, and its progreſſive improvements are rapid.—Alſo, the county town of Bourbon county, in Kentucky; 18 miles N.E. of Lexington. It has a court-houſe and gaol, a Preſbyterian church, and ſeveral mills in its vicinity. Its houſes are principally conſtructed of brick and ſtone. The town is pleaſant and thriving, and contains 377 inhabitants.—Alſo, a town of London county, Virginia; 59 miles from Waſhington.—Alſo, a town in Cumberland county, and ſtate of Maine; containing 844 inhabitants.—Alſo, an iſland on the coaſt of South Carolina.

Paris, in *Botany*, a name of very obſcure etymology. Profeſſor Martyn leaves it unexplained, as Tournefort and Linnæus had done before him, all of them either overlooking, or being diſſatisfied with, the explanation of Ambroſinus, who, in his Phytologia 506, derives it "*a paritate foliorum*," from the uniformity or equality of the four leaves, which make, as it were, two pair, equally ſituated. Linn. Gen. 198. Schreb. 266. Willd. Sp. Pl. v. 2. 471. Mart. Mill. Dict. v. 3. Sm. Fl. Brit. 431. Ait. Hort. Kew. ed. 2. v. 2. 425. Juſſ. 42. Lamarck Illuſtr. t. 319. Gærtn. t. 83. Claſs and order, *Octandria Tetragynia*. Nat. Ord. *Sarmentaceæ*, Linn. *Aſparagi*, Juſſ.

Gen. Ch. *Cal.* Perianth inferior, permanent, of four lanceolate, acute, ſpreading leaves, the length of the corolla. *Cor.* Petals four, ſpreading, awl-ſhaped, equal, permanent, ſimilar to the calyx but narrower, and alternate with it. *Stam.* Filaments eight, awl-ſhaped, ſhort below the anthers, which are long, united to the middle part of the filaments. *Piſt.* Germen ſuperior, roundiſh, with four blunt angles; ſtyles four, ſpreading, ſhorter than the ſtamens; ſtigmas downy. *Peric.* Berry nearly globoſe, with four blunt angles, ſomewhat depreſſed, of four cells. *Seeds* ſeveral, globoſe, inſerted in two rows, upon a central receptacle.

Eſſ. Ch. Calyx of four leaves. Petals four, narrower than the calyx. Berry ſuperior, of four cells. Anthers united to the middle of the filaments.

1. P. *quadrifolia*. Common Herb Paris. Linn. Sp. Pl. 526. Engl Bot. t. 7. Fl. Dan. t. 139. Redout. Liliac. t. 226. Bulliard t. 119. (Herba Paris; Ger. em. 405. Camer. Epit. 835. Matth. Valgr. v. 2. 439.)—Leaves ovate, about four.—This ſingular plant, found in ſhady woods, chiefly in the northern or cooler countries of Europe, but not very commonly in any, has always attracted the notice of botaniſts, from the peculiarity of its habit. It flowers in May, and the berry is ripe in July. The *root* is perennial, creeping. *Stem* ſolitary, erect, a foot high, perfectly ſimple, round, ſmooth, naked, except at the very ſummit, where it bears a whorl of four ſpreading, nearly equal, ovate, broad, acute, entire, three-ribbed, veiny, ſmooth *leaves*, tapering at the baſe, of a dull green hue, and pliant texture, each of them about three inches long, increaſing in ſize as the fruit ripens, after which the whole plant ſoon turns of a pale yellow and withers. *Flower* ſolitary, terminal, central, on an upright angular ſtalk, about half as long as the leaves. *Calyx-leaves* ribbed, of a lighter green than the foliage, each an inch long. *Petals* of the ſame colour and length, but much narrower. *Stamens* half the length of the calyx, aſcending, green, with yellow anthers. *Styles* pale, downy. *Berry* purple. The *leaves* occaſionally vary in number to three or five, Haller mentions ſix. Linnæus ſays the *roots* are emetic, but only half as powerful as Ipecacuanha.

2. P. *polyphylla*. Many-leaved Herb Paris.—Leaves lanceolate, eight or ten. Diſcovered by Dr. F. Buchanan, growing in woods near rivulets, in Upper Nepaul, where it is known by the name of *Dai Swa*. The *root* is creeping, but much thicker and more tuberous than the former. *Stem* a foot or more in height, browniſh, thrice the thickneſs of the firſt ſpecies, crowned like that with a whorl of *leaves*, in a ſimilar ſpreading poſition, but about twice as numerous, and much narrower, being elliptic-lanceolate, taper-pointed, triple-ribbed; each ſupported on a ſhort purpliſh ſtalk. *Flower-ſtalk* much ſhorter than the former, but the *flower* is larger, of the ſame green colour. Its *calyx-leaves* and *petals* are uſually five, with ten *ſtamens*, but ſometimes only four, with eight ſtamens, or even three with ſix. The *ſtyles*, as well as the cells of the *germen*, always agree in number with the petals, but the former are combined by a thick columnar baſe, which character, added to his not having ſeen the ripe *fruit*, cauſed Dr. Buchanan to doubt of the genus. The habit, and reſt of the characters, however, leave no ſcruple in our mind; but it is very poſſible that what Linnæus, in the European ſpecies, calls *ſtyles*, may be almoſt wholly *ſtigmas*, for they are downy all along their upper ſide, and the Nepaul plant will then be found to differ merely in having the *ſtyle* more elongated.

Paris, *Herb, of Canada*. See Trillium.

PARISCATTY, in *Geography*, a town of Hindooſtan, in Oude; 25 miles E. of Goorachpour.

PARISH, the precinct, or territory, of a parochial church; or the circuit of ground within which the people belonging to any church, or under the care of one parſon or vicar, do inhabit.

The word comes from the Latin *parochia*, of the Greek ϖαροικια, *habitation*; compounded of ϖαρα, *near*, and οικος, *houſe*. Accordingly, Du-Cange obſerves, that the name ϖαροικια was anciently given to the whole territory of a biſhop, and derives it from neighbourhood; becauſe the primitive Chriſtians, not daring to aſſemble openly in cities, were forced to meet ſecretly in neighbouring houſes.

In the ancient church, there was one large edifice in each city, for the people to meet in; and this they called *parochia*, pariſh. But the ſignification of the word was afterwards enlarged, and by pariſh was meant a dioceſe, or the extent of the juriſdiction of a biſhop, conſiſting of ſeveral churches; unleſs we will ſuppoſe, as ſome do, that thoſe biſhops were only paſtors of ſingle churches.

Du Pin obſerves, that country pariſhes had not their origin before the fourth century; but that thoſe of cities are more ancient. The city of Alexandria is ſaid to have been the firſt that was divided into pariſhes. Baronius ſays, that in the time of pope Cornelius there were forty-ſix pariſhes in Rome.

How ancient the diviſion of pariſhes is it is not eaſy to aſcertain; for in the early ages of Chriſtianity in this iſland pariſhes were unknown, or at leaſt ſignified the ſame that a dioceſe does now. There was then no appropriation of eccleſiaſtical dues to any particular church; but every man was at liberty to contribute his tithes to whatever prieſt or church he pleaſed, provided only that he did it to ſome; or if he made no ſpecial appropriation thereof, they were paid into the hands of the biſhop, whoſe duty it was to diſtribute them among the clergy, and for other pious purpoſes, according to his own diſcretion. (Seld. of Tithes, 9. 4. 2 Inſt. 646. Hob. 296.) Camden ſays England was divided into pariſhes by archbiſhop Honorius, about the year 630 or 636. Sir Henry Hobart maintains that pariſhes were firſt erected by the council of Lateran, held A. D. 1179. But Mr. Selden has ſhewn, that the clergy lived in common without any diviſion of pariſhes, long after the time mentioned by Camden; and it appears from the Saxon laws, that pariſhes were in being long before the council of Lateran, in 1179. The diſtinction of pariſhes occurs in the laws of king Edgar, about the year 970. It ſeems pretty clear and certain, ſays judge Blackſtone, (Com. vol. i. 113.) that the boundaries of pariſhes were originally aſcertained by thoſe of a manor or manors; becauſe it very ſeldom happens, that a manor extends itſelf over more pariſhes than one, though there are often many manors in one pariſh. The lords, he adds, as Chriſtianity ſpread itſelf, began to build churches upon their own demeſnes or waſtes, to accommodate their tenants in one or two adjoining lordſhips; and in order to have divine ſervice regularly performed therein, obliged all their tenants to appropriate their tithes to the maintenance of the one officiating miniſter, inſtead of leaving them at liberty to diſtribute them among the clergy of the dioceſe in general; and this tract of land, the tithes of which were ſo appropriated, formed a diſtinct pariſh; and this will account for the frequent intermixture of pariſhes one with another. For if a lord had a parcel of land detached from the main of his eſtate, but not ſufficient to form a pariſh of itſelf, it was natural for him to endow his newly-erected church with the tithes of ſuch lands.

Extra-parochial waſtes and marſh lands, when improved and drained, are by 17 Geo. II. cap. 37. to be aſſeſſed to all parochial rates in the pariſh next adjoining. For ſettling the bounds of pariſhes, ſee Perambulation.

Camden reckons 9284 pariſhes in England. In a book made out by cardinal Wolſey in 1520 are reckoned 9407 pariſh churches. And Chamberlayne makes at preſent, 9913, and the number of pariſhes is now reckoned to be about 10,000. See Church *of England*.

Pariſh-*Prieſt*, the parſon or miniſter who holds a pariſh as a benefice.

If the predial tithes be appropriated, the parſon is called *rector*. If they be impropriated, he is called *vicar*.

Pariſh-*Clerk*. In every pariſh the parſon, vicar, &c. hath a pariſh-clerk under him, who is the loweſt officer of the church. Theſe were formerly clerks in orders, and their buſineſs at firſt was to officiate at the altar; for which they had a competent maintenance by offerings; but now they are laymen, and have certain fees with the parſon on chriſtenings, marriages, burials, &c. beſides wages for their maintenance.

The law looks upon them as officers for life: and they are choſen by the miniſter of the pariſh, unleſs there is a cuſtom for the pariſhioners or churchwardens to chuſe them; in which caſe the canon cannot abrogate ſuch cuſtom; and when choſen it is to be ſignified, and they are to be ſworn into their office by the archdeacon, for which the court of king's bench will grant a mandamus.

Pariſh clerks, after having been duly choſen and appointed, are uſually licenſed by the ordinary, and when they are licenſed, they are ſworn to obey the miniſter. The pariſh-clerk ought to be deprived by him that placed him in his office; and if he is unjuſtly deprived, a mandamus will lie to the church-wardens to reſtore him: for the law looks upon him as an officer for life, and one that hath a freehold in his place, and not as a ſervant: and therefore will not ſuffer the eccleſiaſtical court to deprive him, but only to correct him, for any miſdemeanor, by eccleſiaſtical cenſures. 3 Roll's Abr. 234. Gibſ. 214. God. 192.

Pariſh-*Clerks, Company of*. See Company.

PARISI, in *Ancient Geography*, inhabitants of Britain, ſeated to the north of the Coritani, and occupying that diſtrict which is called Holderneſs, or as Mr. Camden imagines, the whole eaſt riding of Yorkſhire. The Pariſi are ſuppoſed to have derived their name from the two Britiſh words "Paur Iſa," which ſignify low paſture, and which are deſcriptive of the ſituation and uſe of their country. However this may be, it is evident that our Pariſi never attained to any great degree of power or conſequence, but were always ſubject to the authority, and followed the fate of their more powerful neighbours, the Brigantes. Their only town was "Pituaria," probably Patrington in Holderneſs.

PARISIAN Island, in *Geography*, an iſland in lake Superior, near the S.E. coaſt. N. lat. 46° 30′. W. long. 85°.

PARISIS, a French money of account, formerly a real coin ſtruck at Paris, at the ſame time with the Tournois, ſtruck at Tours.

The Pariſis exceeded the Tournois by one-fourth; ſo that the livre, or pound Pariſis, was twenty-five ſols; and the livre Tournois twenty. The ſols and deniers Pariſis, &c. were in proportion. See Coin.

PARISOT, in *Geography*, a town of France, in the department of the Aveiron; 10 miles S.W. of Villefranche.

PARISTHMIOTOMUS, from παρισθμια, *the tonſils*, and τεμνω, *to cut*, in *Surgery*, an inſtrument anciently employed for ſcarifying the tonſils.

PARITA, in *Geography*, a town of South America, in the province of Panama; 5 miles N. of Santos.

PARITEE-HOTUN, a town of Chineſe Tartary. N. lat. 42° 28′. E. long 125° 16′.

PARIUM, in *Ancient Geography*, Camanar, a town ſituated in the Propontide, between Lampſacus and Priapus. Its territory was fertile, and produced excellent wines, and it had a good port. This town was founded by the Mileſians, the Erythræans, and the inhabitants of the iſle of Paros, from which it took its name. Auguſtus eſtabliſhed a colony in this place, and, like many others, it was governed by a ſenate or council compoſed of decurions. The worſhip of Apollo and Diana was tranſported from Adraſtia to Parium, where a large and ſplendid altar was erected, the work of the celebrated Hermocreon. Strabo. Pliny alſo mentions a ſtatue of Cupidon, belonging to this city, the production of Praxiteles, and not inferior in beauty to the Venus of Cnidus. Parium was ravaged in the year 267 by the Heruli, a German nation; but theſe barbarians were defeated and driven into their own country by the emperor Gallienus, in conſequence of which a triumphal arch was erected; which arch conſiſted of three arcades, upon which the emperor appeared in a car drawn by two elephants, between two victories, which preſented to him a crown of laurel. When the government of proconſular Aſia was divided into ſeveral provinces, Parium was compriſed in the new province of the Helleſpont, of which Cyzicus was the metropolis.

PARIVOA, in *Botany*, a name in Aublet, v. 2. 756, for one of thoſe genera on which Schreber founded his DIMORPHA; ſee that article, as well as PANZERA. As we have, after Willdenow's example, ſeparated the latter, the *Parivoa* muſt remain under the denomination of *Dimorpha*, which however, by this diſunion, loſes its original meaning.

PARIYATEKA, is the Sanſcrit name of a ſpecies of nyctanthes, and in the mythological legends of the Hindoos is a golden tree, yielding in its fruit whatever the heart can deſire. It is fabled to have ariſen from the ocean when churned by the gods and demons, as deſcribed under the article KURMAVATARA, and to have fallen to the lot of the demigod Indra, regent of the firmament, who hence, and from ſimilar poſſeſſions, is called the lord of wealth. (See INDRA.) The name is commonly pronounced *parijat*, and it is often alluded to in the holy tales and fables of the Hindoos. Sometimes it is called Lakſhmi-vrikſha, the tree of Lakſhmi, or wealth. This is a treatiſe on Hindoo muſic in the Perſian language, probably a tranſlation from the Sanſcrit, named after this all-yielding tree Pariyateka.

PARK, PARCUS, a large incloſure, privileged for wild beaſts of chaſe, either by the king's grant, or by preſcription. Co. Litt. 233. 2 Inſt. 199. 11 Rep. 36.

The word is originally Celtic; where it ſignifies an incloſure, or place ſhut up with walls.

Manwood defines a park a place of privilege for beaſts of venery, or hunt, and other wild beaſts of the foreſt, and of chaſe; *tam ſylveſtres, quam campeſtres*. A park differs from a foreſt, in that, as Compton obſerves, a ſubject may hold a park by preſcription, or the king's grant; which he cannot with reſpect to a foreſt.

A park differs from a chaſe alſo; becauſe a park muſt be incloſed; if it lie open, it is a good cauſe of ſeizing it into the king's hand, as a free chaſe may be, if it be incloſed. Nor can the owner have any action againſt ſuch as hunt in his park if it lie open. See CHASE.

Du-Cange refers the invention of parks to king Henry I. of England, and the firſt park in England is ſaid to have been that of Woodſtock in Oxfordſhire, made by him, which was walled round with ſtone, and ſeven miles in circumference: the royal example was firſt followed by Henry, earl of Warwick, to preſerve his deer and other animals for hunting; after which the practice of park-making became general among perſons of opulence. But Spelman ſhews it is much more ancient; and was in uſe among the Anglo-Saxons. Zoſimus aſſures us alſo, that the ancient kings of Perſia had parks.

The clergy of rank, at all times, had the privilege of hunting in their own parks and incloſures; and therefore, that they might not be prevented from following this favourite paſtime, they took care to have ſuch receptacles for game belonging to their parks. Accordingly, at the time of the Reformation, the ſee of Norwich, only, was in the poſſeſſion of not leſs than thirteen parks, well ſtocked with deer and other animals for the chaſe.

No man can now erect a park without a licenſe under the broad ſeal; for the common law does not encourage matters of pleaſure, which bring no profit to the commonwealth. Wood's Inſt. 207.

But there may be a park in reputation, erected without lawful warrant; and the owner of ſuch park may bring his action againſt perſons killing his deer. Ibid.

To a park three things are required. 1. A grant thereof. 2. Incloſures by pale, wall, or hedge. 3. Beaſts of a park, ſuch as buck, doe, &c. and where all the deer are deſtroyed, it ſhall no more be accounted a park, for a park conſiſts of vert, veniſon, and incloſure; and if it is determined in any of them, it is a total diſparking; and the king may by letters patent diſſolve his park. Cro. Car. 59, 60.

Parks as well as chaſes are ſubject to the common law, and are not to be governed by the foreſt laws. 4 Inſt. 314.

Offenders pulling down park-walls or pales, ſhall be liable to the ſame penalty as for killing deer, &c. by ſtatute. See DEER-*ſtealers*.

A park ought to have three ſorts of ground in it; 1. Mountainous and barren. 2. Hilly and yet fertile. And 3. Plains that are ſufficiently fruitful. The mountainous part ſhould be well covered with high woods over at leaſt a third part of it. The downs and hilly part ſhould have one-third part coppices and low woods; and the plains ſhould be at leaſt one-third part paſture ground, with ſome arable or corn land. There ſhould be a river contrived to run through ſome part of it, and a ſpring or brook to go through a great part, and at length fall into the river.

Theſe are the natural advantages to be wiſhed in a park; but when they are wanting, they are to be ſupplied as far as may be by art, as by ponds to preſerve rain water, to ſupply the place of rivers and ſprings, and proper plantations and expoſures for the reſt; only the perſon who is to make a park ſhould know what the natural advantages are, that he may take in as many as he can. When ponds are to be made to ſupply the place of natural brooks and rivers, they ſhould be made large enough: the extraordinary expence in this will be eaſily repaid, by breeding fiſh in them, and fowl may alſo be kept in plenty on them. The park ſhould alſo be well ſtored with trees; oaks ſhould not be wanting in it, but beech and cheſnut are the quickeſt of growth, and are eaſy to be had: theſe, therefore, ſhould be planted in conſiderable numbers. Apple-trees and plum-trees alſo ſhould be planted, as generally thriving very well, and affording good food to the deer, &c.

The beſt incloſure for a park is a brick or ſtone wall; but as the expence of this is very great, it may be done by paling; the pales muſt, in this caſe, be of ſound heart of oak; and ſo cloſe planted, that no animal of prey can make its way in between them; and for a farther defence, a good quick-ſet hedge is very proper, and ſhould be kept in good order. Some part of the mountain and high wood may conveniently be made a heronry, and ſome part of the middle may be a warren for hares and rabbits. Colts and horſes may be bred at large in the park, and in the ſummer ſeaſon it will be proper to have cows in the paſture-ground on the plains.

There ſhould be at leaſt five or ſix incloſures in the park, that the deer may be ſhut out or let in as occaſion requires. In the coldeſt ſeaſons, they ſhould always be kept altogether in the high woods, where they have good ſhelter, and are to be fed conſtantly with provender by the keepers. In the ſummer ſuch a number as are intended to be uſed may alſo be kept on the beſt ground, that they may thrive quicker than thoſe intended only for ſtore. Some artificial holes and caverns ſhould alſo be made for the deer to retire into in the hot weather, as well as in the cold.

PARK, in *Gardening*, an incloſed piece or portion of ground, of a larger or ſmaller extent, which ſurrounds a manſion or reſidence, and which has commonly ſome ſort of foreſt or other trees, planted or growing on it, for the purpoſe of beauty or ornament. Large parks moſtly contain deer or other ſimilar animals, and the more they have of this wild or foreſt ſcenery, the more natural and proper they appear.

It is ſuppoſed by Mr. Loudon, in his "Treatiſe on Country Reſidences," that parks ſhould be of two kinds; thoſe belonging to ſmall houſes, where regard ſhould principally be had to the value of the paſture, and where the paſturing animals are horſes, cattle, ſheep, &c.; and thoſe where grandeur of character is the main object.

In the former ſort, the ſurface of the ground ſhould be unbroken, but clothed and varied, or characterized chiefly by trees, unleſs a few ſhrubs of the lower growths be admitted near the reſidences, or the walks of the pleaſure or more ornamental parts. The apparent extent of this kind of parks depends more upon the variety of the grounds, and the manner in which the trees and ſhrubs are planted, than upon the number of acres. A level or uniform ſurface, ſpotted by circular, oval, or even angular clumps, and ſurrounded by a compact ſerpentine belt, as at Duddingſton, and ſome other places, can never, it is ſuppoſed, appear extenſive; but a very few acres of varied ground, ſprinkled over with light groups, thorns, and hollies, appear boundleſs. In ſuch a park, every ſtep preſents a new compoſition, ariſing from the varied herds of cattle intermingling with the trees, &c. and always changing their poſition: and as there is no permanent mark by which one ſcene can be diſtinguiſhed from another, ſo as to know it again; a perſon might wander up and down the extent of a few acres for ſeveral days, without being able to ſay whether he was not traverſing a park of ſeveral ſquare miles. And this is the caſe in natural foreſts, as depending on the ſame principles.

In the latter kind of parks, nothing, it is believed, can contribute ſo highly to the neceſſary grandeur of effect, as the *wild, foreſt* ſtyle, of breaking the ground, and planting trees, ſhrubs, low growths of plants, furze, bramble, ferns, &c.; and ſhewing roots, decayed trunks, rocks, or ſtones, when they may appear with propriety, and as it were fortuitouſly. The grazing animals in this caſe ſhould be principally deer, a few wild cattle, and horſes. It is ſuggeſted, that as parks are the prominent features of all extenſive reſidences, were this appearance of wildneſs and foreſt ſcenery given to them, words could not convey an adequate idea of the beauty and grandeur that would be communicated to them, and at the ſame time to the country at large. The materials by which this is chiefly to be effected are, as has been ſeen, the proper arrangement of *low ſhrubby growths*, *wild plants*, and *foreſt* trees. Nothing can however give an idea of what theſe effects might be, except looking at the fineſt ranges of foreſt ſcenery, few of which now exiſt in the country. In the New Foreſt, as well as that of Needwood, it is however ſuppoſed, that there are ſtill ſelect ranges or tracts, which the true admirers of nature will view with rapture or enthuſiaſtic delight, and by the imitation of which, vaſt ornamental advantages might be made to the already beautiful parks of Donnington, Blenheim, and Croom, as well as all thoſe eſteemed the fineſt in the kingdom.

Some may ſuppoſe the utility of ſuch parks thus to be injured. And ſo it would in ſome degree; but it is aſked, is not beauty or grandeur of character one of the chief objects of ſuch ſcenes? if not, why change the common character of the country, why make the intereſting variety of corn-fields, farms, cottages, hedges, coppices, &c. give way to one dull vapid monotonous ſurface of green, as inſipidly varied by trees; where one might wander an age without ſeeing any thing elſe than their naked ſtems and clump-like heads? Nothing, it is believed, can be grand or ſublime, but as it ſoars above the common appearances of the like things. Now, ſays the writer, in a fertile and cultivated country, what can be more truly uncommon with regard to the ſurface, than making it aſſume the wild irregularity and exceſſes of nature, leaving flocks and herds to roam at pleaſure, and deſpiſing the teeming abundance of cultivation, and the groſſer ideas of mere profit or uſe?

It is not, however, meant by this to affirm, that there would be much real difference in the annual profit of a park ſo laid out, when compared with one in the modern taſte. What was not occupied with paſture would be covered with wood; which, whether as undergrowth, or timber produce, would be highly valuable, and often produces as much profit as either paſture or aration, and in many ſcenes is highly ſuitable for parks: beſides the abundance of every kind of game which this would produce, as well as the encouragement it would give to different claſſes of beautiful ſinging-birds. It is added, that this being the caſe, and it being taken into view that deer are not grazed for pecuniary advantage, it cannot be ſeen that there would be any real diſadvantage in point of profit by adopting the mode; and hence it is wiſhed that it ſhould in ſome degree be attended to, even in parks of the ſmalleſt ſize, where cattle and ſheep are grazed. And it is farther ſuggeſted, that in this age of refinement and univerſal cultivation, wildneſs and native ſimplicity have charms which are highly intereſting to all, except thoſe engaged in the vortex of faſhion.

PARK is alſo uſed for a moveable palliſade, ſet up in the fields to incloſe ſheep in to feed, and reſt in, during the night.

The ſhepherds ſhift their park from time to time, to dung the ground, one part after another.

PARK is alſo uſed for a very large net, diſpoſed on the brink of the ſea, with only one hole, which looks towards the ſhore: and which becomes dry after the flood is gone off; ſo that the fiſh once got in have no way left to eſcape.

PARK, in *War*. PARK *of Artillery*, a poſt in a camp, out of cannon-ſhot of the enemy, and fortified to incamp the train of artillery, and to ſecure the magazines and ammunition, as well as the battalions of artillery, appointed for its ſervice and defence. See ARTILLERY *Park*.

The figure of the park of artillery is commonly a parallelogram, unleſs the ſituation of the ground renders another neceſſary. The artillery is generally placed in the centre of the ſecond line of encampment, and ſometimes in the rear line, or corps of reſerve. In both places the muzzles of the guns are in a line with the fronts of the ſerjeants' tents of the regiments of artillery and infantry. Some generals place the park about three hundred paces before the centre of the front line of the army: ſome place all the cannon and mortars in the front, together with their ſpare carriages; others are for dividing the equipage in brigades, and place the firſt in the front line, the ſecond in the next, &c. But the moſt approved method, ſays Mr. Muller, Artill. p. 281, is to divide the artillery into brigades; and to place the guns of the firſt to the right of the front line, and their ammunition behind them; then thoſe of the ſecond brigade next to the firſt in the front, leaving five paces between them, and their ammunition behind them; and all the reſt in the ſame order; the pontoons forming the laſt line. The artillery companies and miners are half encamped to the right, and the other half to the left of the park, with ſome of the lieutenants in the rear. At about twelve paces in the rear of the park, are encamped the civil liſt in one line; behind them, at the diſtance of thirty paces, is a line of the remaining lieutenants, and behind theſe the captains and commiſſaries. Oppoſite to the centre, and thirty paces behind the captain's line, is the major's tent; and behind this, at twenty paces, the colonel's to the right, and the comptroller's to the left. Oppoſite to the centre, and fifty paces before the park, is placed the army guard; and oppoſite to the right wing, the artillery guard at the ſame diſtance. In the middle of the front, two light pieces are advanced at a diſtance of twenty paces, loaded with powder for the alarm guns, which are ready to be fired when required. To the right of the park are placed the artificers with their tools, materials, and baggage, in a line from the front to the rear. To the left of the park, the commiſſaries and their baggage; to the right of the artificers is encamped the firſt battalion of artillery, with their baggage and officers behind them; and to the left of the commiſſaries the ſecond battalion in the ſame manner. The horſes are placed behind the firſt battalion, except thoſe of the picket in the rear of the park.

Every attack, at a ſiege, has its park of artillery.

PARK *of Proviſions*, is a place in the camp, on the rear of every regiment, which is taken up by the ſuttlers, who follow the army with all ſorts of proviſions, and ſell them to the ſoldiers.

PARK *Bote*, in our old *Writers*, ſignifies to be quit of incloſing a park or any part thereof. 4 Inſt. 308.

PARKANY, in *Geography*, a town of Hungary, at the conflux of the rivers Gran and Danube; 2 miles N. of Gran.

PARKEL, a town of Hindooſtan, in Golconda; 32 miles S.S.W. of Hydrabad.

PARKER, MATTHEW, in *Biography*, archbiſhop of Canterbury, was born at Norwich in 1504. He had the misfortune to loſe his father when he was only twelve years of age; but his mother took care to place him under good maſters, by whom he was well grounded in grammar-learning. In the year 1520 he was ſent to Cambridge, and was entered of Corpus Chriſti college, of which houſe he was choſen a bible-clerk, or ſcholar, in the following year. Here he applied with great aſſiduity to his ſtudies, and in 1523 was admitted to the degree of B.A. In 1527 he was ordained deacon, and afterwards prieſt; and in the ſame year he commenced M.A., and was choſen fellow of his college. When he was about 29 years of age, he preached his firſt ſermon before the univerſity; and almoſt immediately became a popular preacher in the neighbourhood of Cambridge. He had by this time imbibed the principles of the Reformation, and ſhewed ſo much zeal for them, that archbiſhop Cranmer granted him a licence to preach throughout his province. About this time he was ſent for to court, and was made chaplain to queen Anne Boleyn, who appointed him, a ſhort time before her death, to the particular charge of her daughter Elizabeth. About the year 1534 he was preſented by the queen to the deanery of the college of Stoke, near Clare, in Suffolk, a preferment of ſmall value in a pecuniary view, but affording him a pleaſing place of retirement, when he choſe to withdraw from the court, from which it was about 20 miles diſtance. Here he laboured to reform the Popiſh ſuperſtitions, and founded a grammar-ſchool, for the inſtruction of youth in ſound learning, and in the principles of the Chriſtian religion. In 1537, after the death of queen Anne Boleyn, he was appointed one of Henry VIII.'s own chaplains; and in the following year he was created doctor of divinity. In 1541 he was inſtalled prebendary in the cathedral church of Ely; and in 1542 he was preſented by the chapter of Stoke to the rectory of Aſhen, in Eſſex. He obtained other preferments in the church; and in 1544, on account of his high character and great learning, he was choſen maſter of Corpus Chriſti college, to which he afterwards became a liberal benefactor, and compiled for it a new body of ſtatutes. In 1545 he was elected vice-chancellor of the univerſity of Cambridge; and in the ſame year he was preſented by his college to the rectory of Landbeach, in Cambridgeſhire. After the acceſſion of king Edward VI. he married; and in 1549, being accidentally in Norfolk, during the time of Kett's rebellion, Dr. Parker had the reſolution to go to the rebels' camp, where he preached to them under the oak of Reformation, exhorting them moſt earneſtly to temperance, moderation, and ſubmiſſion to the king. In ſo doing, he run great riſk of his life; but he fortunately eſcaped out of their hands. In 1551 Dr. Parker was included in a commiſſion for correcting and puniſhing the Anabaptiſts; and about this time he preached a funeral ſermon for Martin Bucer, regius profeſſor of divinity, with whom he had been on terms of great intimacy. In 1552 Dr. Parker was preſented by Edward VI. to a prebendary in the cathedral church of Lincoln, and alſo to the deanery of the ſame church. He had been nominated, previouſly to this, a chaplain to his majeſty. Thus he lived in great reputation and affluence, during the reigns of Henry VIII. and Edward VI., and happy in the acquaintance and eſteem of all the principal men of his time.

After the acceſſion of queen Mary, Dr. Parker was deprived of all his preferments, and gladly withdrew into privacy. Great pains were taken to find out his retreat, but he eluded the machinations of his enemies; and on the death of the cruel and bigotted ſovereign, he was by her ſucceſſor preferred to the archbiſhopric of Canterbury, and was duly and regularly conſecrated at Bow church; though the Papiſts, ſome years afterwards, propagated a report, that Parker had been conſecrated at a tavern in Cheapſide, which was proved moſt ſatisfactorily to be a calumny. Being thus conſtituted primate and metropolitan of the church of England, Dr. Parker endeavoured to fill the vacant ſees with men of learning and diſtinguiſhed piety, who were zealous for promoting the Reformation; and very ſoon after his own conſecration, he conſecrated, at Lambeth, Grindall, biſhop of London, Cox, biſhop of Ely, Sandys, biſhop of Worceſter, Jewel, biſhop of Saliſbury, and ſeveral others. He alſo extended his influence and his anxious concern for the Proteſtant intereſt to the kingdom of Ireland, ſending over proper inſtructions to the archbiſhop of Dublin, for completing the work of reformation in the church of Ireland.

About this time archbiſhop Parker received a letter from Calvin, exhorting him to prevail with the queen to ſummon a general aſſembly of all the Proteſtant clergy, whereſoever diſperſed, for the purpoſe of agreeing upon one common form of worſhip and of church government to be eſtabliſhed, not only within her dominions, but alſo among the reformed and evangelical churches abroad. This letter was taken into conſideration by the queen's council, who requeſted his grace to return thanks to Calvin for his propoſals, but, at the ſame time to ſignify to him, that the church of England would ſtill retain her epiſcopacy. It is not in our power, in this article, to notice all the attempts made by Elizabeth, in which the archbiſhop ſeems to have concurred, to introduce a uniformity of faith. In conſequence of thoſe proceedings againſt the Puritans, many churches in London, and in every part of the kingdom, were ſhut up for want of preachers. The ſufferers under theſe perſecutions, having been refuſed a hearing by the archbiſhop, and the other commiſſioners appointed by the queen, appealed to the public, and circulated various books and pamphlets in defence of their nonconformity. To ſome of theſe, anſwers were written, on the part of the biſhops, either by themſelves, or their chaplains; which were followed by replies from Puritans, whoſe tracts were eagerly ſought after. In conſequence of this, a decree was obtained from the ſtar-chamber, prohibiting all books and pamphlets, in which any thing ſhould be advanced againſt the queen's injunctions, and empowering the wardens of the ſtationers' company to ſearch all ſuſpected places for ſuch books, and to bring the offenders before the eccleſiaſtical commiſſioners. This ſcandalous ſtretch of tyranny took place in the month of June, 1566. In the following year the archbiſhop founded three grammar-ſcholarſhips in Bennet-college; and two years afterwards, ſeven other ſcholarſhips, and two fellowſhips, in the ſame houſe. In 1568, a new folio edition of the Engliſh bible was publiſhed, chiefly under the inſpection of archbiſhop Parker, with a preface written by him. It was commonly denominated the *biſhops' bible*, on account of its having been reviſed and corrected principally by the biſhops, from the tranſlation publiſhed by Cranmer; and it was made uſe of in the churches, till the laſt tranſlation took place in the reign of James I. One of the laſt acts in which the archbiſhop was employed was a metropolitan viſitation of the dioceſe of Wincheſter, and in particular of the Iſle of Wight, in 1575, in which he exerciſed ſuch ſeverities as expoſed him to univerſal odium, and even induced the court to interfere and reverſe his proceedings. He died in the month of May, 1575, when he was in the 71ſt year of his age, and was buried, with great magnificence and ſolemnity, in his own private chapel at Lambeth, under a tomb erected by himſelf, which remained there till 1648, when the tomb was pulled down, and the aſhes of the prelate expoſed to much inſult. Some time after the reſtoration, they were decently re-interred in the place where the monument formerly ſtood, and another was now erected to his memory. Archbiſhop Parker has the honour to rank among the principal agents in expoſing the ſuperſtitions of Popery, and in placing the Proteſtant religion on a permanent footing in England: he, however, ſullied his reputation, by introducing into Proteſtantiſm much of the eccleſiaſtical pride and perſecuting ſpirit of the church from which he ſeparated. He was naturally of a warm temper, but, till his head was turned by his exaltation, he exhibited no inſtances of haughtineſs or ill nature. He was to the laſt hoſpitable and charitable, and did many kind and benevolent things for private people, as well as for the public benefit. The regulation of his family was extremely laudable: he aſſigned all his domeſtics ſome particular employment, and ſuffered none to be idle. Thoſe who were not occupied in learned purſuits, about the management of his revenues, or the affairs of his houſhold, were variouſly employed; ſome in binding books, others in engraving, painting, tranſcribing manuſcripts in fine hand-writing, drawing, or illuminating.

The archbiſhop was much attached to the ſtudy of Britiſh and Saxon antiquities, and he ſpared neither labour nor expence in collecting and preſerving whatever manuſcripts of this kind could be met with, of which a fatal havock and deſtruction had been made at the time of the diſſolution of the monaſteries. In 1563 he was the inſtrument of preſerving two volumes of collections in folio, made by archbiſhop Cranmer. Whatever he was able to collect, he depoſited in a library that he built for Corpus Chriſti college, in Cambridge. He publiſhed editions of four of our ancient Engliſh hiſtorians, *viz.* Matthew of Weſtminſter, Matthew Paris, Thomas Walſingham, and Aſſer's Life of King Alfred. He alſo publiſhed "A Teſtimony of Antiquity, ſhewing the ancient Faith of the Church of England, touching the Sacrament of the Body and Blood of the Lord, here publicly preached, and alſo received, in the Saxons' Time, about ſeven hundred Years ago, being a Sermon tranſlated out of Latin into Saxon by Ælfric, Abbot of St. Albans, about the year 996, and appointed to be delivered to the People at Eaſter, before they ſhould receive the Communion." Another conſiderable work of the archbiſhop contains the lives of his predeceſſors in the ſee of Canterbury, and is entitled "De Antiquitate Britannicæ Eccleſiæ, et Privilegiis Eccleſiæ Cantuarenſis, cum Archiepiſcopis ejuſdem LXX, 1572." The materials for this performance were collected from ancient hiſtorians, by John Joſeline, ſecretary or chaplain to the prelate, who was himſelf the digeſter and compiler of it. The beſt edition of this work is that of 1729, illuſtrated with fine engravings. Biog. Brit. Neal's Hiſt. of Puritans.

Parker, Samuel, an Engliſh biſhop, ſon of John Parker, a ſerjeant at law under the protectorate of Oliver, and alſo after the reſtoration, was born at Northampton in 1640. He was educated in grammar-learning among the Puritans, at his native place; after which he was ſent, in 1656, to the univerſity of Oxford, where he was entered of Wadham college. Here he is ſaid to have led a very ſtrict and religious life. In 1659 or 1660 he was admitted to the degree of B.A. Although now a zealous Puritan, he became, at the reſtoration of Charles II., violently attached to the court, obtained preferment, and was, in 1667, appointed chaplain to Dr. Sheldon, archbiſhop of Canterbury. In 1670 he was nominated to the archdeaconry of Canterbury, and obtained ſeveral other benefices. In the reign of James II. he was made, for his ſervility to the king's arbitrary meaſures, biſhop of Oxford and privy counſellor. He was alſo conſtituted, by mandamus, preſident of Magdalen college, in violation of the privileges of that ſociety. He was author of a number of works; and he left behind him, in manuſcript, "A Hiſtory of his own Times," in Latin, which was publiſhed in 1726, under the title of "Reverendi admodum in Chriſto Patris Samuelis Parkeri, &c. de Rebus ſui Temporis Commentariorum Libri quatuor," of which two Engliſh verſions afterwards appeared. He died in March, 1687-8, at the age of 48, unlamented and deſpiſed by good men. Biſhop Burnet ſays, "he was a man of no judgment, and of as little virtue; and as to religion, rather impious. He was covetous and ambitious; and ſeemed to have no other ſenſe of religion but as a political intereſt, and a ſubject of party and faction." Biog. Brit. Burnet's Hiſt.

Parker's *Bay*, in *Geography*, a bay on the ſouth coaſt of Jamaica, ſouth of Palmetto point.

Parker's *Creek*, a river of Maryland, which runs into the Cheſapeak, N. lat. 38° 32′. W. long. 76° 39′.

Parker's *Iſland*, an iſland in the Cheſapeak, near the coaſt of Maryland; 15 miles S. of Annapolis. N. lat. 38° 53′. W. long. 76° 41′.—Alſo, an iſland called *Ruſkohegan*, in Lincoln county, and ſtate of Maine, formed by the waters of Kennebeck river weſt, by the ſea ſouth, by Jeremyſquan bay eaſt, and by a ſmall ſtrait which divides it from Arouſeag iſland north; ſo called from John Parker, who purchaſed it from the natives in 1650: part of it ſtill remains to his poſterity. It is in the townſhip of Georgetown.

Parker *River*, a river which takes its riſe in Boxford, in the Maſſachuſetts, and purſuing a variable courſe, at length wanders through the marſhes, and enters Plum iſland ſound by a mouth about a quarter of a mile wide. It is richly ſtored with fiſh, and is navigable for coaſting veſſels to the head of the tide, but obſtructed by two bridges.

PARKGATE, or *the New Quay*, a ſea-port and hamlet in the pariſh of Great Neſton, hundred of Wirral, and county-palatine of Cheſter, England, is ſituated on the north-eaſtern bank of the eſtuary of the river Dee, at the diſtance

PARKON, in *Geography*, a town of Auſtrian Poland, in Galicia; 30 miles N.N.W. of Chelm.

PARKSTEIN, a town of Bavaria, in the principality of Sulzbach; 17 miles N.E. of Sulzbach.

PARLAGOW, a town of Hindooſtan, in Candeiſh; five miles E. of Barawnay.

PARLASCA, a town of Italy, in the department of the Lario; five miles N. of Como.

PARLEY, formed of the French *parler*, *to ſpeak*, *talk*, a conference with an enemy, &c.

Hence to beat or ſound a parley, is to give a ſignal for the holding ſuch a conference, by beat of drum, or ſound of trumpet. See CHAMADE.

PARLIAMENT, PARLIAMENTUM, in England, a grand aſſembly, or convention, of the three eſtates of the kingdom, *viz.* lords ſpiritual, lords temporal, and commons, ſummoned to meet the king, to conſult of matters relating to the commonweal; and particularly to enact, and repeal, laws.

The word *parliament*, *parlement*, or *colloquium*, as ſome of our hiſtorians tranſlate it, is comparatively of modern date, derived from the French, and ſignifying the place where they met and conferred together. It was firſt applied to general aſſemblies of the ſtate under Louis VII. of France, about the middle of the twelfth century. The firſt mention of it in our ſtatute law is in the preamble to the ſtatute of Weſt. 1. 3 Edw. I. A.D. 1272. But long before the introduction of the Norman language into England, all matters of importance were debated and ſettled in the great councils of the realm; a practice which ſeems to have been univerſal among the northern nations, particularly the Germans: and carried by them into all the countries of Europe, which they overran at the diſſolution of the Roman empire.

The two houſes of parliament are the king's grand council.

Till the conqueſt, the great council, conſiſting only of the great men of the kingdom, was called *magnatum conventus*, and *prælatorum procerumque concilium*, *aſſiſa generalis*, and ſometimes *communitas regni Angliæ*. The Saxons, in their own tongue, called it *wittenagemote*, *i. e.* *aſſembly of the wiſe*; and it hath ſubſiſted immemorially under theſe appellations and others, as *michel-ſynoth*, or *great council*; and *michel-gemote*, or *great meeting*.

We have inſtances of its aſſembling to order the affairs of the kingdom, to make new laws, and to amend the old, ſo early as the reign of Ina, king of the Weſt Saxons, Offa, king of the Mercians, and Ethelbert, king of Kent, in the ſeveral realms of the heptarchy. And after their union, the Mirror informs us, that king Alfred ordained for a perpetual uſage, that theſe councils ſhould meet twice in the year, or oftener, if need be, to treat of the government of God's people: how they ſhould keep themſelves from ſin, live in quiet, and receive right. Our ſucceeding Saxon and Daniſh monarchs held frequent councils of this ſort, as appears from their reſpective codes of laws; the titles of which ſpeak them to be enacted either by the king, with the advice of his *wittenagemote* or wiſe men, or by thoſe ſages with the advice of the king, or by them both together. Theſe great councils were alſo, without doubt, held regularly under the firſt princes of the Norman line. Glanvil, who wrote in the reign of Henry II. ſpeaking of the particular amount of an amercement in the ſheriff's court, ſays, it had never yet been aſcertained by the general aſſize, or aſſembly, but was left to the cuſtom of particular countries. In Edward III.'s time, an act of parliament, made in the reign of William the Conqueror, was pleaded in the caſe of the abbey of St. Edmund's-bury, and judicially allowed by the court. Hence it appears, that parliaments or general councils are coeval with the kingdom itſelf. Though the high antiquity of parliaments in this kingdom muſt be univerſally allowed, it does not ſo clearly appear how they were compoſed; and particularly whether the commons were ſummoned at all, or, if ſummoned, at what period they began to form a diſtinct aſſembly. Nevertheleſs it is generally agreed, that in the main the conſtitution of parliament, as it now ſtands, was marked out ſo long ago as the ſeventeenth year of king John, A. D. 1215, in the great charter granted by that prince, in which he promiſes to ſummon all archbiſhops, biſhops, abbots, earls, and greater barons, perſonally; and all other tenants in chief under the crown, by the ſheriff and bailiffs; to meet at a certain place, with forty days' notice, to aſſeſs aids and ſcutages when neceſſary. And this conſtitution has ſubſiſted in fact at leaſt from the year 1266 (49 Hen. III.), there being ſtill extant writs of that date, to ſummon knights, citizens, and burgeſſes to parliament.

Sir Walter Raleigh, in his Prerogative of Parliament, thinks the commons were firſt called in the ſeventeenth of Hen. I. and Dr. Heylin fixes the time of their firſt admiſſion to the reign of Henry II.

Indeed, ſir Edward Coke, Dodderidge, Prynn, and others, have ſhewn, that the commons of England had always a ſhare in the legiſlature, and a place in the great aſſemblies; though not on the preſent footing, as making a diſtinct houſe, and as compoſed of knights, citizens, and burgeſſes.

Parliaments are to be ſummoned, prorogued, and diſſolved by the king alone: nor can a parliament begin without the king's preſence, or that of his commiſſioners.

At firſt, new parliaments were called every year; by degrees their term grew longer. In the time of king Charles II. they were held a long time with great interruptions between them. Both which methods were found of ſuch ill conſequences, that in the beginning of the reign of king William an act was paſſed, whereby the term of all parliaments was reſtrained to three ſeſſions, or three years; this was hence called the *Triennial act*. Since that, from other views, the period of parliaments is lengthened to ſeven years.

A parliament is called by the king's writ, or letter directed to each lord, commanding him to appear; and by other writs directed to the ſheriffs of each county, to ſummon the people to elect two knights for each county, and one or two burgeſſes for each borough, &c.

This writ is iſſued out of chancery by advice of the privy council, at leaſt forty days before it begins to ſit. This right of ſummons is a branch of the royal prerogative; ſo that no parliament can be convened by its own authority, or by the authority of any, except the king alone. Nor is it an exception to this rule, that, by ſome modern ſtatutes, on the demiſe of a king or queen, if there be then no parliament in being, the laſt parliament revives, and is to ſit again for ſix months, unleſs diſſolved by the ſucceſſor; for this revived parliament muſt have been originally ſummoned by the crown. Indeed, by ſtatute 16 Car. I. c. 1. it was enacted, that if the king neglected to call a parliament for three years, the peers might aſſemble and iſſue out writs for chooſing one; and, in caſe of neglect of the peers, the conſtituents might meet and elect one themſelves. This act, however, was deemed injurious to the royal prerogative, and repealed by ſtatute 16 Car. II. c. 1.

There are, it muſt be acknowledged, two capital exceptions to this rule, which were juſtifiable on a principle of neceſſity, that ſuperſedes all law. The convention parliament, that reſtored king Charles II. met above a month before his return; the lords by their own authority, and the commons in purſuance of writs iſſued in the name of the keepers of the liberty of England by the authority of parliament; and this parliament ſat full ſeven months after the reſtoration, and enacted many laws ſtill in force. But the firſt thing done after the king's return, was to paſs an act declaring this to be a good parliament, notwithſtanding the defects of the king's writs. And it was thought farther neceſſary to confirm its acts in the next parliament, by 13 Car II. cap. 7. and cap. 14. The other exception occurs at the time of the revolution, A. D. 1688, when the lords and commons by their own authority, and upon the ſummons of the prince of Orange (afterwards king William), met in a convention, and diſpoſed of the crown and kingdom. The throne at this time was vacant by the abdication of king James II. and it was declared by W. & M. ſtat. 1. cap. 1. that this convention was really the two houſes of parliament, notwithſtandiug the want of writs, and other defects of form.

As the king only can convoke a parliament, he is bound to do this every year, or oftener, if need be. And by 16 Car. II. cap. 1. it is enacted, that the ſitting and holding of parliaments ſhall not be intermitted above three years at the moſt: by 1 W. & M. ſtat. 2. cap. 2. it is declared to be one of the rights of the people, that for redreſs of all grievances, and for the amending, ſtrengthening, and preſerving the laws, parliaments ought to be held frequently; and this indefinite frequency is reduced to a certainty by 6 W. & M. cap. 2. which enacts, that a new parliament ſhall be called within three years, after the determination of the former.

As to the conſtituent parts of a parliament, theſe are the king, who ſits there in his royal political capacity, and the three eſtates of the realm; the lords ſpiritual, the lords temporal, who ſit together with the king in one houſe, and the commons, who ſit by themſelves in another. And the king, and theſe three eſtates together, form the great corporation or body politic of the kingdom, (4 Inſt. 1, 2. ſtat. 1. Eliz. c. 3. Hale of Parl. 1.) of which the king is ſaid to be *caput, principium*, and *finis*. (See KING.) For upon their coming together the king meets them, either in perſon, or by repreſentation, without which there can be no beginning of a parliament; and he alſo alone has the power of diſſolving them. 4 Inſt. 6.

The ſpiritual lords conſiſt of two archbiſhops and twenty-four biſhops, who are ſuppoſed to hold certain ancient baronies under the king, in right of which they obtain their ſeats in the houſe of lords; where they intermix in their votes with the temporal lords, ſo that in every effectual ſenſe they form one eſtate. (See ARCHBISHOP and BISHOP.) The lords temporal conſiſt of all the peers of the realm, as dukes, marquiſes, earls, viſcounts, and barons. Some of theſe ſit by deſcent, as do all ancient peers; ſome by creation, as do all new made ones; others, ſince the union with Scotland, by election, which is the caſe of the ſixteen peers, who repreſent the body of the Scotch nobility: and twenty-eight peers for Ireland, beſides one archbiſhop and three biſhops. Their number is indefinite, and may be increaſed at will by the power of the crown. See PEER.

The commons conſiſt of all ſuch men of any property in the kingdom as have not ſeats in the houſe of lords; every one of whom has a voice in parliament, either perſonally, or by his repreſentative. See COMMONS.

The number of Engliſh repreſentatives is five hundred and thirteen (*viz.* ninety-two knights of ſhires, fifty citizens for twenty-five cities, Ely ſending none, and London four; three hundred and thirty-four burgeſſes for one hundred and ſixty-ſeven boroughs, two each; five for five boroughs, one each; and twelve for twelve boroughs in Wales, Pembroke ſending two, and Merioneth none; four for the two univerſities, and ſixteen for the eight cinque ports), of Scots forty-five, and of Iriſh one hundred; ſo that the repreſentatives of the united kingdom amount to 658. The conſent of all theſe three parts is required to make any new law that ſhall bind the ſubject. Whatever is enacted for law by one, or by two only, of the three, is no ſtatute, and no regard is due to it, except in matters relating to their own privileges. It is particularly enacted by ſtatute 13 Car. II. c. 1. that if any perſon ſhall maliciouſly or adviſedly affirm, that both, or either of the houſes of parliament have any legiſlative authority without the king, ſuch perſon ſhall incur all the penalties of a "præmunire."

The juriſdiction of parliament thus compoſed and conſidered as an aggregate body, is ſo tranſcendent, ſays ſir Edward Coke (4 Inſt. 36.), that it makes, enforces, enlarges, reſtrains, abrogates, repeals, revives, and expounds laws and ſtatutes, concerning matters eccleſiaſtical, civil, criminal, martial, maritime, &c. And for making of laws, and in proceeding by bill, this ſupreme court is not confined either for cauſes or perſons within any bounds; nor is it tied down to any certain rules or forms of law, in proceedings and determinations: the court of parliament hath power to judge in matters of law; and redreſs miſchiefs and grievances that happen, eſpecially ſuch as have no ordinary remedy; to examine into the corruption of judges and magiſtrates, and illegal proceedings of other courts; to redreſs errors, and determine on petitions and appeals, &c. and from this high court there lies no appeal.

It can regulate or new model the ſucceſſion to the crown; as in the reign of Henry VIII. and William III. It can alter the eſtabliſhed religion of the land, as was done in the reigns of king Henry VIII. and his three children. It can change and create afreſh even the conſtitution of the kingdom, and even of parliaments themſelves, as was done by the act of union, and the ſeveral ſtatutes for triennial and ſeptennial elections. And, therefore, ſome have not ſcrupled to call its power, by too bold a figure, the omnipotence of parliament. It is therefore, as judge Blackſtone obſerves, a matter moſt eſſential to the liberties of the kingdom, that ſuch members be delegated to this important truſt, as are moſt eminent for their probity, their fortitude, and their knowledge; for it was a known apophthegm of the great lord treaſurer Burleigh, "that England could never be ruined but by a parliament;" and as ſir Matthew Hale obſerves, this being the higheſt and greateſt court, over which none other can have juriſdiction in this kingdom, if by any means a miſgovernment ſhould any way fall upon it, the ſubjects of this kingdom are left without all manner of remedy. To the ſame purpoſe the preſident Monteſquieu (we truſt too haſtily,) preſages; that as Rome, Sparta, and Carthage, have loſt their liberty and periſhed, ſo the conſtitution of England will in time loſe its liberty and periſh: it will periſh, whenever the legiſlative power ſhall become more corrupt than the executive.

Affairs of parliament are to be determined by the parliament; and though the parliament err, it is not reverſible in any other court: and not only what is done in the houſe of commons, but what relates to the commons during the parliament, and ſitting of the parliament, is no where elſe to be puniſhed but by themſelves, or a ſucceeding parliament. Every court of juſtice having laws and cuſtoms for its direction, the high court of parliament hath its own proper laws and cuſtoms, called the laws and cuſtoms of parliament; inſomuch that no judges ought to give any opinion of matters done in parliament, becauſe they are not to be decided by the common law: but the parliament, in their judicial capacity, are governed by the common and ſtatute laws, as well as the courts in Weſtminſter-hall.

The lords and commons in their reſpective houſes have power of judicature, and ſo have both houſes together: and in former times, both lords and commons ſat together in one houſe of parliament. The king cannot take notice of any thing ſaid to be done in the houſe of commons but by the report of the houſe; and every member of the houſe of parliament has a judicial place, and can be no witneſs.

The houſe of lords is a diſtinct court of judicature from the commons, to ſeveral purpoſes; they try criminal cauſes on impeachments of the commons, and have an original juriſdiction for the trial of peers upon indictments found by a grand jury: they alſo try cauſes upon appeals from the court of chancery, or upon writs of error to reverſe judgments in the king's bench, &c. Alſo the houſe of commons is a diſtinct court to many purpoſes; they examine the right of elections, expel their own members, and commit them to priſon, and ſometimes other perſons, &c. And the book of the clerk of the houſe of commons is a record.

In order to prevent the miſchief that might ariſe from repoſing ſuch extenſive authority with incompetent perſons, it is provided by the cuſtom and law of parliament, that no one ſhall ſit or vote in either houſe, unleſs he be twenty-one years of age. (7 & 8 W. III. cap. 25.) No member ſhall ſit or vote in either houſe, till he hath, in the preſence of the houſe, taken the oaths of allegiance, ſupremacy, and abjuration, and ſubſcribed and repeated the declaration againſt tranſubſtantiation, and invocation of ſaints, and the ſacrifice of the maſs. (30 Car. II. ſtat. 2. 1 Geo. I. c. 13.) No alien, even though he be naturalized, ſhall be capable of being a member of either houſe of parliament. (12 & 13 W. III. c. 2.) As to the qualifications of members of the houſe of commons, beſides the above qualifications, it is declared and required by the law of parliament or ſpecial ſtatutes, that they muſt not be any of the twelve judges, becauſe they ſit in the lords houſe, nor of the clergy, becauſe they ſit in convocation, nor perſons attainted of treaſon or felony, becauſe they are unfit to ſit any where: that ſheriffs of counties, and mayors, and bailiffs of boroughs, are not eligible in their reſpective juriſdictions, as being returning officers: that no perſons concerned in the management of any duties or taxes created ſince 1692, except the commiſſioners of the treaſury, nor any of the officers following, *viz.* commiſſioners of prizes, tranſports, ſick and wounded, wine licences, navy and victualling; ſecretaries or receivers of prizes, comptrollers of the army accounts, agents for regiments, governors of plantations and their deputies, officers of Minorca or Gibraltar, officers of the exciſe and cuſtoms, clerks or deputies in the ſeveral offices of the treaſury, exchequer, navy, victualling, admiralty, pay of the army or navy, ſecretaries of ſtate, ſalt, ſtamps, appeals, wine licences, hackney-coaches, hawkers, and pedlars; nor any perſons that hold any new office under the crown, created ſince 1705, are capable of being elected members: that no perſon having a penſion under the crown during pleaſure, or for any term of years, is capable of being elected; that if any member accepts an office under the crown, except an officer in the army or navy accepting a new commiſſion, he vacates his ſeat, but is capable of being re-elected: and moreover, perſons in particular circumſtances have forfeited the right of choice, and have been declared ineligible for *that* parliament by a vote of the houſe of commons, or *for ever*, by an act of the legiſlature. By 22 Geo. III. c. 45. contractors are ineligible. It has been alſo required, in ſtrictneſs, that all members ſhould be inhabitants of the places for which they are choſen, but this is altogether diſregarded and repealed by 14 Geo. III. c. 53. For other qualifications, and for the qualifications of electors, ſee BURGESS and KNIGHTS *of the Shire*.

As for the method of proceeding in elections; when the parliament is ſummoned, the lord chancellor (or if a vacancy happens during parliament, the ſpeaker, by order of the houſe) ſends his warrant to the clerk of the crown in chancery; who iſſues out writs to the ſheriff of every county, for the election of all the members to ſerve for that county, and every city and borough in it. Within three days after the receipt of this writ, the ſheriff is to ſend his precept, under his ſeal, to the proper returning officers of the cities and boroughs, commanding them to elect their members: and the ſaid returning officers are to proceed to election within eight days from the receipt of the precept, giving four days notice of the ſame; and to return the perſons choſen, together with the precept, to the ſheriff. But elections of knights of the ſhire muſt be proceeded to by the ſheriffs themſelves in perſon, at the next county court, that ſhall happen after the delivery of the writ. If this court falls upon the day of delivering the writ, or within ſix days after, the ſheriff may adjourn the court and election to ſome other time, not longer than ſixteen days, nor ſhorter than ten; but he cannot alter the uſual place without conſent of the candidates: and in all ſuch caſes, ten days public notice muſt be given of the time and place of election. In order to prevent all undue influence, as ſoon as the time and place of election, in counties or boroughs, are fixed, all ſoldiers quartered in the place are to remove at leaſt one day before the election, to the diſtance of two miles or more; and not to return till one day after the poll is ended. By vote of the houſe of commons, no lord of parliament, or lord lieutenant of a county, hath any right to interfere in the election of commoners; and by ſtatute, the lord warden of the cinque ports ſhall not recommend any members there. If any officer of the exciſe, cuſtoms, ſtamps, or other branches of the revenue preſumes to intermeddle in elections, by perſuading or diſſuading any voter, he forfeits 100*l.* and is diſabled to hold any office.

For the proviſions againſt bribery, ſee BRIBERY.

On the day of election, the returning officer firſt takes an oath againſt bribery, and for the due execution of his office; the candidates, alſo, if required, muſt ſwear to their qualifications; and the electors, both in counties and boroughs, are compellable to take the oath of abjuration, and that againſt bribery and corruption. When the election is cloſed, the returning officer in boroughs returns his precept to the ſheriff with the perſons elected by the majority: and the ſheriff returns the whole, together with the writ for the county, and the knights elected, to the clerk of the crown in chancery, before the day of meeting, if it be a new parliament; or within fourteen days after the election, if it be an occaſional vacancy; under penalty of 500*l.* If the ſheriff does not return ſuch knights only as are duly elected, he forfeits, by the old ſtatutes of Henry VI. 100*l.*; and the returning officer in boroughs, for a like falſe return, 40*l.*; and they are beſides liable to an action, in which double damages ſhall be recovered, by the later ſtatutes of king William: and any perſon bribing the returning officer ſhall alſo forfeit 300*l.* But the members returned by him are the ſitting members, until the houſe of commons, upon petition, ſhall adjudge the return to be falſe and illegal.

The privileges of parliament are very large and indefinite: the chief of theſe are privilege of ſpeech, of perſon, of their domeſtics, and of their lands and goods. Privilege of ſpeech is declared to be one of the liberties of the people, and it is declared by ſtatute 1 W. & M. ſtat. 2. cap. 2. that the freedom of ſpeech and debates, and proceedings in parliament, ought not to be impeached or queſtioned, in any court or place out of parliament. And this freedom of ſpeech is particularly demanded of the king in perſon, by the ſpeaker of the houſe of commons, at the opening of every new parliament. So likewiſe are the other privileges, which are immunities as ancient as Edward the Confeſſor, and the old Gothic conſtitution. To aſſault by violence a member of either houſe, or his menial ſervants, is a high contempt of parliament, and there puniſhed with the utmoſt ſeverity: and there are alſo penalties annexed to it in the courts of law, by the ſtatutes 5 Hen. IV. cap. 6. and 11 Hen. VI. cap. 11. Neither can any member of either houſe be arreſted and taken into cuſtody, unleſs for ſome indictable offence, without a breach of the privilege of parliament. But all other privileges, which derogate from the common law, in matters of civil right, are now at an end, ſave only as to the freedom of the member's perſon; which in a peer (by the privilege of peerage) is always inviolable, and in a commoner for forty days after every prorogation, and forty days before the next meeting; and this is commonly as long as the parliament ſubſiſts, it ſeldom being prorogued for more than four more days at a time.

As to all other privileges, which obſtruct the ordinary courſe of juſtice, they were reſtrained by the ſtatutes 12 W. III., 2 & 3 Ann. c. 18, and 11 Geo. II. c. 24, and are now totally aboliſhed by the ſtatute 10 Geo. III. c. 50, which enacts, that any ſuit may at any time be brought againſt any peer or member of parliament, their ſervants, or any other perſon entitled to privilege of parliament, which ſhall not be impeached or delayed by pretence of any ſuch privilege; except that the perſon of a member of the houſe of commons ſhall not thereby be ſubjected to any arreſt or impriſonment. Likewiſe, for the benefit of commerce, it is provided by ſtatute 4 Geo. III. c. 33, that any trader, having privilege of parliament, may be ſerved with legal proceſs for any juſt debt to the amount of 100*l.*; and unleſs he makes ſatisfaction within two months, it ſhall be deemed an act of bankruptcy; ſo that commiſſions of bankruptcy may be iſſued againſt ſuch privileged traders, in like manner as againſt any other. See farther, on this ſubject, under the article COMMONS.

As to the ſpecial privileges and claims of peers, we may obſerve, that, by the charter of the foreſt, confirmed in parliament 9 Hen. III. every lord, ſpiritual or temporal, ſummoned to parliament, and paſſing through the king's foreſts, may, both in going and returning, kill one or two of the king's deer without warrant. They have alſo a right to be attended by the judges of the court of king's bench and common pleas, and ſuch of the barons of the exchequer as are of the degree of the coif, or have been made ſerjeants at law, and likewiſe by the maſters of the court of chancery, for their advice in point of law, &c. The ſecretaries of ſtate, the attorney and ſolicitor-general, and the reſt of the king's learned counſel, being ſerjeants, were alſo uſed to attend the houſe of peers, and have, to this day, their regular writs of ſummons iſſued out at the beginning of every parliament: but as many of them have of late years been members of the houſe of commons, their attendance here is fallen into diſuſe. Every peer, by licence obtained from the king, may make another lord of parliament his proxy, to vote for him in his abſence; which no member of the houſe of commons can do, becauſe he is himſelf but a proxy for a multitude of other people. Each peer has alſo a right, by leave of the houſe, when a vote paſſes contrary to his ſentiments, to enter his diſſent on the journals of the houſe, with the reaſons for ſuch diſſent, which is uſually ſtyled his *proteſt*. All bills, likewiſe, that may in their conſequences affect the rights of the peerage, are by cuſtom of parliament to have their commencement in the houſe of peers, and to ſuffer no amendments or changes in the houſe of commons. Moreover, the ſtatute 6 Ann. cap. 23. which regulates the election of the ſixteen repreſentative peers of North Britain, peculiarly relates to the houſe of lords.

The ſpecial privilege and right of the houſe of commons comprehend all grants of ſubſidies or parliamentary aids, which begin with them, and are firſt beſtowed in their houſe. See MONEY *Bills*.

The place where the parliament meets is wherever the king pleaſes: of late it has been in the palace of Weſtminſter, the lords and commons each in a diſtinct apartment. In the lords houſe the princes of the blood are placed in diſtinct ſeats; the great officers of ſtate, dukes, marquiſes, and biſhops, on benches, and the viſcounts and barons on others acroſs the houſe; all according to their order of creation, place, &c.

The commons ſit promiſcuouſly, forty members conſtituting a houſe; only the ſpeaker has a chair at the upper end; and the clerk and his aſſiſtant at a table near him. See SPEAKER.

As to the Manner of debating and paſſing Bills in Parliament.—To bring a bill into the houſe, if relief ſought by it is of a private nature, it is firſt neceſſary to prefer a petition; which muſt be preſented by a member, and uſually ſets forth the grievance deſired to be remedied. This petition, (when founded on facts that may be in their nature diſputed) is referred to a committee of members, who examine the matter alleged, and accordingly report it to the houſe; and then (or otherwiſe upon the mere petition) leave is given to bring in the bill. In public matters the bill is brought in upon motion made to the houſe, without any petition at all. Formerly all bills were drawn in the form of petitions, which were entered upon the Parliament Rolls, with the king's anſwer thereunto ſubjoined; not in any ſettled form of words, but as the circumſtances of the caſe required: and at the end of each parliament the judges drew them into the form of a ſtatute, which was entered on the Statute Rolls. In the reign of Henry V., to prevent miſtakes and abuſes, the ſtatutes were drawn up by the judges before the end of the parliament; and, in the reign of Henry VI., bills in the form of acts, according to the modern cuſtom, were firſt introduced.

The perſons directed to bring in the bill, preſent it in a competent time to the houſe, drawn out on paper, with a multitude of blanks, or void ſpaces, where any thing occurs that is dubious, or neceſſary to be ſettled by the parliament itſelf (ſuch, eſpecially, as the preciſe date of times, the nature and quantity of penalties, or of any ſums of money to be raiſed); being indeed only the ſkeleton of the bill. In the houſe of lords, if the bill begins there, it is (when of a private nature) referred to two of the judges, to examine and report the ſtate of the facts alleged, to ſee that all neceſſary parties conſent, and to ſettle all points of technical propriety. This is read a firſt time, and at a convenient diſtance a ſecond time; and after each reading the ſpeaker opens to the houſe the ſubſtance of the bill, and puts the queſtion, whether it ſhall proceed any farther.

The introduction of the bill may be originally oppoſed, as the bill itſelf may at either of the readings; and, if the oppoſition ſucceeds, the bill muſt be dropped for that ſeſſions: as it muſt alſo, if oppoſed with ſucceſs in any of the ſubſequent ſtages.

After the ſecond reading it is committed, that is, referred to a committee; which is either ſelected by the houſe in matters of ſmall importance, or elſe, upon a bill of conſequence, the houſe reſolves itſelf into a committee of the whole houſe. A committee of the whole houſe is compoſed of every member; and, to form it, the ſpeaker quits the chair (another member being appointed chairman), and may ſit and debate as a private member. In theſe committees the bill is debated clauſe by clauſe, amendments made, the blanks filled up, and ſometimes the bill entirely new modelled. After it has gone through the committee, the chairman reports it to the houſe with ſuch amendments as the committee have made; and then the houſe reconſider the whole bill again, and the queſtion is repeatedly put upon every clauſe and amendment. When the houſe have agreed or diſagreed to the amendments of the committee, and ſometimes added new amendments of their own, the bill is then ordered to be engroſſed, or written in a ſtrong groſs hand, in one or more long rolls (or preſſes) of parchment ſewed together. When this is finiſhed, it is read a third time, and amendments are ſometimes then made to it; and, if a new clauſe be added, it is done by tacking a ſeparate piece of parchment to the bill, which is called a *rider*. The ſpeaker then again opens the contents; and, holding it up in his hands, puts the queſtion whether the bill ſhall paſs. If this is agreed to, the title to it is then ſettled; which uſed to be a general one for all the acts paſſed in the ſeſſion, till, in the fifth year of Henry VIII. diſtinct titles were introduced for each chapter. After this, one of the members is directed to carry it to the lords, and deſire their concurrence; who, attended by ſeveral more, carries it to the bar of the houſe of peers, and there delivers it to their ſpeaker, who comes down from his woolſack to receive it.

It there paſſes through the ſame forms as in the other houſe (except engroſſing, which is already done), and if rejected, no more notice is taken, but it paſſes *ſub ſilentio*, to prevent unbecoming altercations. But, if it is agreed to, the lords ſend a meſſage, by two maſters in chancery, (or ſometimes two of the judges,) that they have agreed to the ſame: and the bill remains with the lords, if they have made no amendment to it. But if any amendments are made, ſuch amendments are ſent down with the bill to receive the concurrence of the commons. If the commons diſagree to the amendments, a conference uſually follows between members deputed from each houſe; who for the moſt part ſettle and adjuſt the difference; but, if both houſes remain inflexible, the bill is dropped. If the commons agree to the amendments, the bill is ſent back to the lords, by one of the members, with a meſſage to acquaint them therewith. The ſame forms are obſerved, *mutatis mutandis*, when the bill begins in the houſe of lords. But, when an act of grace or pardon is paſſed, it is firſt ſigned by his majeſty, and then read once only in each of the houſes, without any new engroſſing or amendment. And when both houſes have done with any bill, it always is depoſited in the houſe of peers, to wait the royal aſſent; except in the caſe of a money-bill, which, after receiving the concurrence of the lords, is ſent back to the houſe of commons.

The royal aſſent may be given two ways. 1. In perſon; when the king comes to the houſe of peers, in his crown and royal robes, and ſending for the commons to the bar, the titles of all the bills that have paſſed both houſes are read; and the king's anſwer is declared by the clerk of the parliament in Norman French. If the king conſents to a public bill, the clerk uſually declares, "*le roy le veut; the king wills it ſo to be*;" if to a private bill, "*ſoit fait comme il eſt deſiré; be it as it is deſired*." If the king refuſes his aſſent, it is in the gentle language of "*le roy s'aviſera; the king will adviſe upon it*." When a money-bill, or bill of ſupply, is paſſed, it is carried up and preſented to the king by the ſpeaker of the houſe of commons; and the royal aſſent is thus expreſſed, "*le roy remercie ſes loyal ſujets, accepte leur benevolence, et auſſi le veut; the king thanks his loyal ſubjects, accepts their benevolence, and wills it ſo to be*."

In caſe of an act of grace, which originally proceeds from the crown, and has the royal aſſent in the firſt ſtage of it, the clerk of the parliament thus pronounces the gratitude of the ſubject; "*les prelats, ſeigneurs, et commons, en ce preſent parlement aſſemblées, au nom de touts vous autres ſujets, remercient tres humblement votre majeſte, et prient a Dieu vous donner en ſante bone vie et longue; the prelates, lords, and commons, in this preſent parliament aſſembled, in the name of all your other ſubjects, moſt humbly thank your majeſty, and pray to God to grant you in health and wealth long to live*."

2. By the ſtatute 33 Hen. VIII. cap. 21. the king may give his aſſent, by letters patent, under his great ſeal, ſigned with his hand, and notified, in his abſence to both houſes, aſſembled together in the high houſe. And when the bill has received the royal aſſent, in either of theſe ways, it is then, and not before, a ſtatute or act of parliament: a copy of which is uſually printed at the king's preſs, for the information of the whole land. See, on this article, Blackſt. Com. book i. chap. 2.

PARLIAMENT, *Adjournment of*, is a continuance of the ſeſſion from one day to another, as the word ſignifies, which is done by the authority of each houſe ſeparately, every day, and ſometimes for a fortnight or a month together; but the adjournment of one houſe is no adjournment of the other.

PARLIAMENT, *Diſſolution of*, is the civil death of the parliament, which may be effected either by the king's will, expreſſed in perſon, or by repreſentation, or by the demiſe of the crown; in which caſe it is enacted, by 7 & 8 Will. III. cap. 15. and 6 Anne, cap. 7. that the parliament in being ſhall continue for ſix months after the death of any king or queen, unleſs ſooner prorogued or diſſolved by the ſucceſſor; and that if, at the time of the king's death, it ſtands adjourned or prorogued, it ſhall aſſemble immediately; and that, if no parliament is then in being, the members of the laſt parliament ſhall aſſemble, and be again a parliament; or, laſtly, by length of time, which by 6 W. & M. cap. 2. was three years; but, by 1 Geo. I. ſtat. 2. cap. 38, is now ſeven years; ſo that the parliament muſt expire or die a natural death at the end of every ſeventh year.

PARLIAMENT, *Prorogation of*, is the continuance of it from one ſeſſion to another. This is done by the royal authority, expreſſed either by the lord chancellor, in his majeſty's preſence, or by commiſſion from the crown, or frequently by proclamation. Both houſes are neceſſarily prorogued at the ſame time: it not being a prorogation of the houſe of lords or commons, but of the parliament. The difference between a prorogation and an adjournment is obvious; the former puts an end to the ſeſſion, and then ſuch bills as are only begun, and not perfected, muſt be reſumed *de novo* (if at all) in a ſubſequent ſeſſion; whereas, after an adjournment, all things continue in the ſame ſtate, and may be proceeded on without any freſh commencement.

PARLIAMENT-*Houſe*, *Porter of*. See PORTER.

PARLIAMENT, *Rolls of*. See ROLLS.

PARLIAMENT, *Seſſion of*. See SESSION.

PARLIAMENT is ſometimes alſo uſed for other aſſemblies beſide thoſe of the ſtates of the realm. Thus we read, that the abbot of Croyland was uſed to call parliaments of his monks, to conſult of the affairs of the monaſtery. And, at this day, an aſſembly of the two temples, called to conſult of their common affairs, is called a parliament.

PARLIAMENTS *of France*, according to the old conſtitution, were courts, or aſſemblies, eſtabliſhed by the king to judge of the differences between particular perſons, and to pronounce on appeals from ſentences given by inferior judges.

There were twelve of theſe parliaments in France; that of Tholouſe, eſtabliſhed in 1302; that of Dijon, in 1476; that of Grenoble, in 1453; that of Rouen, in 1499; that of Rennes, in Bretagne, in 1553; that of Bourdeaux, according to Du-Cange, in 1460; that of Aix, in 1501; that of Metz, in 1633; that of Pau, in Bearn, in 1519; that of Beſançon, in 1422; that of Doway, in 1668; and that of Paris, about 1254.

The parliament of Paris was the principal, and that whoſe juriſdiction was of the greateſt extent. This was the chief court of juſtice throughout the realm. It conſiſted of eight chambers; the grand chamber, where cauſes of audience were pleaded; the chamber of written law; the chamber of counſel; the Tournelle criminelle, for judging criminal affairs; the Tournelle civile, in aid of the grand chamber; and three chambers of inqueſts, where proceſſes were adjudged in writing; beſides theſe, there was alſo the chamber of vacations, and thoſe of requeſts.

In 1771, the king thought fit to branch the parliament of Paris into ſix different parliaments, under the denomination of ſuperior courts, each parliament having ſimilar juriſdiction.

Under their ſecond race of kings, this parliament, like that of England, was the king's council; it gave audience to ambaſſadors, and conſulted of the affairs of war and government.

The king, like our's, at that time preſided in them, without being at all maſter of their reſolutions. But, in after-times, their authority was abridged; the kings having reſerved the deciſion of the grand affairs of the public to their own councils; leaving none but private ones to the parliaments.

PARLIAMENT-*Heel*, in *Sea Language*, the ſituation of a ſhip, when ſhe is made to ſtoop a little to one ſide, ſo as to clean the upper part of her bottom on the other ſide, and to cover it with a new compoſition; and afterwards to perform the ſame office on that part of the bottom which was firſt immerſed. See BOOT-*Topping*.

PARLIAMENTARIAN is a term uſed to denote thoſe, who, in the time of the civil war, were attached to the parliament, in oppoſition to the royaliſts, devoted to the king.

PARLIAMENTUM INDOCTORUM, a denomination given to a parliament, held at Coventry, 6 Henry VI. whereunto, by ſpecial precept to the ſheriffs of the ſeveral counties, no lawyer, or perſon ſkilled in the law, was to be called.

PARLIAMENTUM *Inſanum*, was a parliament held at Oxford, anno 41 Henry III. thus called, ſay our chronicles, becauſe the lords came with great retinues of armed men to it; and many things were violently tranſacted therein againſt the king's prerogative.

PARLIAMENTUM *Diabolicum*, was a parliament held at Coventry, 38 Henry VI. wherein Edward, earl of March (afterwards king,) and ſeveral others, were attainted. The acts paſſed herein were annulled by the ſucceeding parliament.

PARLIAMENTUM *de la Bande*, was a parliament in Edward II.'s time, whereto the barons came armed againſt the two Spencers, with coloured bands on their ſleeves, for diſtinction.

PARLIE, in *Geography*, a town of Hindooſtan, in Guzerat; ſix miles S. of Pernalla.

PARLOUR, PARLOIR, from the French *parler, to talk*, in nunneries, a little room or cloſet, where people talk to the nuns, through a kind of grated window.

Anciently there were alſo parlours in the convents of monks, where the novices uſed to converſe together at the hours of recreation; but there were liſtening-places over, from whence the ſuperiors could hear every thing they ſaid. Such a one there ſtill ſubſiſts in the abbey St. German de Prez.

In the order of Feuillans, the parlour is a little room open on all ſides, placed at each end of the dormitory, where the monks talk together, it not being allowed them to ſpeak in the dormitory.

PARMA, among *Antiquaries*, a kind of ancient buckler. Polybius deſcribes the parma as very ſtrong, round, three feet in diameter, and big enough to cover the whole body; yet Servius on the Æneid, and even Virgil himſelf, mention it as a light piece of armour, in compariſon of the clypeus, though bigger than the pelta.

PARMA, or "*The Parmeſan*," in *Geography*, a duchy of Italy, to which are united the territories of *Placentia* or *Picenza*, and *Guaſtalla*; which ſee reſpectively. This country is bounded on the N. by the river Po, ſeparating it from the Cremoneſe and the Lodeſan, on the E. by the duchy of Modena, on the S by Tuſcany and Genoa, and on the W. by Genoa and the Paveſe; about 40 miles from N. to S., and from 30 to 48 from E to W. Theſe conjoined territories were conteſted by the Lombards, and by the exarchs of Ravenna; and after many revolutions, became ſubject to the papal ſee; from the dominion of which they were transferred by pope Paul III. in the year 1545, to his natural ſon Pietro Aloyſius, or Farneſe, from whom that family ſprung. This family becoming extinct in 1731, the duchies of Parma and Placentia, after ſome conteſt, were finally aſſigned to the Bourbon family in Spain. By the treaty of Luneville in 1801, the duke of Parma was nominated by the emperor and the French republic, to the throne of Tuſcany, with the title of king of Etruria, of which he ſoon after took poſſeſſion. The population of theſe duchies is computed at 300,000, and the revenue at 175,000*l*. Parma and Placentia have each of them an univerſity. The ſoil of theſe territories is a rich ſandy or gravelly loam, producing corn, olives, cheſnuts, and various kinds of fruit. The paſtures are excellent, and the cheeſe, called "Parmeſan," has been long held in high eſtimation. The farms are ſmall, and agriculture has been ill conducted, irrigation being little practiſed. The ſheep are bad, yielding a wool like hair. The Bourbon family very much neglected the improvement of the country.

PARMA, the capital of the above duchy, is divided by the river of the ſame name, which riſes in the ſouth part of the duchy, and runs into the Po near Viadana, into three parts, that communicate with each other by two bridges. This city was founded by the Etrurians, taken by a tribe of Gauls, called the Boii, and, at length, colonized by the Romans. It is ſaid to have ſuffered much from the licentious cruelty of Antony; and its ſufferings on this occaſion are pathetically deplored and immortalized by Cicero, in his 14th Philippic, the laſt tribute which he paid to Rome and to liberty. During the diſaſtrous period that occurred between the reigns of Theodoſius and Charlemagne, it was taken and retaken by the Goths and Romans, the Lombards and Greek exarchs, till it was given by Charlemagne to the holy ſee; and after a ſucceſſion of ages and changes, it was at length beſtowed by Paul III. on his ſon, Ottavio

Farneſe. In this family it remained till its extinction, in the middle of the laſt century, when it paſſed to a prince of Spain; and on the death of the laſt duke, was taken poſſeſſion of by the French, and is now pining away under the influence of their domination. The city is large, populous, airy and clean, though it cannot boaſt of any very ſtriking or regular building. It is ſurrounded by walls, flanked with baſtions, and a ditch filled with water. On the ſouth is the citadel, which is a regular pentagon, and reckoned the beſt in Italy. The roads that lead to Parma are in a line, and the ſtreets are ſtraight and broad, formed by well-built and painted houſes, and meet in the centre, conſtituting a handſome ſquare. The new palace was erected on the ruins of the old, and forms an irregular and huge maſs of building. The theatre is repreſented as one of the moſt beautiful in Italy, and is ſaid to contain upwards of 12,000 ſpectators, who, by the ſtructure of the place, are capable of hearing the actor on the ſtage, without any elevation of voice. Here is alſo a ſmaller theatre, for the accommodation of the inhabitants. This city is the ſee of a biſhop, ſuffragan of Bologna. Its univerſity was founded in 1599, and its academy of ſciences was inſtituted in 1601. It has five collegiate and 30 pariſh churches, beſides the cathedral, many of which contain pictures by Correggio, and other eminent maſters, and 40 convents. The cathedral is Saxon, but lined in the interior with Roman architecture: its dome is much admired, on account of Correggio's paintings. The baptiſtery is an octagon, in the ſame ſtyle with the cathedral, caſed with marble, and ornamented with various arches and galleries. The Steccata is the moſt regular church in Parma, in the form of a Greek croſs. The church of the Capuchins is only remarkable for being the burial-place of the celebrated Alexander Farneſe. The arts and ſciences have by no means been neglected in Parma. An univerſity, two academies, ſchools of painting, &c. announce the application; and a long catalogue of great names might be produced, to prove the ſucceſs of the Parmians in every literary purſuit. The dukes have for many years aſſumed the character of Mecænas, and, by their judicious encouragement, attracted men of talents, from other countries, to their territories. The public walks on the ramparts are very pleaſing. The country round is well wooded, and the town and territory of Parma, on the whole, ſeemed to have been in a flouriſhing ſtate till the entrance of the French army. Since that fatal period, its proſperity has been on the decline, its government unſettled, and its inhabitants impoveriſhed and diſcontented. The contributions raiſed by the French amounted to five millions of French livres; a ſum enormous for ſo ſmall a territory, and equalling two years of its regular income. The chief trade of the place conſiſts in ſtockings, and ſome other articles of ſilk manufacture. The printing preſs, eſtabliſhed by Bodoni in 1765, has been diſtinguiſhed for beautiful publications. The number of its inhabitants is not accurately aſcertained; ſome reckoning them at 45,000, and others at 37,000; 32 miles S.W. of Mantua. N. lat. 44° 47′. E. long. 27° 52′.

Parma was a town of Gallia Ciſpadana, and poſſeſſed for a long time by the Boii. It appears to have ſubſiſted for a conſiderable period, when, in 579, the Romans ſent hither a colony under the conſulates of Q. Fabius Labeo and Marcellus. In the reign of Auguſtus, this place aſſumed the appellation of "Colonia Julia Auguſta." It ſuffered much during the wars of Antony.

PARMELIA, in *Botany*, ſo called, as Profeſſor Acharius, the author of the name and of the genus, tells us, from *παρμη, a ſort of ſmall ſhield*, and ειλεω, *to ſurround or incloſe*, a genus of the natural order of LICHENES. (See that article ſect. 3. n. 16.) The learned writer, whoſe diſtribution of this tribe we have explained in that place, has judged it beſt to exclude the name of *Lichen*, as a generic appellation, retaining it for the whole natural order, which is perhaps the moſt commodious plan; otherwiſe, it ſhould have remained with the genus before us, as being the moſt extenſive in ſpecies, and the moſt comprehenſive in character, of the whole. It is indeed ſo miſcellaneous in habit, that we cannot but feel favourably diſpoſed to any attempt at dividing it; and yet we can hardly accede to the very great multiplication of genera in Acharius's moſt recent work, the *Lichenographia univerſalis;* a book indeed ſo very ſcarce in this kingdom at preſent, that we have not been able to acquire or to ſtudy it. *Collema* however is ſo naturally diſtinct in habit and appearance, that no doubt can remain of the propriety of its ſeparation. (See its character in the place above cited.) That of *Parmelia,* ſee Ach. Meth. 153, ſhould therefore ſtand as follows.

Shields orbicular, horizontal, ſuperficial, ſomewhat elevated, with a cartilaginous acceſſory border.

The *diſk* is ſometimes concave, oftener nearly flat, or indeed convex and hemiſpherical when far advanced in age, of a different ſubſtance and colour from the border, and without any border, or ſeparate edge, of its own ſubſtance, in which laſt reſpect it differs from the Acharian genus *Lecidea*. The texture of the diſk is tolerably firm, though occupied with innumerable vertical parallel cells, each containing about eight minute ſeeds, placed one above the other. Its external colour is different in different ſpecies, moſt generally brown or reddiſh, but always totally unlike that of the border; internally it is paler. By age the diſk in many ſpecies becomes looſened, falling out, and leaving its border in the ſhape of a ſmall cup, or rather ſaucer, as may be ſeen in *P. conſperſa,* Ach. Meth. 205. In *P. ſubfuſca,* 167, ſee Engl. Bot. t. 2109. a very extraordinary proliferous appearance is occaſionally ſeen in the diſk. The writer of this has ſuſpected that, in *ſubfuſca* eſpecially, when impregnation fails, the diſk does not acquire its proper colour.

The *border* is of the ſame colour and ſubſtance with the frond, from which it proceeds, being elevated more or leſs above the level of that part, and very generally, at leaſt in the more leafy ſpecies, attached merely by a central ſtalk, though its circumference is flat, and clapped, often very cloſely, to the ſurface. In the cruſtaceous kinds the union of the parts is more conſiderable; in the more filamentous or branched ones it is merely central, by an elongated and obvious ſtalk. The extreme part of the border is more or leſs tumid and thick, either ſmooth or powdery, entire or crenate, rarely fringed or leafy, while the very edge itſelf is inflexed and even.

The *frond* is various and of many different ſhapes and appearances. When cruſtaceous, leprous, or tartareous, it is either uniform, and limited by a well-marked border, uſually blackiſh; or it is looſely diſperſed, without any diſtinct limitation, frequently in ſmall portions or patches, and then, in many inſtances, finally diſappears by age, leaving the bare and ſcattered ſhields, as if growing independently out of the ſtone or bark. In other caſes the frond conſiſts of lobed fragments, aſſuming a leafy imbricated aſpect, and a cartilaginous texture; from which there is an inſenſible gradation to a truly leafy configuration, which is either membranous or coriaceous, dilated and lobed, or narrow and repeatedly branched, round or compreſſed, erect, horizontal, or pendulous: in all caſes it readily imbibes moiſture, and by that means becomes inſtantly ſoft, flexible, and vegetative, however dry, contracted and brittle before. The colour of the frond is commonly very different in its moiſt and flouriſhing ſtate, to what it is when dry; being, in the latter condition uſually pale and greyiſh, but aſſuming a beautiful green when moiſtened. Yet there are ſome ſpecies always of the ſame grey hue, whether wet or dry, which by that very circumſtance are well diſtinguiſhed from others. See *P. ſtellaris* and *aipolia*, Ach. Meth. 209.

The male fructification of *Parmelia* is ſuppoſed, rather than known, to conſiſt of ſcattered powdery warts, moſtly of a lighter colour than the frond, on whoſe ſurface or ſegments they are ſituated, burſting, as it were, from under the cuticle. They are conſpicuous in *P. cæſia*, ſee Engl. Bot. t. 1052, and *phyſodes*, t. 126. There is perhaps much reaſon to ſuppoſe ſuch efflореſcences to be of the nature of buds, or *gemmæ*, by which the ſpecies may be increaſed. The great Hedwig however ſpeaks of them, in the example laſt cited, as clearly anthers. (See his *Theoria*, 124 t. 31, and Withering, v. 1. 371. t. 16. f. 86, 87.) In that they are commonly found on a ſeparate plant from the ſhields, a rare occurrence in this tribe. They are alſo in the ſpecies in queſtion, as well as moſt others, by far moſt abundant when the ſhields, which are unqueſtionably the female parts of fructification, are ſparingly produced; which is rather in favour of the opinion of their being buds. The ſame opinion is ſtrengthened by a conſideration of the plants conſtituting a ſuppoſed genus called *Lepraria*, which are propagated very copiouſly by ſuch powdery granulations only; and yet a few of its ſpecies are known to bear ſometimes, though very rarely indeed, proper ſhields, with the character either of a *Parmelia* or a *Lecidea*; and we are much inclined to preſume they may all be capable, in favourable circumſtances, of doing ſo. The parts of the ſhield, at the period when impregnation, in whatever mode, muſt take place, are ſo minute, homogeneous and obſcure, that if we ſtill remain in total ignorance of the flowers of Ferns, no wonder we are equally in the dark reſpecting Lichens.

PARMENALORE, in *Geography*, a town of Hindooſtan, in Coimbetore; 15 miles S.W. of Erroad.

PARMENIDES, in *Biography*, a celebrated Greek philoſopher of the Eleatic ſect, who flouriſhed about 500 years before Chriſt, was a native of Elea, poſſeſſed a large patrimony, and lived in much ſplendour in his earlieſt years. He was diſtinguiſhed in civil affairs, and is ſaid to have drawn up for his fellow-citizens ſome excellent laws, to which their magiſtrates obliged them annually to ſwear obedience. He at length withdrew from the concerns of public life to the ſilence and leiſure of the ſchools. He became the diſciple and ſucceſſor of Xenophanes, and is ſaid to have attended upon the inſtructions of Anaximander. According to the teſtimony of Cebes, in his allegorical table, our philoſopher was diſtinguiſhed as an eminent pattern of virtue. He wrote the doctrine of his ſchool in verſes, of which only a few fragments remain. Plato, in the dialogue which he denominated Parmenides, profeſſed to repreſent his tenets, but confounded them with his own. He maintained that philoſophy was twofold; that which follows the report of the ſenſes, and that which is according to reaſon and truth. The former treats of the appearances of ſenſible objects; the latter conſiders the abſtract nature of things, and inquires into the conſtitution of the univerſe. He maintained that the univerſe is one, immoveable, eternal, and of a ſpherical form; that the earth is ſpherical, and placed in the centre, being exactly balanced by its diſtance from the heavens, ſo that there is no cauſe why it ſhould move one way rather than another. Parmenides adhered more cloſely to the Pythagorean doctrine than Xenophanes, the founder of the Eleatic ſect; for while the latter conſidered the univerſe as poſſeſſing within itſelf a divine force, the former ſuppoſed the deity to be an informing principle, or intellectual fire diffuſed throughout the univerſe, but more eſpecially reſiding in the extreme ſphere of the world; on which account, he is metaphorically repreſented by this philoſopher as a crown of light, incloſing within its circumference the celeſtial orb. Enfield's Hiſt. Phil.

PARMENIDES' *Philoſophy*. See ELEATIC.

PARMENIO, in *Biography*, a diſtinguiſhed Macedonian commander, who roſe to great reputation under king Philip. That monarch is ſaid to have pronounced him the only general he had ever met with. When Alexander invaded Aſia, he was accompanied by Parmenio, who, after the victory of Granicus, gave the advice of venturing upon a naval engagement, and offered himſelf to ſerve on board the fleet. Alexander, however, regarding the ſea as the proper element of the Perſians and their allies, would not conſent to the hazard. At the battle of Iſſus, Parmenio had the command of the left wing; and after that important victory, he was diſpatched to Damaſcus, to take poſſeſſion of the treaſures of Darius, left in that city. In the deciſive action of Arbela, Parmenio again commanded the left wing of the Macedonian army; while his two ſons, Philotas and Nicanor, had ſeparate commands on the right. During the battle he had to ſuſtain the charge of the whole Perſian cavalry, and was, at one time, reduced to ſuch danger, that he ſent for ſuccour to Alexander, who was victorious in the centre. The prince arrived in time to reſcue Parmenio, who thereupon took poſſeſſion of the enemy's camp, while Alexander continued the purſuit of Darius in perſon. He next endeavoured, but in vain, to divert Alexander from the frantic deſign of burning the royal palace of Perſepolis. The ruin of Parmenio was occaſioned by the indiſcretion of his own ſon Philotas, who, elated by his prince's favour, affected a pomp and ſplendour which might render him ſuſpected of ambitious views. The diſcontents of the army, at the Perſian manners aſſumed by Alexander, after the death of Darius, having produced a conſpiracy againſt his life, Philotas, on its detection, was involved in the guilt, or at leaſt in the accuſation, and was put to the rack to force a confeſſion. Unable to endure the torture, he named many accomplices, and among the reſt his father. His criminality being ſuppoſed to be proved, he was put to death; but the life of Parmenio was at laſt taken away in a baſe and treacherous manner. The perſons employed in this infamous buſineſs, approaching the general as he was walking in his pleaſure-grounds, preſented him with a letter from the king, and another in which the hand of Philotas was counterfeited; and while he was intent upon reading them, they ſtabbed him with repeated wounds. His head was then cut off, and ſent to Alexander, while his affectionate ſoldiers mournfully interred his body. Univer. Hiſt.

PARMENTIER, JOHN, a ſcientific French navigator, a native of Dieppe, was born in the year 1494. He was intended and educated for mercantile purſuits, but poſſeſſing a love of ſcience, and ſpirit of enterprize, he acquired celebrity among his contemporaries. He was alſo eſteemed as a poet, and wrote verſes on different ſubjects, of which a collection was publiſhed in 1531, under the title of "Deſcription nouvelle des Dignités de ce Monde, et de la Dignité de l'Homme, compoſée en Rithme François, et en Maniere d'Exhortation." This work is now extremely ſcarce, and very highly prized by collectors of curious and rare books; but it is chiefly valuable, as containing particulars concerning the author prefixed to it, from which the following is extracted. " From the year 1522 he had applied himſelf to the ſcience of coſmography, and the ſtudy of the wonderful fluctuations of the ſea. On theſe ſubjects he became profoundly ſkilled, as he was likewiſe in the ſcience of aſtrology. He drew ſeveral maps and charts, both ſpherical and plane, which were of great ſervice to navigators. He was worthy of the eſteem of all men of learning, and capable, had his life been prolonged, of reflecting honour on his country, by his great enterpriſes. He was the firſt pilot who conducted ſhips to the coaſt of Braſil, the firſt Frenchman who diſcovered the Indies as far as the iſland of Sumatra, called Taprobane by the ancient coſmographers. It had been his intention to have proceeded as far as the Moluccas; and he frequently told me, ſays the editor, Pierre Crignon, that he was determined, after he ſhould have returned to France, to ſeek a northern paſſage, and from thence to purſue his diſcoveries towards the ſouth." This deſign was fruſtrated by his death, which took place in 1530, at the iſland of Sumatra, when he was only 36 years of age.

PARMESAN, *The*, in *Geography*. See PARMA.

PARMESAN is a name given to a cheeſe, much eſteemed among the Italians, and made at Parmeſan, whence it is conveyed to various parts of Europe.

The excellent paſture-grounds of this country are watered by the Po; and the cows, from whoſe milk this cheeſe is made, yield a great quantity of it. Of this cheeſe there are three ſorts, the *fromaggio di forma*, about two palms in diameter, and ſeven or eight inches thick; and the *fromaggio di rabiole* and *di ribolini*, which are not ſo large. This cheeſe is of a ſaffron colour, and the beſt is kept three or four years. See LODESAN.

PARMIGIANO, IL, in *Biography*, was the cognomen of Franceſco Mazzuoli, a painter of great and deſerved renown, born at Parma in 1504. He was the pupil of his uncles Michele and Filippo, and at the early age of nineteen had attained very conſiderable celebrity; having made Correggio, who was then living, the object of his imitation. He then went to Rome, and taking with him ſome of his productions, was introduced by their renown to pope Clement VII. who highly honoured and eſteemed him. In Rome he attached himſelf to the ſtudy of Michael Angelo and Raphael; and exhibited the loftineſs of his mind, by compoſing a ſtyle for himſelf from the high qualities of thoſe two great men, in conjunction with what he had learned of Correggio. In Rome, and under the immediate influence of this newly acquired guſto, he painted ſeveral pictures, and among them one which was bought by the marquis of Abercorn, of Mr. Dumo in Italy, for 1500*l.*, and reſold by him in 1809 to Mr. Davis of Briſtol, for 3000 guineas. It repreſents the Virgin ſeated in glory with a book in her hand, and the infant ſtanding on the clouds, and leaning againſt her knee; in front is a figure of St. John kneeling upon one knee, pointing with one hand to the Virgin, and turning his face to the obſerver; and in the background, aſleep, is a figure of St. Jerome, who is ſuppoſed to have ſeen this viſion, and from which the picture takes its name. Vaſari makes eſpecial mention of it; and ſays, Parmigiano painted it for Donna Maria Bufolina of Citta di Caſtello, who intended to place it in the church of St. Salvatore del Lauro; in a chapel near the door. In the execution of it, Parmigiano had nearly loſt his life; for notwithſtanding the ſiege of Rome by the Colonnas, he continued painting upon it, and ſome Germans, intent upon plunder, entered his room while he was ſo engaged. The ſplendour of the work, however, fortunately ſo aſtoniſhed and delighted them, that though they ſpared in no exceſs, but robbed the palaces and churches of every thing they thought worth having; yet they protected the painter and honoured his abilities. He did not quite complete the picture, and ſoon after left the city; but not till the ſoldiers had obliged him to make for them a number of drawings in pen and ink. He was afterwards, in going to ſee ſome friends, made a priſoner by other ſoldiers, from whom he diſengaged himſelf by paying money; and then his uncle, alarmed for his ſafety, removed him from Rome and ſent him back to Parma. This grand picture was ſafely lodged in the convent of the Frati della Pace, where it remained in the refectory many years, and was then carried by Julio Bufolino to its original deſtination, the church at Citta di Caſtello.

In his return to his native place, Parmigiano ſtopped at Bologna; and there for a while he engaged himſelf in making thoſe free and elegant etchings, with which the cognoſcenti are ſo enamoured. He alſo painted ſeveral pictures there, and made a great number of drawings, and two portraits of Bonifacio Gozadino and his wife. Among the pictures was a large one for the monks of St. Margaret, of the Virgin, with ſeveral ſaints, which was very highly eſteemed by the Caracci, and by Guido was preferred to the St. Cecilia of Raphael. He there alſo painted a portrait of Charles V. with a figure of fame crowning him with laurel, which he effected after ſeeing the emperor dining in public ſeveral times; and it ſo gratified his majeſty that he wiſhed to have it, but Parmigiano ſtating that it was not finiſhed, it remained with him, and afterwards paſſed to the poſſeſſion of the duke of Mantua.

He at length returned to his native city, and was immediately engaged to paint, in freſco, the vaulted ceiling of the church of Sta. Maria della Steccato; and in the lower part executed ſix figures; a Moſes, three Sybils, and an Adam and Eve. Of which Mr. Barry, in a letter to Mr. Burke, ſays, " that they exhibit powers which, if fully diſplayed, might have exceeded either Raphael or M. Angelo." Unfortunately at this time, when Parmigiano ought to have purſued this great work, and have eſtabliſhed his fame upon it, he turned aſide to the alluring ſtudy of alchemy, and waſted his time and his fortune in vain attempts at tranſmutations; which only prevented him from exerciſing his abilities in a more certain mode of obtaining not only gold, but alſo glory. He died at the age of 36 or 7, in 1540-1.

" The ruling features of his ſtyle are elegance of form, grace of countenance, contraſt in attitude, enchanting chiaroſcuro, and blandiſhments of colour. When theſe are pure, he is inimitable: but his elegance is often ſtretched to exceſſive ſlenderneſs, and his grace deformed to affectation."

He was a learned deſigner: to his depth in deſign, we muſt aſcribe that freedom of execution, thoſe decided ſtrokes of his pencil, which Albano calls divine, and which add grace to the finiſh of his pictures: they have not indeed all equal impaſti of colour, nor equal effect, though ſome, for the amorè with which they are conducted, have been aſcribed to Correggio: ſuch is the Cupid ſcooping his bow, with the two infants at his feet, one laughing, the other crying, of which, beſides that in the Imperial gallery, there are ſeveral repetitions. " Such was the delight found in the ſtudy of the pictures of Parmigiano, that copies, and excellent ones too, are found all over Italy; and are not unfrequently ſold here as originals. The one upon which we have dwelt ſo minutely above, the dream of St. Jerome, is of ſo high a claſs, that it may rank with the Peter Martyr of Titian, the Tranſfiguration of Raphael, and the St. Jerome of Dominichino. His couſin, Girolamo Mazzuolo, was his friend and pupil, and poſſeſſed ſo much ſkill in execution, that it is not impoſſible that many pictures aſcribed to Parmigiano are executed by this artiſt." He was more attached to the ſtyle of Correggio than Franciſco; and ſeized its character with great felicity in the Nuptials of St. Catharine, in the church del Carmine. He excelled in perſpective; and in the Laſt Supper in the refectory of S. Giovanni, placed and painted a colonnade with all the illuſion of Pozzo. To the moſt harmonious chiaro-ſcuro, he added grandeur, variety, vivacity, in freſco. None of his fellow artiſts equalled him in copiouſneſs, fertility, and execution; and to theſe perhaps we may aſcribe the inequality perceptible in his works.

PARMILLIEU, in *Geography*, a town of France, in the department of the Iſere; 24 miles E.N.E. of Lyons.

PARMONCA, a town of Peru, in the audience of Lima, near the ſea; 35 miles N.N.W. of Guaura.

PARNAPIACABA, a river of Brazil, which runs into the Atlantic, S. lat. 24° 12′.

PARNASSA, a town of Hindooſtan; 15 miles S.S.E. of Allahabad.

PARNASSIA, in *Botany*, well altered by Tournefort from the old name of Gramen Parnaſſi, which has been appropriated to this moſt curious and elegant plant, becauſe it appears really to be what Dioſcorides terms the Graſs of Parnaſſus, αγρωϛις ἡ εν παρνασσῳ. Not that it has any thing to do with the graſſes, properly ſo called; but he deſcribes it as "having ivy-like leaves, a white and pleaſantly-ſcented flower, with ſmall not ineffectual ſeed, five or ſix roots as thick as the finger, white and ſoft." This deſcription ſufficiently anſwers to our *Parnaſſia*, except that we know of no ſmell in the flowers. Some have taken *Convallaria bifolia* for what Dioſcorides intended.—Linn. Gen. 151. Schreb. 204. Willd. Sp. Pl. v. 1. 1516. Mart. Mill. Dict. v. 3. Sm. Fl. Brit. 339. Prodr. Fl. Græc. Sibth. v. 1. 210. Ait. Hort. Kew. ed. 2. v. 2. 177. Juſſ. 245. Tourn. t. 127. Lamarck Illuſtr. t. 216. Gærtn. t. 60.—Claſs and order, *Pentandria Tetragynia*. Nat. Ord. *Campanaceæ*, Linn. MSS. *Capparides*, Juſſ.

Gen. Ch. *Cal.* Perianth inferior, in five, deep, elliptic-oblong, ſpreading, permanent ſegments. *Cor.* Petals five, roundiſh, ſtriated, concave, ſpreading. Nectaries five, oppoſite to the petals, each a roundiſh or oblong fleſhy ſcale, fringed with from three to thirteen erect marginal ſtalks, bearing every one a ſmall globe, ſhorter than the petals. *Stam.* Filaments five, awl-ſhaped, the length of the nectaries, ſeparately inflexed for a time over the germen; anthers incumbent, depreſſed. *Piſt.* Germen ſuperior, ovate, large, ſeſſile; ſtyle none, but an aperture in its place; ſtigmas four, obtuſe, permanent, enlarged in the fruit. *Peric.* Capſule ovate, ſomewhat quadrangular, of one cell and four valves, the partitions from the centre of each valve, each bearing a furrowed parallel receptacle. *Seeds* ſeveral, oblong, aſcending.

Eſſ. Ch. Calyx in five deep ſegments. Petals five. Nectaries five, fringed with ſtalked globules. Capſule of four valves, with many ſeeds.

1. P. *paluſtris*. Common Graſs of Parnaſſus. Linn. Sp. Pl. 391. Engl. Bot. t. 82. Fl. Dan. t. 584. Mill. Illuſtr. t. 15. Sm. Intr. t. 13. f. 175. Dickſ. H. Sicc. faſc. 7. 10. Ehrh. Pl. Off. 133. (Gramen Parnaſſi; Ger. em. 840.)—Leaves heart-ſhaped. Petals ſeſſile, emarginate. Nectaries with numerous ſegments.—Native of boggy paſtures throughout Europe, flowering in autumn. Dr. Sibthorp gathered it on the Bithynian Olympus, and there is every reaſon to believe it may grow on Parnaſſus, and other Grecian hills; whereas *Convallaria bifolia*, which ſome botaniſts ſuppoſe to be what Dioſcorides meant, is not known to be a Grecian plant, but is rather confined to the northern parts of Europe. The *root* of *P. paluſtris* is perennial, cylindrical and fleſhy, throwing out many long fibres. *Stems* erect, near a ſpan high, ſimple, angular, twiſted, ſmooth, bearing one ſeſſile leaf, and one flower. *Leaves* heart-ſhaped, entire, ribbed, ſmooth; the radical ones numerous, on ſtalks thrice their own length. *Flower* terminal, above an inch wide, white and ſingularly elegant. *Petals* marked with many parallel pellucid lines. *Nectaries* wedge-ſhaped, each bearing about thirteen globe-tipped briſtles; the globes, like the *anthers*, pale yellow. The *ſtamens* are bent ſucceſſively over the *ſtigmas* to impregnate them, retiring ſubſequently, as in *Saxifraga* and *Ruta*. Afterwards the *ſtigmas* are brought nearer together, cloſing the aperture of the *germen*; but the inſertion of the *ſeeds* proves that the impregnation muſt take place through the uſual parts, and not by the aperture.

2. P. *caroliniana*. Carolina Graſs of Parnaſſus. Michaux Boreal. Amer. v. 1. 184. Ait. n. 2. Sims in Curt. Mag. t. 1459.—Leaves almoſt orbicular. Petals nearly ſeſſile. Nectaries deeply three-cleft.—Diſcovered by M. Boſc on bogs in North Carolina. It was ſent to Kew garden in 1802 (not 1782) by the late Mr. Maſſon, and is hardy in our climate, flowering in autumn. This has altogether the habit of the preceding, but is ſomewhat larger. The *leaves* are more orbicular. *Petals* more elliptical, entire, not emarginate, the lines green and very numerous, the whole of the petals of a greeniſh caſt. *Nectaries* remarkably different, being deeply divided into three awl-ſhaped ſegments only, with a yellow ball upon each point. Mr. Aiton mentions this ſpecies as flowering in May and June; Dr. Sims from July to September.

3. P. *aſarifolia*. Kidney-leaved Graſs of Parnaſſus. Venten. Jard. de la Malmaiſ. t. 39.—Leaves kidney-ſhaped. Petals with claws. Nectaries oblong, with three terminal ſegments.—Native of bogs in North America, flowering in the latter part of ſummer. M. Ventenat deſcribed it from the collection at Malmaiſon. This differs from both the foregoing in having ſhorter or kidney-ſhaped *leaves*; *petals* furniſhed with conſiderable claws; *nectaries* of an elongated and linear form, divided at the upper part only, into three briſtle-like ſegments, tipped with darker-coloured globules. The *petals* moreover ſeem to be ſmaller, and more rounded, than in the *caroliniana*; entire, and not, as in the *paluſtris*, emarginate. We have not heard of this, any more than the following, in the Engliſh gardens.

4. P. *fimbriata*. Fringe-flowered Graſs of Parnaſſus. Konig in Ann. of Bot. v. 1. 391.—Leaves kidney-ſhaped. Petals fringed at the lower part, with entire claws. Nectaries palmate, with numerous ſegments.—Gathered by Mr. Archibald Menzies on mountains on the north-weſt coaſt of America. We are indebted to him for fine ſpecimens, by which this ſpecies appears to agree with the laſt in habit, but the *flowers* are eſſentially different. The claws of the *petals* are ſmooth and entire, but the baſe of each petal itſelf is copiouſly fringed with fine long capillary ſegments. The *nectaries* are palmate, moſtly reſembling thoſe of the firſt ſpecies, which they ſeem to approach in their number of ſegments, but thoſe ſegments are of a much ſhorter proportion. The ſtem *leaf* is much nearer the flower than the root; the radical ones are remarkably hollowed out at their baſe, cloſe to the lateral ribs, which are connected with one another by a common baſe, like the diviſions of a pedate leaf, and have a very elegant appearance. The ſame thing is ſeen, though leſs remarkably, in *Ariſtolochia Clematitis*.

PARNASSUS, in *Ancient Geography* and *Mythology*, a mountain of Greece, in the Phocide, conſecrated by the poets to the Muſes, thence called Parnaſſides, to Apollo and to Bacchus. It was ſituated to the S.E. of the Criſſean gulf, and N.W. of the river Cephiſus. On this hill, though for the moſt part ſterile, there were groves and ſmall villages adapted to excite and inflame the poetic genius. It is deſcribed as having two ſummits, one called Hyampea, the other Phitorea, between which ariſes the Caſtalian fountain. The Greeks call this mountain Licaoura.

Parnassus was alſo a town of Aſia, in Galatia, upon the route from Cæſarea to Ancyra, between Aſpona and Nyſſa, according to the Itinerary of Antonine.

PARNEL, in *Geography*, a town of Hindooſtan, in Dowlatabad; 15 miles S.W. of Amednagur.

PARNELL, Thomas, in *Biography*, an Engliſh poet, deſcended from an ancient family in Cheſhire, was born at Dublin in the year 1679, and received his ſchool education in that city, after which he was transferred to the college. He was admitted to the degree of M. A. in 1700, took deacon's orders in the ſame year, and was ordained prieſt three years afterwards. In 1705 he was preſented to the archdeaconry of Clogher, and about the ſame time was married to a lady of great beauty and merit. From this period he began to make frequent excurſions to England, in which the pleaſanteſt part of his life was ſpent. He connected himſelf with the whigs, who were at that time in power, and was familiar with their moſt diſtinguiſhed men of letters, as Addiſon, Congreve, and Steele. Towards the cloſe of queen Anne's reign, Parnell, influenced, it was thought, by Swift, deſerted his former friends, and joined in cloſe union with that celebrated wit, and his aſſociates, Pope, Gay, and Arbuthnot. Swift introduced him to lord-treaſurer Harley, and with a dictatorial air inſiſted upon the treaſurer going with his ſtaff in his hand into the anti-chamber, where Parnell was waiting to welcome him. Parnell, however, never had any claim to a high rank in literature, nor was it poſſible he could render his friends much political ſervice. He was a pleaſant good tempered man, attached to his particular aſſociates, and ſo much addicted to ſociety, that he preferred what was indifferent to ſolitude. He was, at one period, an aſſiduous preacher in the London pulpits, hoping to riſe into notice by the popularity of his talents, but the complete change in the adminiſtration by the death of queen Anne entirely deſtroyed his brilliant proſpects in the church. By means of Swift's recommendation of him to the notice of archbiſhop King, he obtained a prebend and a valuable living. In 1712 he received a moſt ſevere ſhock, by the death of his beloved wife, from which he never recovered. The loſs is ſaid to have had ſuch an effect upon his ſpirits, as to lead him into thoſe habits of intemperance in wine which ſhortened his life, and his biographer, Dr. Goldſmith, repreſents him, in ſome meaſure, a martyr to conjugal fidelity. He died at Cheſter, on his way to Ireland, in July 1717, in the 38th year of his age, and was buried, without any monumental record, in Trinity-church in that city. He was author of ſeveral pieces both in proſe and verſe. He wrote the Life of Homer, prefixed to Pope's Iliad, which, however, on account of the ſtiffneſs of the ſtyle, coſt that poet much labour in the correction. It is as a poet that he is now excluſively known and valued. After his death, Pope made a ſelection of ſuch of his pieces as he thought worth preſerving, and publiſhed them in one volume octavo. They have ſince made a part of the body of approved Engliſh poetry. They are remarkable for eaſe, ſprightlineſs, fancy, clearneſs of language, and melody of verſification. Though not ranking among the nobleſt and moſt finiſhed productions of the Britiſh muſe, they claim a place among the moſt pleaſing. Their ſentiments are elegant, and their morality very pure. A volume of poſthumous pieces was printed at Dublin in 1758, the contents of which have been ſince added to the former in the collections of Engliſh poets. Dr. Johnſon has thought it unneceſſary to enquire into their authenticity, or canvaſs their merits: he expreſsly limits his commendations to the pieces publiſhed by Pope.

PARNES, in *Ancient Geography*, a mountain of Greece, in Attica, on which were a ſtatue of Jupiter Parnetian in bronze, another of Jupiter and Semelé, and another altar on which the adjacent inhabitants ſacrificed to Jupiter, under the appellations of the *beneficent* and *rainy*, or *pluvius*. This mountain abounded with bears and wild boars.

PARNIPA, in *Geography*, a river of Braſil, which runs into the Atlantic, S. lat. 18° 10′.

PARNON, in *Ancient Geography*, a lofty mountain of the Argolide, on which were placed the Hermæan ſtatues of Mercury, which, in the time of Pauſanias, indicated the limits of Laconia, and of the territory of the Tageates, a people of Arcadia.

PARNOPS, in *Natural Hiſtory*, the name of a ſpecies of waſp, found very frequently in vineyards, and among the wine preſſes, eſpecially in hot countries. It is diſtinguiſhed from all the other waſps by the roundneſs of its body, which is not ſlender or flatted in the common way, but round and tumid.

PARO, or Parogong, or *Kinjipo*, in *Geography*, a town, caſtle, and palace, as well as valley of Bootan. The caſtle ſtands near the baſe of a very high mountain, in the form of an oblong ſquare, fenced by walls and parapets, having one entrance over a bridge, that may be eaſily removed, and guarded by ſtone buildings, placed as a kind of out-poſt, in a triangular poſition upon the ſide of the mountain. This is the reſidence of the governor, and famous for the manufacture of idol deities and forging of arms, particularly of ſwords and daggers, and the barbs of arrows. Paro boaſts the only market in Bootan; and appears to be much frequented. The valley exceeds that of Taſſiſudon by almoſt a mile in width: it lies nearly N.W. and S.E., and the river interſects it irregularly, as it purſues its winding courſe. Paro lies 12 miles S.W. of Taſſiſudon. N. lat. 27° 43′. E. long. 89° 32′. Turner's Tibet.

Paro, a ſmall iſland near the coaſt of Nicaragua, in Salinas bay. N. lat. 10° 3′. W. long. 85° 36′.

Paro *Hotun*, a town of Chineſe Tartary; 288 miles N.N.E. of Peking. N. lat. 44° 2′. E. long. 118° 47′.

PAROCHETEUSIS, from ϖαρα and οχετευω, from οχετος, *a canal*, a term uſed by Hippocrates, to expreſs a derivation of the humours from one part, in order to the evacuating them by another not far diſtant. This is often a very happy turn for the cure of a diſeaſe.

PAROCHIAL, ſomething belonging to a pariſh.

Every church is either cathedral, collegiate, or parochial. Cathedral is where there is a biſhop's ſee, or ſeat, called *cathedra*. Collegiate conſiſts either of regular clerks, profeſſing ſome religious order; or of a dean and chapter. Parochial church is that inſtituted for the performing of divine ſervice to the people who dwell within a certain compaſs of ground. See Parish and Extra-parochial.

PAROCHUS, among the Romans, one who provided mules, tents, and carriages, with all other neceſſaries, for the provincial magiſtrates in their journies, as alſo for ambaſſadors. For, in the early times of the republic, they had their charges borne by the public, that the allies or provincials might not be burthened.

PARODICAL Degrees, in an equation, the ſeveral regular terms in the quadratic, cubic, biquadratic, or other equation, the indices of whoſe powers aſcend or deſcend orderly in an arithmetical progreſſion.

Thus $Z^3 + Z^2M + Z^1r = S$ is a cubical equation where no term is wanting, but having all its parodic degrees, the indices of the terms regularly deſcending thus, 3, 2, 1, 0. Harris.

PARODY, Parodia, formed from ϖαρα, and οδος, *via*, *way*, as being trite, or paſſing among the people, a popular maxim, adage, or proverb.

Parody, ϖαρωδια, is alſo a poetical pleaſantry, conſiſting in applying the verſes written on one ſubject, by way of ridicule, to another; or in turning a ſerious work into burleſque, by affecting to obſerve, as nearly as poſſible, the ſame rhymes, words, or cadences.

The parody was firſt ſet on foot by the Greeks; from whom we borrow the name. It comes near to what ſome of our late writers call *traveſty*.

Others have more accurately diſtinguiſhed between a parody and burleſque: and they obſerve, that the change of a ſingle word may parody a verſe; or of a ſingle letter a word. Thus, in the laſt caſe, Cato expoſed the inconſtant diſpoſition of Marcus Fulvius Nobilior, by changing *Nobilior* into *Mobilior*.

Another kind of parody conſiſts in the mere application of ſome known verſe, or part of a verſe, of a writer, without making any change in it, with a view to expoſe it.

A fourth inſtance is that of writing verſes in the taſte and ſtyle of authors, little approved.

The rules of parody regard the choice of a ſubject, and the manner of treating it. The ſubject ſhould be a known and celebrated work: as to the manner, it ſhould be by an exact imitation, and an intermixture of good-natured pleaſantry. Mem. de l'Acad. Belles Lettres, tom. viii. p. 39, &c.

The French term it parodying an inſtrumental air when it is made vocal, by writing or adjuſting words to it. In good compoſitions, the melody is made for the words; but in parodying an air, the words are ſet to the melody. In ballads, and ſongs of many ſtanzas to the ſame air, Rouſſeau obſerves, that all but the firſt are parodies, which is eaſily diſcovered by the liberties taken with the rhythm by the ſingers, and the want of muſical knowledge in the poet.

PARŒMIA, ϖαροιμια, formed from ϖαρα and οιμη, *way; quaſi*, ϖαρα οιμην, *juxta viam;* i.e. *tritam, a proverb;* which ſee.

PAROL, Parole, in *Law*, is ſometimes uſed in ancient writers for a plea in court.

Parol *Conveyances*, are ſuch as were formerly, in many inſtances, made by parol, or word of mouth only, without writing; but this occaſioning a variety of frauds, the ſtatute 29 Car. II. c. 3. enacts, that no leaſe eſtate or intereſt in lands, tenements, or hereditaments, made by livery of ſeiſin, or by parol only (except leaſes, not exceeding three years from the making, and whereon the reſerved rent is at leaſt two-thirds of the real value,) ſhall be looked upon as of greater force than a leaſe or eſtate at will: nor ſhall any aſſignment, grant, or ſurrender of any intereſt in any freehold hereditaments be valid; unleſs in both caſes the ſame be put in writing, and ſigned by the party granting, or his agent lawfully authorized, in writing.

Parol *Demurrer*, is a privilege allowed to an infant who is ſued concerning lands, which came to him by deſcent: and the court thereupon will give judgment, *Quod loquela predicta remaneat quouſque*, the infant comes to the age of twenty-one years. And where the age is granted on parol demurrer, the writ doth not abate, but the plea is put *ſine die*, until the infant is of full age; and then there ſhall be a reſummons.

The granting of a parol demurrer is in favour of an infant, and for his benefit, that he may not be prejudiced in his right, for want of well knowing his eſtate, &c. In many real actions, brought by or againſt an infant, under the age of twenty-one years, and alſo in actions of debt brought againſt him, as heir to any deceaſed anceſtor, either party may ſuggeſt the nonage of the infant, and pray that the proceedings may be deferred till his full age: or (in our legal phraſe,) that the infant may have his age, and that the *parol may demur*, that is, that the pleadings may be ſtaid: and then they ſhall not proceed till his full age, unleſs it be apparent that he cannot be prejudiced thereby. (Finch. L. 360.) But by the ſtatutes of Weſtm. 1. 3 Edw. I. c. 46. and of Gloceſter 6 Edw. I. c. 2. in writs of entry *ſur diſſeiſin* in ſome particular caſes, and in actions aunceſtrel brought by an infant, the parol ſhall not demur: otherwiſe he might be deforced of his whole property, and even want a maintenance till he came of age. So likewiſe in a writ of dower the heir ſhall not have his age; for it is neceſſary that the widow's claim be immediately determined, elſe ſhe may want a preſent ſubſiſtence. (1 Roll. Abr. 137.) Nor ſhall an infant patron have it in a *quare impedit* (ibid. 138.), ſince the law holds it neceſſary and expedient, that the church be immediately filled.

Parol *Evidence*. See Evidence.

Parol *Leaſe*, or *per Parol*, is a leaſe by word of mouth; thus called to diſtinguiſh it from one in writing. See Leaſe.

Parol *Pleadings*. See Pleading.

PAROLE, in *War*, &c. When a priſoner of war is allowed to go into his own country, or to his own party, upon his word and promiſe to return at a time appointed, if not exchanged, he is ſaid to be upon parole, *i. e.* upon his word.

Parole denotes alſo a word given out every day in orders by the commanding officer both in camp and garriſon, in order to know friends from enemies.

Parole, *Paſs*. See Paſs-*Parole*.

PAROLI, in *Gaming*, the double of what was laid at ſtake, before. Hence to offer the paroli, &c.

PAROLLES, Fr. the words of a ſong, an opera ſcene, or a cantata.

PARONE, in *Geography*, a town of Hindooſtan, in the country of Nayrs; 32 miles S. of Calicut.

PARONOMASIA, ϖαρονομασια, formed from ϖαρα, *near*, and ονομα, *name*, q. d. proximity or reſemblance of two names, in *Rhetoric*, a pun, or figure, whereby words nearly alike in ſound, but of very different ſenſes, are affectedly or deſignedly uſed.

As, not *friends* but *fiends* were here. So Tully to Antony, *cum in gremio mimarum* mentem & mentum *deponeres:* and to Atticus, *conſul ipſe* parvo *animo* & pravo, facie *magis quam* facetiis *ridiculus*. And that of P. Chryſologus, *monochorum cellulæ jam non* eremiticæ *ſed* aromiticæ. And, in another place, *hoc agant in* cellis *quod angeli in* cœlis.

Among the Greeks the paronomaſia was very familiar. Thus Herodotus, ϖαθηματα, μαθηματα, *quæ nocent, docent.* And thus that inſcription of Apollodorus, a celebrated painter, on one of his pieces.

Μωμησεται τις μαλλον, η μιμησεται.

"It will be eaſier to deride, than to imitate."

PARONYCHIA, in *Botany*, a name that has been applied to ſeveral plants, according as commentators were pleaſed to conjecture one or other of them to be the παρωνυχια of Dioſcorides, a point which nobody could aſcertain. He deſcribes it as "a diminutive ſhrub, growing in ſtony places, and reſembling purſlane, but of more humble growth, though the leaves are larger. The whole plant bruiſed is a remedy for whitlows and ſcald-heads." Matthiolus ſuppoſed the Wall-rue, *Aſplenium Ruta-muraria*, to be what Dioſcorides intended; but he cites other botaniſts who have thought *Mollugo tetraphylla* to be the plant in queſtion; ſee Matth. Valgr. v. 2. 388, 389. Dodonæus, Lobel, and Gerarde took *Saxifraga tridactylites* to be the true *Paronychia*. Cluſius has called a ſpecies of *Illecebrum* by the name of *Paronychia hiſpanica*, and hence, rather by accident than for any particular reaſon, Linnæus has denominated that plant *Illecebrum Paronychia*. The moſt prevalent opinion has been, that ſome plant of the claſs *Tetradynamia* was intended by Dioſcorides; though it is difficult to gueſs why this idea was adopted. Hence however the name of Whitlow-graſs has remained with our *Draba verna*, which is reckoned, by ſeveral authors, one ſort of *Paronychia* at leaſt; and hence that Engliſh name has been extended to all the Britiſh ſpecies of *Draba*.

Tournefort has a genus under the name of *Paronychia*, of which the above-mentioned *Illecebrum* is his firſt ſpecies; ſee his t. 288. Gærtner follows him, v. 2. 218. t. 128, ſaying that amongſt all the ſpecies of *Illecebrum* which he has met with, the *verticillatum* only anſwers to the Linnæan character, the reſt belonging to *Achyranthes*, *Celoſia*, or this genus *Paronychia*, either by reaſon of their ſtamens being united at the baſe, or the capſules deſtitute of valves, or ſplitting into two hemiſpheres. See ILLECEBRUM.

PARONYCHIA, from παρα and ονυξ, *the nail*, an abſceſs towards the extremity of the finger, more commonly known by the name of whitlow. See WHITLOW.

PARONYMA, in *Grammar*, are words which have ſome affinity in their etymology.

PAROPAMISUS, in *Ancient Geography*, a province of India, the eaſtern limit of which, in Alexander's arrangement of boundaries, was the river Cophenes. According to the ideas of Ptolemy it lay between the countries which the moderns name Khoraſan and Cabul; and anſwers to the tract between Herat and Cabul. Alexandria was regarded as the capital. This province was ſeparated from Bactria by the chain of mountains called "Paropamiſus." See GAUR.

PARORCHIDIUM, from παρα and ορχις, *the teſticle*, the caſe in which the teſticles do not deſcend into the ſcrotum, but remain within the ring of the external oblique muſcle, or paſs no farther than the groin. A little before birth, theſe bodies uſually deſcend into the ſcrotum; but it ſometimes happens that this occurrence is retarded by cauſes, with which we are not ſatisfactorily acquainted, and, in particular individuals, the teſticles even continue within the abdomen during life. Mr. Pott remarks, that he knows not of any particular inconvenience ariſing from the detention of a teſticle within the cavity of the belly; but its lodging in the groin expoſes it to be hurt by accidents. When hurt, it may be miſtaken for a different diſeaſe, and occaſion very improper treatment. Beſides theſe conſiderations, he adds, that there is no kind of diſeaſe to which the teſticle is liable in its natural ſituation; but what may alſo affect it in any, or all its unnatural ones. In the firſt caſe, related by Mr. Pott, a teſticle being detained in the groin of a young healthy ſeaman, who hurt the part by hitting it againſt a piece of timber, the tumour became extremely painful, and was miſtaken for a bubonocele, from which it might have been more readily diſtinguiſhed by the following circumſtances, had not the extreme tenderneſs of the injured teſticle prevented any examination by the touch; and the very hard ſwelling of the ſcrotum precluded any certainty of a teſticle being there, or not. Mr. Pott obſerves, that the tumour in the groin did not, like the bubonocele, point obliquely from the ilium towards the pubes, but lay acroſs the groin, and when the ſcrotum became ſoft, no teſticle could be felt; two ſtriking circumſtances to determine the nature of the caſe. In the earlier part of this young man's life, the detained teſticle had been miſtaken for a rupture, and a truſs had been applied to it. In the ſecond caſe, the teſticle was detained in the groin; and the patient was alſo adviſed to wear a truſs, which he could not bear from the pain it occaſioned. At laſt, when the patient was infected with a gonorrhœa, this detained teſticle inflamed, forming a hernia humoralis, unfortunately miſtaken for a bubo. The tumour, however, was moveable, and the ſcrotum on that ſide contained no teſticle; two circumſtances of importance in the diagnoſis. Each patient was cured by the remedies for inflammation of the teſticles in their uſual ſituation.

PAROS, in *Ancient* and *Modern Geography*, an iſland in the Grecian archipelago, and one of thoſe anciently called "Cyclades," and ſituated S. of Delos, N. of Ios and Sicinos, W. of Naxos and very near it, and E. of that of Oliaros or Antiparos, from which latter it is ſeparated by a narrow channel. It was known by various names among the ancients; it was called Minoa, becauſe it was conquered by Minos, the renowned king of Crete; before that time, it was denominated Pactia; and ſince it has repeatedly changed its name, till it took, and at laſt retained, that of Paros, either from the name of the ſon of Jaſon, the argonaut, or of a certain Arcadian, ſon of Parrhaſius. Although it was of ſmall extent, not exceeding 36 miles in circumference, it formerly prided itſelf on its power and riches, which gave it great influence on the condition of the neighbouring iſlands. For theſe it was indebted to the activity of its commerce, and the culture of the arts; its excellent harbours were favourable to navigation and trade, and its quarries of beautiful marble inſpired a taſte for the arts, of which Phidias and Praxiteles, who were born in this iſland, eminently availed themſelves. We may add that the valour of its inhabitants for a long time maintained its ſecurity and its liberty. The Parians, in the time of their proſperity, joined Darius in his expedition againſt Greece, and aſſiſted him with a conſiderable ſquadron; but after the victory of Miltiades and Marathon, they were reduced to great ſtraits by that general. After the battle of Salamis, Themiſtocles ſubjected them to Athens, and exacted from them large contributions by way of puniſhment for the ſuccours they had given to the Perſians. From the dominion of the Ptolemies of Egypt, to which the Cyclades were conſtrained to ſubmit, Paros reverted to that of the Athenians, till their conquerors were expelled by Mithridates the Great But when this prince was forced to ſubmit to Sylla, Lucullus, and Pompey, Paros and the other Cyclades were reduced into a province by the Romans, together with Lydia, Phrygia, and Caria. Its population was conſiderable when it was ſubjected to the Ottoman empire by Barbaroſſa; but ſince that epoch it has ſuffered ſo much by the pillage of the Turks, by the deſpotiſm of the government, and by the ſtay which the ſquadron of the captain-pacha makes there every year; that its inhabitants have imperceptibly diſappeared, and that at this day it preſents ſcarcely any thing but uncultivated fields and villages partly deſtroyed. Its quarries of beautiful marble are abandoned and partly filled up with rubbiſh; ſo that the deſcendants of its celebrated artiſts, whom miſery and ſlavery have degraded, are no longer acquainted with an art which conſtituted the glory of their country. At the beginning of the laſt century, the number of its inhabitants was eſtimated at 6000; but at the preſent day they are ſuppoſed not to exceed 2000. The European conſuls have long ſince withdrawn from it; the Catholics have fled; and the Greeks who remain, idle and wretched, find themſelves expoſed every year to the oppreſſion of the officers of the captain-pacha's ſquadron, to the ſword of the ſailors, and to the rapacity of all. Although its extent is not ſo conſiderable as that of Naxos, it has in proportion a much greater quantity of lands fit for culture. Its mountains are leſs elevated, its riſing grounds leſs arid, and its plains would be as fertile, if they were as well watered. A ſmall town called "Paréchia" has replaced the ancient city of Paros, on the W. coaſt of the iſland, facing Antiparos; it preſents no idea of it, except it be by the beautiful ruins, which are employed, without taſte, in its conſtruction. Similar fragments of magnificent monuments cover, in an uſeleſs manner, almoſt the whole territory of the iſland, and in thoſe deſerted remains, art would ſtill diſcover objects worthy of its admiration. Off "Paréchia" the ſea forms a bight, and a harbour whoſe entrance is difficult, on account of the ſhoals that obſtruct it on the oppoſite coaſt. The harbour of Nauſſa, ſituated to the north, is one of the fineſt and moſt ſpacious in the archipelago. Here are ſtill viſible the batteries which the Ruſſians had erected for defending its entrance, when, maſters of the archipelago in their war before the laſt with the Turks, they had made Paros the depôt of their forces. In autumn this harbour is inſalubrious, and alſo towards the end of the ſummer, on account of ſome marſhes which are ſituated at the head of it. The Ruſſian army ſuffered from them to ſuch a degree, that it was obliged to quit the place, after having loſt a great number of ſoldiers and ſailors. There are three harbours on the E. ſide of the iſland; the firſt, called Port Santa Maria, towards the N. point, is ſheltered by ſome iſlands from winds from the N. and S.; but it is open to the N E., which prevents ſhips from frequenting it in winter. The harbour of Marmora lies in the middle. Near it is ſeen Fort San Antonio, in which Venieri, prince of the iſland, ſuſtained for a long time all the efforts of Barbaroſſa. He gave up this important poſt only becauſe the garriſon were in want of every thing, and periſhing with thirſt and hunger. The harbour of Trio lies lower down, and it is, like the firſt, ſheltered by ſome iſlands, but open to ſoutherly winds. Here the captain-pacha remains at anchor every year upwards of a month, till the return of the gallies and ſmall veſſels which he diſpatches to the neighbouring iſlands, in order to collect the impoſt to which they are ſubject. There is only one harbour to the weſtward, at the head of which the principal town, now a wretched village, is built. Veſſels of burden anchor without, under ſhelter of ſome iſlets, as well as in the narrow channel that ſeparates Paros from Antiparos. Marpeſus, ſituated to the weſtward of the harbour of Marmora, is the moſt lofty mountain in the iſland; and it is this that furniſhed more particularly the marble for which Paros was ſo celebrated. Near an ancient quarry, about four miles from Paréchia, is ſtill to be ſeen a baſſo-relievo, mentioned by Tournefort, cut in the rock, and containing 29 figures of nymphs and ſatyrs, dancing a kind of carol. The moſt valuable monuments of antiquity now extant, called the Oxford or Arundelian marbles, were conſtructed by a native of this iſland, whoſe name is unknown, but who, according to Uſher, lived in the third century before the Chriſtian era. (See Parian *Marble*.) The inhabitants of Paros and Antiparos ſupply themſelves from the produce of the iſlands with wheat, barley, wine, ſeſamum, and ſome legumes. Cotton is the moſt conſiderable production, and the only one that enables the inhabitants to pay their impoſt, and to procure for themſelves ſuch commodities as they need. Theſe two iſlands pay an impoſt ſomewhat more than 8000 piaſtres. Archilochus the ſatiriſt, was born at Paros, about 720 years B.C. N. lat. 37° 4'. E. long. 25° 18'.

PAROTID Gland, *Parotis*, in *Anatomy*, from παρα, *near*, and ως, *the ear*, the largeſt of the ſalivary glands, ſituated in front of the ear. See Deglutition.

Parotid *Duct*, *Wounds and Fiſtulæ of*. See Wounds *of the* Face, and Salivary Fistulæ.

PAROTIDES, in *Medicine*, ſignifies the inflamed and tumid ſtate of the parotid glands. An inflammation of theſe glands often occurs in perſons of ſcrofulous conſtitution, without any very obvious exciting cauſe; but more commonly they are inflamed in conſequence of irritation from the abſorption of acrid matter, as in the caſe of excoriations about the face and ears, of ſcald head, &c.; or from ſympathy with inflamed gums, or tooth-ache, eſpecially in the lower jaw; or, laſtly, from an extenſion of inflammation of the throat to them, as in the caſe of *Mumps*, or Cynanche *parotidæa;* which ſee. In ſcrofulous or debilitated habits, inflammation and ſuppuration of the parotids, as well as of other glands, are liable to occur at the cloſe of acute fevers, of which they appear to be ſometimes *critical;* but in other inſtances, eſpecially when they follow ſevere attacks of meaſles, or ſmall-pox, they are often extremely tedious in their progreſs, and difficult of cure, and ſeem to be indicative of a cachectic condition, left by theſe fevers. See Scrofula.

PAROTIS, from ϖαρα and ȣς, *the ear*, in *Surgery*, the parotid gland: alſo an inflammation, or abſceſs, of this part.

PAROXYSM, παροξυσμος, in *Medicine*, is the *fit*, *attack*, or *exacerbation* of a diſeaſe, that occurs at intervals, or has decided remiſſions or intermiſſions. It is applicable to all febrile, ſpaſmodic, convulſive, painful, or otherwiſe violent diſeaſes, whether the periods of remiſſion be regular or irregular. Thus we ſpeak of a paroxyſm of ague, of gout, of colic, of epilepſy, of inſanity, &c.

PARPAJAH, in *Geography*, a town on the N.E. coaſt of the iſland of Sumatra, on the river Camſer. N. lat. 0° 15'. W. long. 102° 45'.

PARPARSARAT, an iſland in the ſtraits of Malacca, near the coaſt of Sumatra, about 50 miles in circumference. N. lat, 1° 21'. E. long 102° 15'.

PARPOOLY, a town of Hindooſtan, in Concan; 28 miles N.N.E. of Goa.

PARPOUR, a town of Bengal; 70 miles N.W. of Midnapour.—Alſo, a town of Bengal; 8 miles N. of Curruckpour.

PARR, Thomas, in *Biography*, mentioned in this work on account of the great age to which he attained, a huſbandman in Shropſhire, was born about the year 1483. At the age of 120 he married a ſecond wife, by whom he had a child. In the year 1635, he was brought to London by lord Arundel, and introduced at court to king Charles I. as a prodigy; but the change of air, and the new mode of living to which he was neceſſarily ſubject, occaſioned his death in the ſame year.

PARRA, in *Geography*, a town of Perſia, in the province of Segeſtan; 60 miles N. of Zareng.

Parra, the Jacana, in *Ornithology*, a genus of birds of the order Grallæ. The generic character is; bill tapering ſomewhat obtuſe; noſtrils oval, in the middle of the bill; front covered with lobate caruncles; the wings are ſpinous. Sixteen ſpecies are enumerated by Gmelin, which are as follow.

Species.

Species.

Dominica, or St. Domingo Jacana; ſo called from its being found in that iſland, as alſo in the iſland whence it derives its ſpecific name, and in almoſt all the warm parts of America. It is characteriſed by yellow and moderate claws. The bill is yellow; the caruncle lax, and of a pale yellow colour; the head and body above are of a pale yellow, beneath it is ochry, inclining to roſy.

Ludoviciana; Louiſiana Jacana. The bill and caruncle are tawny; the crown is black; body above is grey-brown, beneath of the colour of ochre. It is about eleven inches long, and is found in the country whence it takes its name. The quill-feathers are black, mixed with a little grey; the tail is of a pale yellow, tipt with black; the legs are red; claws are black.

Cayanensis; Cayenne Jacana. Legs reddiſh; hind-head brown, with a blackiſh creſt. It inhabits Cayennė, feeds on inſects, and is about eight inches and a half in length. The bill is red, tipt with black; front and chin black; middle of the crown cinereous; breaſt with a broad black band; belly and vent white; back greeniſh-purple; wings white without; tail from the baſe to the middle white, the reſt black, the tip edged with white.

Goensis; Goa Jacana. Caruncle red; legs yellow; head, neck, wings, and middle of the tail black; body beneath white. It is found in or near Goa; and is about thirteen inches long. The bill is duſky; from the hind part of the eye a black ſtreak runs through the ſides of the neck as far as the breaſt; the back and wing-coverts reddiſh-brown, the greater ones white; the tail is white at the baſe, and tipt with brown.

Senegalla; Senegal Jacana. Claws moderately long, and the legs are red. It is found, as its name imports, near Senegal, and is twelve inches long. The bill is of a yellowiſh-green, tipt with black; the front is white; caruncle lax, and of a pale yellow; chin and throat black; lower part of the belly, tail-coverts, and greater wing-coverts, whitiſh; quill-feathers black, tipt with white. At the bend of the wings is a black ſpur: the tail, from the baſe to the middle, is whitiſh, the reſt black, tipt with reddiſh; the reſt of the body and head is of a grey-brown.

Chilensis; Chileſe Jacana. Claws moderately long; legs brown; hind-head ſub-creſted. It inhabits Chili, and is the ſize of a jay, but with longer legs. It feeds on worms and inſects, is noiſy, and defends itſelf by the ſpurs on its wings; it builds in the graſs, and lays four tawny eggs, which are ſpeckled with black. The bill is conical, and about two inches long, a little curved at the tip; the irides are yellowiſh; caruncle two-lobed and red; the neck, back, and fore-part of the wings are violet; throat and breaſt black; wings and a ſhort tail brown; ſpurs on the wings yellowiſh, conical, bony, and about half an inch long.

Jacana; Cheſnut Jacana. In this ſpecies the hind claws are very long; the legs are greeniſh. It inhabits the watery places in South America, and is ten inches long. The bill is about an inch and a quarter long, and is of an orange-colour; and on the forehead is a membranous flap, half an inch long, and nearly as broad. On each ſide of the head alſo is another of the ſame kind, about a quarter of an inch broad, and both together they ſurround the baſe of the bill. The head, throat, neck, breaſt, and under parts, are black; and ſometimes mixed with white. The birds of this ſpecies are chiefly found in Braſil, Guiana, and Surinam; but they are not at all uncommon at St. Domingo, where they frequent the marſhy places, the ſides of ponds and ſtreams, and wade up to the thighs in water. They are alſo generally ſeen in pairs, and, when ſeparated, call each other continually till they join again. They are very ſhy, and moſt common in the rainy ſeaſons in May and November. They are at all times very noiſy; their cry is ſharp and ſhrill, and they may be heard a great way off. The fleſh of this bird is accounted very good.

Nigra; Black Jacana. Hind-claws very long; legs cinereous; head, neck, tail, and body above black. It inhabits Braſil, and is about the ſame ſize as the laſt. The bill is of a ſaffron colour; the front is rufous; the breaſt, belly, and vent brown; quill-feathers green, tipt with brown; the wing-ſpurs are yellow.

Brasiliensis; Braſilian Jacana. The hind-claws are very long; the body of a greeniſh black. It inhabits Braſil and Guiana. The ſize and manners very much reſemble thoſe of the cheſnut jacana; it is gregarious, and feeds on fiſh and inſects; the wing-ſpurs are yellow.

Viridis; Green Jacana. Hind-claws long, yellow; legs yellowiſh-green; body blackiſh-green. It inhabits Braſil, and is of the ſize of a pigeon. The bill is partly red, and partly yellow; the front is red; the head, neck, and breaſt are of a gloſſy-violet; the toes are very long.

Variabilis; Variable Jacana. Hind-claws long; legs blueiſh. This is alſo denominated the ſpur-winged water-hen, and is about nine inches long. The colour of the bill is of an orange-yellow. On the forehead is a flap of red ſkin; the crown of the head is brown, marked with ſpots of a darker colour; the hind part of the neck is much the ſame, but of a deeper dye. On the fore part of the wing is a yellow ſpur. The legs are furniſhed with long toes, as in all the others; the colour of which is of a blueiſh-aſh. This ſpecies inhabits Braſil, and is ſaid to be pretty common about Carthagena, and in other parts of South America.

Luzoniensis; Luzonian Jacana. Beneath white; toes long; legs black. This ſpecies is found in the marſhy and maritime parts of the Manilla iſlands.

Africana; African Jacana. This ſpecies is of a pale cinnamon; the toes are long; the legs greeniſh-black. It inhabits Africa, and is about nine inches and a half long.

Sinensis; China Jacana. The toes of this are long; legs greeniſh; body of a claret colour. It is found in China, and is about twenty-one inches long.

Chavaria; Faithful Jacana. Toes long; legs tawny; hind-head creſted. This is the moſt remarkable of all the ſpecies. The bill is of a dirty-white: upper mandible like that of the dung-hill cock; on both ſides, at the baſe of the bill, is a red membrane extending to the temples, in the middle of which are the eyes; irides brown; hind-head with about twelve blackiſh feathers, three inches long, forming a pendent creſt; the reſt of the neck is covered with thick black down; the body is brown; the wings and tail blackiſh; it has two, and ſometimes three wing-ſpurs, half an inch long; the belly is of a light black; the thighs are half bare; the toes ſo long as to entangle each other in walking. This ſpecies inhabits the rivers and inundated places near Carthagena in America; it feeds on herbs; its gait is ſlow; and it cannot run unleſs aſſiſted by the wings, but flies eaſily and ſwiftly. When the ſkin is touched, a crackling is felt; the voice is clear and loud. The natives keep one of theſe tame to wander with the poultry, and defend them againſt birds of prey, which it does by means of the ſpurs on its wings. It never deſerts the charge committed to its care, but brings them home at night. It will readily ſuffer itſelf to be handled by grown perſons; but not by children; it is about the ſize of a cock, and ſtands a foot and a half from the ground.

INDICA; Indian Jacana. Blackiſh-blue; back and wings brown; eye-brows white; a red ſpot at the gape of the mouth. It is found in many parts of India, among the marſhes, and builds a floating neſt. The bill is yellow, the baſe above is blueiſh; the legs are of a yellowiſh-brown.

PARRAL, in *Geography*, a town of Mexico, in the province of New Biſcay, on a river which runs into the Conchos; 230 miles N. of Durango. N. lat. 28° 10'. W. long. 105° 12'.

PARRAMATTA, a ſettlement founded in New South Wales, near Port Jackſon; 10 miles W. of Sydney Cove.

PARRAMPORE, one of the ſmall iſlands in the Atlantic ocean, which line the E. coaſt of Northampton county, Virginia.

PARRAN, PÈRE, in *Biography*, publiſhed, in 1646, a treatiſe on theoretical and practical muſic, containing the rules and precepts of compoſition.

PARRAS, in *Geography*, a town of Mexico, in the province of Zacatecas; 90 miles N. of Zacatecas.

PARREL, (*Rigging*,) in a *Ship*, a ſort of collar, by which the yards are faſtened, at the ſlings or middle, to the maſts, ſo that they may be hoiſted or lowered with facility. There are four different ſorts of parrels, one of which is formed of a ſingle rope, having an eye ſpliced in each end; and the ſurface of the rope, between the eyes, is *ſerved* with ſpunyarn, or covered with leather. Its middle is paſſed round the ſlings of the yard, and faſtened together on the aftſide of the yards; and the two ends, which are equally long, are paſſed round the aftſide of the maſt; and one of them being brought under, and the other over the yard, the two eyes are laſhed together on the foreſide of the yard, whilſt another laſhing binds them together abaft the maſt, having every turn ſecured with a knot. Another ſort is formed of two ropes which have an eye at one end; the other end, as a laniard, reeves through the upper hole of the rib, and through a truck alternately, ſufficient to embrace the maſt; the other hole likewiſe reeves through the lower hole in the rib, and ſo on. The eye in the lower rope of the parrel paſſes under the yard, and the upper rope over the yard, till both eyes meet on the foreſide of the yard, and there *ſeized* together with ſpunyarn. The other ends of the parrel-rope are paſſed round the yard, and the after part of the parrel alternately, till the latter is ſufficiently ſecured to the former; and the whole of the turns are *marled* together with quarter-ſeizings, to confine them cloſe in the cavity formed on the back of the ribs. The third ſort, calculated to confine the jaws of a boom to the maſt, is formed of a rope which reeves through ſeveral trucks without ribs. The fourth ſort, called truſs-parrels, are ſimilar to the firſt, having tackles hooked to their lower ends, which lead upon deck; by which the yard may, as occaſion requires, be ſlackened from the maſt, or confined more cloſely thereto. The latter are peculiar to the lower yards, whereon they are very convenient. The ſecond are uſed for topſail yards, and the firſt for top-gallant yards only.

PARRENNIN, DOMENIC, in *Biography*, a diſtinguiſhed Jeſuit miſſionary, was born in 1665, and in 1682 we find him entered among the Jeſuits at Avignon, with the view of engaging in their miſſions. In 1698 he was ſent to China. The reigning emperor was at that time favourable to the Chriſtian miſſionaries, on account of the ſcientific improvements which they introduced into his dominions, and Parrennin had maſters aſſigned to him for inſtructing him in the languages of the country, in which he acquired a proficiency beyond that of any preceding European. The emperor, who was a thoughtful and learned man, frequently converſed with him on the hiſtory, manners, and politics of Europe, and on different ſciences, with which he was deſirous of becoming acquainted. The miſſionary was obliged to ſtudy hard, to ſatisfy the curioſity of the Chineſe monarch, and he tranſlated into the Tartarian language every thing which he found new and curious in geometry, aſtronomy, and anatomy, in the memoirs of the French Academy of Sciences, and in other works. During the ſpace of twenty years he followed this emperor in his progreſſes through the different provinces of the empire, and for a ſtill longer time he acted as interpreter for all European miſſionaries and ambaſſadors, who came into China, and as mediator in the diſputes between the courts of Moſcow and Pekin. He drew up many books in the Chineſe and Tartarian languages, as well for the information of the emperor, as the inſtruction of the proſelytes. He wrote a vaſt number of letters to correſpondents in Europe, relative to the buſineſs of his miſſion, and to the manners, cuſtoms, ſciences, and occurrences of China, which were printed in Du Halde's collection. Of theſe the moſt valuable are his letters to De Mairan. From the labours of this zealous miſſionary proceeded the maps of all the provinces of China, and of the Chineſe Tartary, with which Du Halde's deſcription of that empire is illuſtrated. Parrennin died at Pekin in 1741, and was honoured by the emperor Kien-Long with a public funeral. Moreri.

PARREO, in *Geography*, a town of Hindooſtan, in Bahar; 23 miles W.S.W. of Patna.

PARRET, a river of England, which riſes on the borders of Dorſetſhire, paſſes by Langport, Bridgewater, &c., and runs into the Briſtol channel, about ten miles below the laſt town.

PARRHASIA, in *Ancient Geography*, a town of the Peloponneſus, in Arcadia: it is mentioned by Homer and Pliny; but not noticed by Pauſanias nor Strabo, though they ſpeak of a mountain and people under this appellation.

PARRHASII, a people of India, beyond the Ganges, mentioned by Quintus Curtius.—Alſo, a people who inhabited the S.W. part of Arcadia.

PARRHASIUS, AULUS JANUS, in *Biography*, the aſſumed name of Gianpaolo Pariſio, was born in 1470. His father, Tommaſo Pariſio, a counſellor in the Neapolitan ſenate, would gladly have brought up the ſon to the ſame profeſſion, but the young man had imbibed ſo decided a taſte for literature, as to refuſe to ſettle to buſineſs. The wars in the kingdom of Naples occaſioned his removal to Rome, where his life was brought into danger by his attachment to two cardinals, who had incurred the diſpleaſure of pope Alexander VI. He eſcaped to Milan, where he married a daughter of Demetrius Chalcondylas, and was appointed profeſſor of eloquence in the univerſity. This was about the year 1500, when he firſt appeared as an author, by publiſhing his commentaries upon Claudian's Rape of Proſerpine. He ſoon obtained a very high reputation as a lecturer, and had the moſt diſtinguiſhed people in the country as his auditors. His fame excited againſt him many enemies; he was charged with citing books that never had any exiſtence, and he was accuſed of crimes of an infamous nature, which have been thought to have had no other foundation than the envy of his rivals. He retired to Vicenza, where he was elected to the chair of eloquence with a liberal ſalary. The wars excited by the league of Cambray obliged him to quit that country, and he returned to his native place, where he laid the foundation of the Coſentine academy, which afterwards became very famous. He after this accepted of an invitation from Leo X. to occupy the chair of eloquence at Rome; ſcarcely, however, had he entered upon the duties of this office, when ill health obliged him to reſign: he returned to Coſenza, where after paſſing many years in continual ſufferings, he died in the year 1534. His works were publiſhed, collectively, by Henry Stephens in 1567, of which the principal is entitled "Liber de Rebus per Epiſtolam Quæſitis." This conſiſts of a number of letters written to different learned men; containing explanations of paſſages in the ancient writers, and elucidations of points of antiquity, which diſplay much erudition. There are alſo illuſtrations of Ovid's Heroical Epiſtles; of Horace's Art of Poetry; of Cicero's Oration for Milo, and various other tracts on claſſical ſubjects. The whole collection was reprinted in the firſt volume of Gruter's "Theſaurus Criticus." A new edition of the book "De Quæſitis," with additions from the author's manuſcript, was given at Naples in 1771. Moreri.

PARRHESIA, in *Rhetoric*, a figure in which a perſon admoniſhes or reproves another with art and addreſs, and in ſuch circumſtances as render it difficult to diſpleaſe. See Revelation, chap. ii. 2—5.

PARRIAH, in *Geography*, a town of Hindooſtan, in Bahar; 35 miles N. of Durbungah. N. lat. 26° 40'. E. long. 85° 52'.

PARRICIDE, Parricida, or *Patricida*, in ſtrictneſs, denotes the murder or murderer of a father: as matricide does of a mother. Though the word parricide is alſo ordinarily extended to both.

The Romans, for a long time, had no law againſt parricides; which was alſo the caſe at Athens; from an opinion, that nobody could be ſo wicked as to kill his parents. The Perſians, according to Herrodotus, entertained the ſame notion, when they adjudged all perſons who had killed their reputed parents to be baſtards. L. Oſtius was the firſt who killed his father, five hundred years after Numa's death; and then the Pompeian law was made, which ordained, that the perſon convicted of this crime, after he had been firſt ſcourged till the blood came, ſhould be tied up in a leathern ſack, together with a dog, an ape, a cock, and a viper, and ſo thrown into the ſea, or the next river. By the Engliſh laws, this crime is treated no otherwiſe than as ſimple murder, unleſs the child was alſo the ſervant of his parent. 1 Hal. P. C. 380.

Parricide is alſo extended to the murder of any near relation, as a huſband, wife, brother, ſiſter, child, grandchild, uncle, &c. and even to that of great or ſacred perſons, though no way allied in blood, as a king, &c.

PARRIER, in *Geography*, a town of Hindooſtan, in Oude; 35 miles S.W. of Lucknow.

PARRIDA, a ſmall iſland in the Pacific ocean, near the coaſt of Veragua. N. lat. 7° 16'.

PARROAH, a town of the iſland of Ceylon; 50 miles W.S.W. of Trincomaly. N. lat. 8° 17'. E. long. 80° 34'.

PARROCEL, Joseph, in *Biography*, was born in Provence in 1648, and was the pupil of Bourgognone, whoſe ſubjects and whoſe ſtyle he imitated, though not with ſo much fire and freedom of touch. He endeavoured to improve himſelf by a reſidence at Venice for ſome time, and did acquire ſomewhat of the tones of that ſchool. His colouring is rich, deep, and freſh; and there is great buſtle and animation in his deſigns; which were not always warlike, but ſometimes of fancy, of hiſtory, and of portrait. He died in 1704, leaving a ſon, Charles Parrocel, who ſucceſsfully imitated the compoſitions and manner of his father, and who died in 1729, at the age of 52.

There was alſo a nephew of the name of Ignatius, who alſo painted battle-pieces in the ſame ſtyle, and who died in 1722.

PARROQUET, or Parrakeet, in *Ornithology*. See Psittacus.

PARROT. See Psittacus.

Parrot *Iſlands*, in *Geography*, a cluſter of iſlands in Duſky bay, New Zealand; 3 miles S.W. of Facile harbour.

Parrot's *Key*, a ſmall iſland in the Spaniſh main, near the Moſquito ſhore. N. lat. 12° 7'. W. long. 82° 56'.

PARR'S Point, a cape on the N.E. coaſt of the iſland of St. Chriſtopher.

PARRY, Richard, in *Biography*, a learned divine, was educated at Oxford, and in 1604 was made biſhop of St. Aſaph. He reviſed the firſt edition of the Welſh bible, which was publiſhed in 1620. Before his elevation to the epiſcopal dignity, he was maſter of Ruthin ſchool, Denbighſhire.

Parry, John, generally known by the appellation of the celebrated *blind harper*. He was the firſt among his contemporaries, who played either a leſſon or a concerto on the treble Welſh harp, an inſtrument which had been long loſt to the world, and owed its revival to the genius and diligence of this great performer. He died at Rhuabon, in Denbighſhire, in 1782, about which time the pedal harp ſeems to have ſuperſeded all other harps on the continent, as well as in our iſland, ſo that it appears as if its reſuſcitation was for a very ſhort period. Evans played on that truly Britiſh inſtrument at the oratorio in 1772, on which he accompanied "O had I Jubal's lyre."

PARRYING, in *Fencing*, the action of defending a man's ſelf, or of ſtaving off the thruſts, ſtrokes, &c. offered him by another. See Fencing.

Good fencers puſh and parry at the ſame time.

The Spaniards parry with the poniard. The ancients parried with their bucklers.

PARSBERG, in *Geography*, a town of Bavaria, in the principality of Neuburg; 18 miles N.W. of Ratiſbon.

PARSCHINA, a town of Ruſſia, in the government of Tobolſk, on the Niznei Tunguſka. N. lat. 60 40'. E. long. 106° 54'.

PARSHEPATNAM, a town of Hindooſtan, in Marawar, on the coaſt; 6 miles N. of Tondy.

PARSLEY, in *Botany*, *Gardening*, and the *Materia Medica*. See Apium.

Parsley, in *Agriculture*, a well known tap-rooted biennial plant. It is obſerved, in the twenty-ſecond volume of the Annals of Agriculture, that Mr. Fleet of Hampſhire, famous for curing the rot of ſheep, cultivates it largely with ſucceſs; he ſows half a buſhel to the acre, with a buſhel of rye-graſs, with ſpring corn; and he finds that it laſts in the ground till it is permitted to ſeed. He feeds it conſtantly, it being excellent for ſheep, and when ſuffered to get a-head, pigs feed wonderfully upon it in the autumn. After September, it will not run to ſeed. When it was ploughed up, he obtained good oats. The land was poor, and the next round of the courſe, the clover was much the better for the parſley having been ſown, or the clover omitted; for in a field half parſley, half clover, when the clover came again to be ſown, it was excellent on the parſley half, but bad on the clover part. In laying down land to graſs, Mr. Hoyte, in the fourth volume of Communications to the Board, adviſes the ſowing with twelve pounds of white clover, two pounds of red clover, two pecks of rye-graſs, and two pounds of parſley to the acre, as the parſley ſtands two years, and by its diuretic qualities, prevents the ſheep from dying of the red-water, which too luxuriant ſeeds are apt to produce.

And the following trial with this vegetable, is ſtated in the fifth volume of the Farmer's Magazine, printed at Edinburgh. A friend of mine, ſays the writer, having occaſion to obſerve the partiality of black cattle for the garden parſley, and their preference of it, when growing, to almoſt any other green food, took it in his head to try how it would ſucceed in a field that he was going to ſow down for paſture. He accordingly ſowed two or three ridges with parſley-ſeed, and the reſt of the field with clover and rye-graſs. As ſoon as the field was ready for paſture, he led his cattle into it, and it was perfectly evident that they preferred that part which was ſown with the parſley to any other part of the field, inſomuch that they never touched the reſt while there was a ſingle blade of parſley to be had. Horſes were equally fond of it. He had not an opportunity to try ſheep upon it; but the probability is, that they would, if poſſible, have been fonder of it, and thriven better, than any of the other two. This, therefore, ſeems worthy of a farther trial. We know that black cattle, ſheep, horſes, and indeed every other animal, always prefer that food (when they have it in their power to make a choice) that is moſt agreeable to them, and moſt conducive to their health. We know alſo that parſley is a moſt wholeſome vegetable for the human ſpecies. It is a powerful antiſeptic. If we were to reaſon from analogy, we ſhould ſuppoſe that its beneficial properties ſhould extend to the animal creation in general. As it is a biennial plant, it will anſwer well for fields that are to be laid down for paſture for a conſiderable while. Sheep in particular, being of a tender and delicate conſtitution, and eſpecially ſubject to bowel complaints, its antiſeptic quality may be of great uſe to correct theſe. The difficulty may be at firſt to get the ſeed in any conſiderable quantity: but that may ſoon be remedied, if the experiment be thought worth while. He would ſuppoſe that the ground upon which it is ſown muſt be good, in good condition and clean, otherwiſe it will not have a fair trial.

It ſhould probably be ſown early in the ſpring, and be kept conſtantly cloſe fed down with ſtock, where it is intended to be preſerved in the ground any great length of time, as probably, by preventing its ſending up ſeed-ſtems, this may be effected.

More experiments are wanting to fully aſcertain the value of this vegetable in field culture; but it has been found very beneficial as a rabbit-food, and would conſtantly be raiſed as one of the moſt proper crops where theſe kinds of animals are kept. Se RABBIT.

PARSLEY, *Baſtard*. See CAUCALIS.

PARSLEY, *Corn, field*, or *baſtard ſtone*. See SISON.

PARSLEY, *Fool's*. See ÆTHUSA and CICUTA.

PARSLEY, *Macedonian*. See BUBON and PETROSELINUM *Macedonicum*.

PARSLEY, *Milky*. See SELINUM.

PARSLEY, *Mountain*. See SPIGNEL.

PARSLEY,-*Piert*. See APHANES.

PARSLING, in *Ship-Building*. See PARCELLING.

PARSNEP, in *Botany*, &c. See PASTINACA.

PARSNEP, in *Agriculture*, the name of a tap-rooted plant, cultivated for the ſake of the root. This ſort of crop requires a rich, mellow, and deep ſoil, in order that the roots may have full room to thicken and run downwards. It is the garden parſnep that is made uſe of in the field culture, which has a long fleſhy root much larger than the carrot, and equally ſweet, nutritious, and juicy. And it has been ſuggeſted, that from its being more hardy, it is probably better ſuited to the northern parts of the iſland than the carrot. Its eaſy culture, and the large produce which it is capable of affording, ſhould render it more an object of the farmer.

Soil.—The ſoils moſt adapted to this ſort of crop, are thoſe of the rich, deep, friable, loamy or ſandy kinds, in which the roots can get down to a great depth, and become large. It is obſerved by Mr. Young, that of all the roots which a farmer can cultivate, this is the moſt valuable; but it demands a better ſoil than any other crop he can put into the ground. If he has not land of an extraordinary quality, he had better not venture on the attempt. It loves a very rich, dry, putrid, ſandy loam, worth 40*s.* or 50*s.* an acre, which ſhould be ploughed as deep as poſſible about the end of the autumn, and left for the froſts to exert their influence upon. This fine deep pulverization of the land is effected in different ways in different diſtricts. In ſome it is given by ploughing the ground with a light plough, which is regulated in the fore part by two wheels being fixed to it, one of which runs in the furrow, and the other on the unploughed land, the former being fourteen or fifteen inches higher than the latter, and which opens down and turns the mould to the depth of about five inches; after which, the furrow is dug down with a ſpade, ſo as to form a trench of about ſixteen inches in depth, proceeding in the ſame way till the whole of the field is prepared; but the latter, which is by means of two ploughs of different kinds, one following in the ſame track after the other, is by much the moſt expeditious and economical.

But the light plough juſt deſcribed, anſwers very well in performing the firſt part of the operation; and in the ſecond, one of the trench kind muſt be made uſe of, by which the mould is raiſed from the bottom of the furrow made by the firſt, and applied over the ſlice it had turned up. In this way the ſoil is not only broken up to a great depth, but the ſurface left in a fine ſtate of mould. Where this ſort of tillage is practiſed, the work is generally performed in the more dry ſorts of land about the middle of February; and in thoſe that are retentive of moiſture, towards the latter end of March. The ground, after being thus expoſed to the influence of the atmoſphere for a week or a fortnight, is harrowed lightly over in order to render it fit for the ſeed. In ſome caſes, however, a ſlight ploughing is given to the lands intended for this crop in September, the uſe of the other ploughs being had recourſe to in January in the ſucceeding year. The principal object in this buſineſs is, that of looſening and rendering the ſoil mellow to as great a depth as can poſſibly be done.

But though the uſe of manure is not in general ſo neceſſary for this crop as ſome others, where the land is not in tolerably good heart, it ſhould conſtantly be employed in ſuch proportions as may be ſufficient to render it rich. Well-rotted farm-yard dung is the beſt adapted to this crop, being turned into the ſoil by a light plough immediately before the time of putting the ſeed into the ground.

Seed.—In the cultivating of this ſort of crop, great care ſhould be taken to have good perfectly ripened ſeed, and which ſhould always be made uſe of while perfectly freſh, old ſeed frequently either wholly failing, or coming up with great irregularity, or in a ſtraggling manner.

In reſpect to the proportion of ſeed that may be employed, it muſt be different according to the nature of the ſoil and other circumſtances; but in general about five pounds to the acre may be ſufficient for the purpoſe.

As to the time of ſowing, the moſt uſual period is the early part of the ſpring, as ſoon as the froſts will admit of it; as about the beginning or middle of February, or in the following month. It is, however, ſometimes ſown in the autumn of the preceding year, immediately after it has been ripened and collected from the plants, as about the beginning of September. And it is contended by ſome, that in this way the plants will appear more early in the following ſpring, and of courſe become large and ſtrong before any weeds riſe to injure them; and that as the plants are in little or no danger from the ſeverity of the winter ſeaſon, this is, on the whole, the moſt eligible period. Where the ſoil is, however, in a proper ſtate of preparation, as there can be no apprehenſions of their being inconvenienced by the growth of weeds, the former muſt be the moſt ſafe and convenient ſeaſon for the purpoſe.

The moſt uſual method of ſowing the parſnep ſeed is in broadcaſt over the land, being afterwards covered in by means of a light harrow. It is probable that this ſort of crop might be ſown in rows, either by means of the drill machine, or by having ſmall furrows made in the land, and ſowing the ſeed over it in the broadcaſt method, afterwards lightly harrowing it into them. In this mode, by having the rows at ſufficient diſtances, the crops might be kept more clean and at leſs expence than in the ſimple broadcaſt method. But in this way they have not been found to anſwer ſo well.

The author of Practical Agriculture ſtates, that in diſtricts where parſneps are much cultivated as a field crop, it is the common practice to have beans at the ſame time with them, either planted in ſingle rows, at the diſtance of four feet and a half, and about eight or ten inches from each other, or double ones at the diſtance of twelve feet, and eighteen inches in the rows. In this manner two crops are obtained from the ſame piece of ground; but unleſs care be taken to remove the beans in good time, great injury may be done to the parſneps. As though there may have been much leaf and ſtem before the roots of theſe plants, begin to ſwell out and acquire their ſize towards Auguſt, the beans ought never to be ſuffered to remain longer than that period upon the ground.

After-culture.—The management of theſe crops, after they have been put into the ground, is, that they require to be kept perfectly clean and free from weeds during the early parts of their growth; frequent hoeing and weeding are, therefore, to be practiſed. Where cultivated in rows at ſufficient diſtances, the intervals may be cleaned by the plough or horſe-hoe. It is ſometimes uſual, where this ſort of crop forms a part of field huſbandry, to have recourſe to the harrow before the proceſs of hoeing or weeding is begun. This muſt be performed about the time the ſeeds firſt begins to germinate; as by harrowing too ſoon the weeds will not have riſen, and if deferred too long, there may be danger of deſtroying the buds of the parſneps. This is ſuppoſed more neceſſary on the ſtiffer ſorts of ſoil, as it renders them more eaſily weeded. The firſt weeding may be performed about the beginning or middle of May, according to the forwardneſs of the plants, being at this operation only partially thinned out where they appear to ſtand much too cloſe together. The ſame operation is to be again performed about the beginning of July; when the plants muſt be carefully ſet out to the diſtance of ſix inches. This ſort of work is executed either by means of a ſmall fork with two prongs, or a kind of very ſmall ſpade having a ſhort handle; the labourer, in making uſe of it, kneels on one knee, and, holding it in his right hand, digs and turns the mould, while with his left he pulls up and removes the weeds. After this ſecond weeding, nothing further is found requiſite in the parſnep culture.

As this ſort of root ſtrikes downwards to a great depth, and of courſe draws much of its nouriſhment from below, it may with propriety be introduced after moſt ſorts of fibrous-rooted crops. And there is little hazard in the cultivation of parſnep crops, except from the falling of too much rain immediately after ſowing, by which the ſeed may be in danger of being waſhed away; or when dry weather ſucceeds, from the baking of the land rendering the plants incapable of puſhing their roots ſufficiently down. They are ſeldom injured by froſts or other cauſes during the winter ſeaſon, or liable to be deſtroyed by any kind of inſects or other vermin.

It is ſtated, that the produce of this ſort of crop, when cultivated on a proper ſoil, and in a ſuitable manner, will, from the great ſize of the roots, be equal to, if not greater than, that of the carrot kind.

Application.—With regard to the methods of application of this root, they are much the ſame as that of the carrot. In the fattening of cattle it is found equal if not ſuperior, performing the buſineſs with as much expedition, and affording meat of exquiſite flavour, and a highly juicy quality. The animals eat it with much greedineſs. It is reckoned that thirty perches, where the crop is good, will be ſufficient to fatten an ox of three or four years old when perfectly lean, in the courſe of three months. They are given in the proportion of about thirty pounds weight, morning, noon, and night; the large ones being ſlit in three or four pieces, and a little hay ſupplied in the intervals of thoſe periods. And when given to milch-cows with a little hay in the winter ſeaſon, the butter is found to be of as fine a colour, and as excellent a flavour as when feeding in the beſt paſtures. Indeed the reſult of experiments has ſhewn, that not only in neat cattle, but in the fattening of hogs and poultry, the animals became fat much ſooner, and are more bulky, than when fed with any other root or vegetable. And that, beſides, the meat is more ſweet and delicate. In theſe applications, in the trials of an experienced farmer in Surry, the reſults were theſe: he in the firſt place put up ſixteen hogs to fatten upon them. The method he took in giving them to the hogs, was throwing the parſneps upon the ground whole. This he continued for about a month, when finding his hogs grow heavy, he obſerved they did not go on ſo well with them as at firſt. Upon this he boiled the parſneps, and made waſh of them; thickening the waſh with half a buſhel of barley-meal every day. He gave it them in a trough, and continued this for two months, when he killed them, and found them to be very good meat; weighing from 28 to 33 ſtone *per* hog. One of them, being very large, weighed 58 ſtone. The neat value of his hogs, when killed, amounted to 52*l.* 17*s.* 4*d.* The whole expence of his barley-meal with which he thickened the waſh, amounted to 3*l.* 18*s.* 9*d.*; of the firing to boil them, at 5*d.* *per* day, 1*l.* 10*s.*; of a boy to look after them for three months, at 6*d.* *per* day, 2*l.* 5*s.*; which ſums added to the expences attending the parſneps, prime coſt of the hogs, &c. amount in the whole to 35*l.*; ſo that his profit upon this article only, is 17*l.* 16*s.* 8*d.* which remains to be carried to the account of the parſneps. After his hogs were killed, he kept four dairy cows upon the remainder of the parſneps for three months, which at 1*s.* 6*d.* *per* week, amounted to 3*l.* 12*s.*; and this ſum added to the 17*l.* 16*s.* 8*d.* before mentioned, makes the neat profit on the one acre of parſneps to be 21*l.* 8*s.* 7*d.* But he ſays, he muſt obſerve, that giving his dairy cows the parſneps, anſwered his purpoſe greatly, by increaſing their milk, and making the butter much richer and finer than turnips or carrots, which he had given them long before; the manner in which he gave the parſneps was, cutting them in pieces. On finding the parſneps agree with his hogs and cows ſo well laſt year, he now determined to give them to his horſes; and having five that were making up for ſale, he begun with giving them a very few the firſt week. He obſerved then that they agreed with them extremely well, and he therefore gave them a larger quantity, which made them thrive very faſt, and determined him to continue giving them the parſneps, which ſaved him a great deal of hay, as he found they had occaſion for very little of it. He kept them in this manner for ten weeks, when he ſent them to Mr. Bever's repoſitory, where they were ſold for forty guineas each horſe. The manner in which he gave them the parſneps was, cutting them in ſmall pieces, and throwing them into the manger. He calculates the expence half a guinea *per* week, for the parſneps for each horſe, which amounts to 26*l.* 5*s.* to be carried to the account of the parſneps for this year. And he adds, that at the ſame time he began fattening an ox, which coſt him 4*l.* 10*s.* from the plough. He was thirteen weeks in fattening, and ate nothing but parſneps the whole time. He then ſold him to Job Spratley, a butcher at Guildford, for 2*s.* 8*d.* *per* ſtone, weighing 102 ſtone 6lb., which amounted to 13*l.* 4*s.* 4*d.*; excluſive of the above, he had within him 22 ſtone 6lb. of looſe fat, which was more than ever was known to be taken out of a bullock of that weight in the town of Guildford, and it was remarked by many, that finer beef never was eaten. He mentions theſe particulars, in order to ſhew the great uſe of parſneps, as he is convinced by experience, they are preferable to carrots or turnips. But to proceed on in his account; the profit upon this bullock amounted to 9*l.* 4*s.* 4*d.* which he alſo carries to the account of the parſneps. And, the remainder of his parſneps he gave to ſeven dairy cows eleven weeks, at 1*s.* 6*d.* *per* week each, which amounts to 5*l.* 15*s.* 6*d.* So that the net profit (after deducting 6*l.* 12*s.* *per* acre for the neceſſary expences attending the parſneps, as *per* the calculation for laſt year) amounts to 28*l.* 10*s.*, beſides a great many of the parſneps that he gave occaſionally to his ſtore hogs and cattle, which he valued at 3*l* 10*s.* This ſtatement fully ſhews the vaſt advantage of cultivating this ſort of crop, where the farmer has a ſoil proper for their being grown upon.

It has been ſtated, that when chopped and uſed with dry cut meat, horſes eat them freely, and are kept in good condition with them. Parſneps are alſo found an excellent, wholeſome, and very nouriſhing food for cattle in other countries.

And in France they have been uſed to great advantage to fatten cattle. Hogs have no other food in winter, and bullocks and oxen thrive well upon it. Cows fed with parſneps give more milk than with any other winter fodder, and it yields better butter than the milk of cows nouriſhed with any other ſubſtance. Horſes fatten with this food; though ſome pretend that it renders them leſs mettleſome, and hurts their legs and eyes.

And cattle eat theſe roots raw at firſt, ſliced lengthwiſe; and when they begin not to reliſh them, they are cut in pieces, put in a large copper, preſſed down there, and boiled with only ſo much water as fills up the chaſms between them. They then eat them very greedily, and continue to like them.

And in addition to their advantages in theſe ways, the tops afford a large portion of green food for theſe ſorts of live ſtock, either by having them cut off when taken up, or by being conſumed in the field. In the laſt method, the moſt proper period of having them eaten is at the period when they begin to ſhrink and get dry.

In reſpect to their being taken up and preſerved, they may be dug up with three-pronged forks in the beginning of the autumn ſeaſon, as potatoes, and be packed up in dry ſheds in the ſame manner.

On this plant it has been remarked by Mr. Young, that when the ſoils are ſuitable, the inducement to the cultivation is very ſtrong, as they fatten bullocks, as well as oil cake, and are of great uſe with hogs. They have alſo the valuable property of preparing the land in an excellent manner for grain crops.

To ſave the ſeeds of this plant in the moſt advantageous way, ſome of the longeſt, ſtraighteſt, and largeſt roots ſhould be ſingled out and planted about two feet aſunder, in a place where they will be defended from the ſtrong ſouth and weſt winds; for the ſtems of the parſneps generally grow to a great height, and are very apt to be broken by ſtrong guſts of wind, if they are expoſed thereto. The ground ſhould alſo be kept clear from weeds; and if the ſeaſon ſhould prove dry, watering the plants moderately twice a-week will increaſe the quantity, and improve the quality of their ſeeds, which will be ripe about the end of Auguſt, or the beginning of September, when the heads ſhould be carefully cut off, and ſpread upon a coarſe cloth for two or three days to dry. The ſeeds ſhould then be beaten off, and put up for uſe. But neither theſe nor carrot-ſeeds ſhould be depended on after they are above a year old, as they ſeldom grow well.

PARSNEP, *Cow*. See HERACLEUM.

PARSNEP, *Prickly*. See ECHINOPHORA.

PARSNEP, *Water*, the name of a ſpecies of *Sium*; which ſee.

PARSOI, in *Geography*, a town of Hindooſtan, in Baglana; 17 miles S.W. of Naderbar.

PARSON, *Perſona eccleſiæ*, the rector or incumbent of a pariſh-church; who has full poſſeſſion of all its rights.

He is ſaid, by ſome, to be thus called by way of eminence; the revenues of a church being deſtined to maintain *magnam perſonam*; or, as ſome will have it, becauſe he is bound by virtue of his office, *in propria perſona ſervire Deo*; whence *imperſonare*, in old charters, is to put in poſſeſſion of a parſonage, &c. Or, according to others, becauſe the original parſons, *perſonæ*, were, in reality, only dignitaries, and poſſeſſed benefices, which gave them ſome perſonal pre-eminences in the church or chapter, but no power. Or, laſtly, according to others, becauſe the parſon, for his time, repreſents his church, being in himſelf a body corporate, and ſuſtaineth the perſon thereof, as well in ſuing, as being ſued, in any action touching the ſame.

Some diſtinguiſh between a rector and parſon: the rector, ſay they, is where the vicarage is endowed; and the parſon, *perſona*, where the parſonage is without a vicarage: the diſtinction ſeems new and ſubtle. Bracton apparently uſes rector and parſon as ſynonimous terms.

For the difference between a parſon and vicar, ſee VICAR. The method of becoming a parſon or vicar is much the ſame. To both the following four requiſites are indiſpenſible: *viz.* *holy orders*, *preſentation*, *inſtitution*, and *induction*; which ſee reſpectively. There are many ways by which a parſon or vicar may ceaſe to be ſo: *viz.* by death, by ceſſion in taking another benefice, by conſecration, by reſignation, and by deprivation. See CESSION, CONSECRATION, RESIGNATION, and DEPRIVATION.

Formerly, he who had a church by inſtitution and induction, only for his own life, was called *parſon mortal*: but any collegiate or conventual body, to whom the church was for ever appropriated, was called *parſon immortal*.

Some, again, make a diſtinction between *parſon* ſimply, and parſon *imparſonee*, or imperſonated.

Parſon *imparſonee* is the rector or incumbent in poſſeſſion of a pariſh-church, whether preſentative or impropriate, and with whom the church is full: or a parſon *imparſonee* is a clerk preſented, inſtituted, and inducted into a rectory, and, therefore, in complete poſſeſſion.

Parſon ſimply, they contend, is properly the patron, or he that has the right of a preſentation: called *parſon*, becauſe, before the Lateran council, he had a right to the tythes, in reſpect of his liberality in erecting or endowing the church, *quaſi ſuſtineret perſonam eccleſiæ*.

It is certain, in the regiſter of writs, *perſona imperſonata* is uſed for the rector of a benefice preſentative: and, in Dyer, a dean and chapter are ſaid to be *parſons imparſonees* of a benefice appropriated to them. So that *perſonata* ſeems only changed into *imperſonata*, in reſpect of the poſſeſſion of the benefices. See Coke on Litt. fol. 300.

PARSON'S *Iſland*, in *Geography*, a ſmall iſland near the coaſt of Maine. N. lat. 44° 36'. W. long. 67° 25'.

PARSON'S *Town*, a town of the ſtate of North Carolina; 60 miles W. of Saliſbury.—Alſo, a poſt-town of the King's county, Ireland, formerly called *Birr*; under which name an account of it has been already given in this work.

PARSONAGE, a rectory, or pariſh-church, endowed ordinarily with houſe, glebe, and tythe, for the maintenance of a miniſter, with cure of ſouls, within ſuch pariſh.

There may alſo be a rectory or parſonage without any glebe land, except the church and church-yard; and without any tythes, or other fixed income, except an annual payment, or pound rate.

PARSONAGE, in its original, and, at this day, in other countries, is a benefice, which gives ſome prerogative, or pre-eminence in a church or chapter, but without any juriſdiction.

The ancient parſonages gave a little honour and dignity as to the perſon, but they gave no power; whence, apparently, the name, intimating the effect of the dignity to be reſtrained to the perſon, *perſona*, *parſon*.

Such are ſtill the chantries in ſeveral churches, and the ſubchantries in others.

Some, as Oldrade, &c. extend the word parſonage to dignitary, and comprehend under it the archdeacons, deans, &c. in cathedrals; but this ſeems to be ſtraining the ſenſe of the word.

In effect, the canoniſts uſe the term very differently; ſome applying it to all who have any prerogative in the choir or chapter, over the other canons, either in options, ſuffrages, elections, or barely in place and proceſſion; thus confounding it with dignity; while others apply it to ſimple rectors, &c.

PARSONS, JAMES, in *Biography*, a phyſician, anatomiſt, and antiquary, was born at Barnſtaple in 1705. His father being appointed a barrack-maſter in Ireland, he was taken over to that country while an infant, and received his early education at Dublin. Chooſing medicine for his profeſſion, he went to Paris for the purpoſe of cultivating that ſcience, and attended the courſes of all the eminent teachers of that metropolis. He afterwards viſited ſome other continental ſchools, and received the degree of doctor of phyſic at Rheims, in 1736. He ſettled in London, and was employed by Dr. James Douglas as his anatomical aſſiſtant. His practice was directed principally in the obſtetrical line, and his reſidence was in Red-Lion-ſquare. In 1740, he was elected a fellow of the Royal Society, and he maintained an intimate connection with the moſt diſtinguiſhed of its members. He was alſo a fellow of the Society of Antiquaries; and he correſponded with ſeveral of the moſt learned and ſcientific men abroad. He was every where reſpected for his uſeful and extenſive acquirements, and the goodneſs of his heart, and died much regretted in 1770.

Dr. Parſons left the following works. 1. "A Mechanical and Critical Enquiry into the Nature of Hermaphrodites," 8vo. 1741, which was principally a compilation. 2. "A Deſcription of the Urinary Human Bladder, and the Parts belonging to it, with Figures," 1742, which was intended to diſprove the reported utility of Mrs. Stephens' medicines for the ſtone. 3. "Philoſophical Obſervations on the Analogy between the Propagation of Animals and that of Vegetables," 8vo. 1752. As an antiquary, Dr. Parſons diſtinguiſhed himſelf by an elaborate publication, entitled "Remains of Japhet; being hiſtorical enquiries into the affinity and origin of the European languages," 4to. 1767. This is a performance of great erudition and reſearch; but the author, like moſt of the ſpeculators upon theſe topics, is induced, by his zeal for eſtabliſhing a ſyſtem, to place too much confidence in fabulous traditions and dubious remains. He finds, in the inhabitants of the Britiſh iſles, the lineal deſcendants of Gomer and Magog, with the veſtiges of their primitive language. Beſides theſe ſeparate publications, Dr. Parſons was the author of ſeveral papers, printed in the Philoſophical Tranſactions; *viz.* "Croonian Lectures on Muſcular Motion," 1745, in which he conſiders the muſcular fibres as tubes; "Human Phyſiognomy explained," in the Appendix to the Philoſ. Tranſ. for 1746; and ſeveral other papers on anatomical and phyſiological ſubjects, eſpecially an account of the diſſection of a rhinoceros, which is valuable, and illuſtrated by good figures. Gen. Biog.

PARSONS, ROBERT, a muſician of the 16th century, born at Exeter, admitted early into the chapel royal, and afterwards appointed organiſt at Weſtminſter Abbey. He was extremely dexterous in writing upon a plain ſong, moving in ſlow notes of equal value; but the building harmony upon an ancient eccleſiaſtical chant, was no more than written diſcant, which is ſtill an exerciſe for young contrapuntiſts in the conſervatorios of Naples, and practiſed in Italy by all writers for the church. During the 16th century, many of our great harmoniſts diſplayed wonderful ſcience and abilities in theſe laborious undertakings, and like ſome of the proud ſovereigns, that were led in triumph by the ancient Romans, preſerved an appearance at leaſt of dignity and independence, even in chains. There are ſome excellent compoſitions by Parſons in the MSS. of Chriſt-church college, Oxford, particularly an "Ave Maria," and an "In Nomine."

PARSONSFIELD, in *Geography*, a poſt-town of America, in York county, in the province of Maine; 36 miles N.W. of Portland; incorporated in 1785, and containing 1350 inhabitants.

PARSONSIA, in *Botany*, received that appellation from Mr. R. Brown, in memory of James Parſons M.D. F.R.S. author of "A Microſcopical Theatre of Seeds," publiſhed in 1745, in quarto, as well as of an octavo volume, entitled "Philoſophical Obſervations on the Analogy between the Propagation of Animals and that of Vegetables," printed in 1752. He wrote numerous zoological papers, in the Philoſophical Tranſactions, and died in 1770. (See his article.) Dr. P. Browne, in his Hiſtory of Jamaica, 199, had already dedicated a plant to the ſame purpoſe; but that is *Lythrum Parſonſia* of Linnæus, and really belongs to Jacquin's genus of *Cuphea*. Brown in Tr. of the Wern. Soc. v. 1. 64. Prodr. Nov. Holl. v. 1. 464. Claſs and order, *Pentandria Monogynia*. Nat. Ord. *Contortæ*, Linn. *Apocineæ*, Juſſ. Br.

Eſſ. Ch. Corolla funnel-ſhaped, naked and pervious at the mouth; limb in five deep, recurved, equilateral ſegments. Stamens prominent. Filaments thread-ſhaped, inſerted into the lower part of the tube. Anthers arrow-ſhaped, adhering to the middle of the ſtigma, their hinder lobes deſtitute of pollen. Germens two, ſometimes but one, of two cells. Style one. Stigma dilated. Scales at the baſe of the germen five, either ſeparate or united.

A genus of twining ſhrubs, with oppoſite *leaves*. Their *flowers* cymoſe, ſometimes racemoſe, and either ſituated between the footſtalks, or terminal. Mr. Brown propoſes to divide them thus.

Sect. 1. *American ſpecies. Germen two. Follicles diſtinct.*

1. P. *corymboſa*. Corymboſe Parſonſia. (Echites corymboſa; Jacq. Amer. 34. t. 30. Linn. Syſt. Nat. ed. 12. v. 2. 190. Willd. Sp. Pl. v. 1. 1240. Swartz. Obſ. 105.)—Cluſters corymboſe, terminal. Leaves elliptic-lanceolate, acute, ſmooth.—Native of mountainous places in Hiſpaniola, flowering in November. *Stem* ſhrubby, ſlender, climbing to the height of 20 feet, by twining round other plants. A white milky juice is diſcharged from every part, when wounded. *Leaves* oppoſite, ſtalked, two or three inches in length, hardly an inch broad, elliptic-oblong, acute, entire, ſmooth; ſhining above; pale beneath. *Flowers* numerous, purple, ſmall, in terminal, compound, corymboſe, ſpreading reddiſh cluſters. *Follicles* very long, horizontal, reflexed, roundiſh, obtuſe.

2. P. *floribunda*. Many-flowered Parſonſia. (Echites floribunda; Swartz. Ind. Occ. v. 1. 534. Willd. Sp. Pl. v. 1. 1239.)—Cluſters corymboſe, axillary. Leaves ovate, pointed with parallel ribs. Branches ſtraightiſh.—Native of buſhy places on the hills of Jamaica.—The *branches* of this are, according to Swartz, nearly erect, flexible, tough, and ſomewhat climbing among the ſurrounding buſhes, but not twining; they are ſmooth, furrowed in the upper part, often reddiſh. *Leaves* ſtalked, oppoſite, ovate, with a ſhort point, entire, furniſhed with numerous, parallel, but not prominent, nerves, which are wanting in the foregoing ſpecies; their ſubſtance is coriaceous and laurel-like; their ſurface ſmooth and ſhining, paler beneath. *Cluſters* axillary, compound, corymboſe, ſhorter than the leaves. *Flowers* ſmall, whitiſh.

3. P. *ſpicata*. Spiked Parſonſia. (Echites ſpicata; Jacq. Amer. 34. t. 29. Linn. Syſt. Nat. ed. 12. v. 2. 190. Willd. Sp. Pl. v. 1. 1240.)—Spikes axillary, oppoſite, denſe, much ſhorter than the leaves. Leaves ovate-oblong.—Gathered by Jacquin near Carthagena, in cloſe woods, where it twines round the loftieſt trees, to the height of more than ſixty feet. The *ſtems* are an inch in diameter, ornamented, here and there, with alternate, leafy branches, about eighteen inches long. *Leaves* ſix inches long, veiny, nearly ſmooth. *Spikes* an inch and a half long, denſe, rarely divided, compoſed of numerous ſmall white *flowers*, with ſcarcely any ſcent. Jacquin could never meet with the *fruit*, the *flowers* being all, as far as he could diſcover, in the courſe of many months, abortive. They are chiefly produced in July and Auguſt.

Sect. 2. *Auſtralaſian ſpecies. Germen of two cells. Follicles cohering lengthwiſe.*

4. P. *capſularis*. New Zealand Parſonſia. (Periphoca capſularis; Forſt. Prodr. 20. Willd. Sp. Pl. v. 1. 1251.)—Cluſters cymoſe, downy, many-flowered. Leaves obovate, emarginate, ſmooth.—Gathered by Forſter in New Zealand.—His ſpecimen before us does not anſwer to his ſpecific character, the *leaves* being by no means lanceolate, but obovate, emarginate, an inch or inch and half long, entire, ſmooth on both ſides, paler beneath. The *ſtem* is twining. Young *branches* downy. *Flowers* numerous, in repeatedly branched, downy-ſtalked, lax, cymoſe cluſters, or panicles, which terminate the ſhort lateral leafy ſhoots. In ſize and general appearance the *flowers* reſemble thoſe of *P. corymboſa*, but of their colour we know nothing. The *calyx* is downy, as well as the outſide of the *corolla*. We know not to what the ſpecific name alludes.

5. P. *velutina*. Velvet-leaved Parſonſia. Br. n. 1.—"Cymes ſtalked, oppoſite. Leaves heart-ſhaped, ovate, acute or ſomewhat pointed, downy."—Gathered by Mr. Brown in the tropical part of New Holland.

6. P. *mollis*. Soft-leaved Parſonſia. Br. n. 2.—"Cymes divided. Leaves lanceolate, pointed, downy and ſoft."—From the ſame country.

7. P. *lanceolata*. Smooth-lanceolate-leaved Parſonſia. Br. n. 3.—"Cymes divided. Leaves lanceolate, pointed, ſmooth."—Gathered, like the two laſt, in the tropical part of New Holland, by Mr. R. Brown, whoſe ſpecific characters are all we know of the hiſtory of theſe three ſpecies. This genus is entirely a ſtranger at preſent in the gardens of England; and is, as its author remarks, but too nearly related to *Lyonſia*, ſee that article, from which it differs only in having diſtinct *follicles*, or at leaſt merely cohering in ſome ſpecies, whereas in *Lyonſia* they are perfectly united into a cylindrical capſule, divided into two cells by a parallel diſtinct partition.

PART, Pars, a portion of ſome whole, conſidered as divided, or as diviſible.

Quantity is diviſible into an infinite number of parts, not equal parts, but proportional ones. Philoſophy is divided into four parts; *viz.* logics, ethics, phyſics, and metaphyſics.

The ſchoolmen uſually diſtinguiſh parts into logical and phyſical.

Part, *Logical*, is that referring to ſome univerſal as its whole; in which ſenſe, the ſpecies are parts of a genus; and individuals, or ſingulars, are parts of the ſpecies.

Part, *Phyſical*, is that which, though it enter the compoſition of a whole, may yet be conſidered apart, and under its own diſtinct idea; in which ſenſe, a continuum is ſaid to conſiſt of parts.

Phyſical parts, again, are of two kinds, homogeneous and heterogeneous; the firſt are thoſe of the ſame denomination with ſome other; the ſecond of a different one. See Homogeneous, &c.

Parts, again, are diſtinguiſhed into ſubjective, eſſential, and integrant.

Part, *Subjective* or *Potential*, is the ſame with logical part; *viz.* that contained in ſome univerſal whole, not in act, but only in power. As, man and horſe are in animal: Peter and Paul are in man.

Part, *Eſſential*, is that whereby, with the concurrence of ſome other, an eſſential whole is conſtituted. Thus, the body and ſoul are eſſential parts of men.

Part, *Integrant*, or *Integral*, is that which is neceſſary to the integrity of the whole. As, a head is of a man, &c.

Anatomiſts divide the parts of a human body into containing and contained; ſimilar and diſſimilar; and the ſimilar, again, into ſpermatic and ſanguineous, &c.

Parts, *Noble*, or *Eſſential*, are thoſe abſolutely neceſſary to life. As the heart, lungs, liver, brain, &c.

Parts, *Natural*, or *Genital*, popularly called *privy parts*, are thoſe miniſtering to generation.

The fineſt writings of phyſicians are thoſe which treat of the uſe of the parts. Galen's works, "De Uſu Partium," afford infinite arguments of the being and wiſdom of God.

Nature, we ſay, always diſcharges itſelf on the weak part, the diſeaſed part, the part affected, &c.

Parts, *Conſent of.* See Consent.

In chemiſtry, bodies are ſaid to be reſolved into their minute parts, their component parts, &c.

That art is ſaid to ſeparate the homogeneous parts from the heterogeneous; and the volatile, ſubtile, ſulphureous, mercurial, &c. parts from the fixed, craſs, earthy, viſcid, &c. parts.

Part, in *Geometry* and *Aſtronomy,* is applied to the diviſions of lines and circles.

The ſemidiameter of the circle, called alſo the radius, and whole ſine, is divided into a hundred thouſand parts; and the circumference of the circle into three hundred and ſixty parts or degrees, in which two diviſions all the celeſtial computations are made.

Parts, *Aliquant* and *Aliquot.* See the adjectives.

Part, *Proportional,* is a part or number agreeable and analogous to ſome other part or number: or a medium to find ſome number or part unknown by proportion and equality of reaſon.

Parts, *Similar,* are thoſe which are to one another as their wholes are to one another.

Part, *Organical.* See Organical.

Part, in *Muſic,* denotes a piece of the ſcore or partition written by itſelf, for the convenience of the muſician; or it is one or more of the ſucceſſions of ſounds which make the harmony, written apart.

Or, the parts are the ſounds made by ſeveral perſons ſinging or playing in a concert.

Muſic in parts was unknown to the ancients; they had but one part; all their harmony conſiſted in the ſucceſſion of notes, none in the conſonance.

There are four principal parts; the treble, baſs, tenor, and counter-tenor.

Some compare the four parts in muſic, to the four elements: the baſs, they ſay, repreſents the earth; the tenor, water; counter-tenor, air; and the treble, fire.

Part, in *Trigonometry.* In a rectangular ſpherical triangle, A B C, (*Plate* I. *Trigonometry, fig.* 3.) that part lying between two others, conſidered as extremes, is called, by ſome authors, the middle part. Thus, if A B and B C be the extreme parts, the angle B will be the middle part.

If the parts, conſidered as extremes, be contiguous to the middle part, and one of the extremes; thoſe are called conjunct parts. Thus, if B be in the middle part, A B and B C will be in the conjunct parts.

If, between the extremes and the middle part, there lie another, beſides a right angle; then the parts are ſaid to be disjunct or ſeparate; *e.g.* if B be the middle term, A C and C will be disjunct parts; becauſe, between the middle part B, and the extreme C, there lies the hypothenuſe B C, and between the middle part B, and the other extreme A C, beſides the right angle, there lies the leg A B.

Thoſe parts either joined to the middle part, or ſeparated from it, are called lateral parts. See Circular *Parts,* Triangle, and Trigonometry.

Parts *of Speech,* in *Grammar,* are all the ſorts of words which enter the compoſition of diſcourſe.

The grammarians uſually admit of eight parts of ſpeech; *viz.* noun, pronoun, verb, participle, adverb, conjunction, prepoſition, and interjection. See each in its proper place, Noun, Pronoun, &c.

Part *of Fortune,* in *Judiciary Aſtrology,* is the lunar horoſcope; or the point wherein the moon is, at the time when the ſun is in the aſcending point of the eaſt.

The ſun in the aſcendant is ſuppoſed, according to this ſcience, to give life; and the moon diſpenſes the radical moiſture, and is one of the cauſes of fortune. In horoſcopes the part of fortune is repreſented by a circle divided by a croſs.

Part, in the *Manege,* in French, *partir,* is uſed to ſignify the motion and action of a horſe when put on at full ſpeed. From the horſe's parting to his ſtop there are commonly two hundred paces of ground. To make your horſe part with a good grace, you muſt put your bridle three fingers lower, and preſs gently with your heels, or only with the calves of your legs. See Echaper.

To Part *again.* See Repart.

Part *Owners,* thoſe that are concerned in ſhip matters, and who have joint ſhares therein.

Part *and Art,* in *Law.* See Art.

PARTABPOUR, in *Geography,* a town of Bengal; 25 miles E. of Midnapour. N. lat. 22° 21′. E. long. 87° 50′. —Alſo, a town of Hindooſtan, in Oude; 10 miles E. of Fyzabad.

PARTAPAH, a town of Hindooſtan, in Bahar; 13 miles N. of Hajypour. N. lat. 25° 54′. E. long. 85° 28′.

PARTE, in *Italian Muſic,* implies the voice part of a ſong, or *la parte che canta.*

Parte, *Ex,* in *Law.* See Ex.

PARTENI, in *Geography,* a river of Natolia, which runs into the Black ſea, near Amaſieh.

PARTENKERCH, a town of Bavaria, in the biſhopric of Freyſing; 6 miles S. of Weilkaim.

PARTERRE, in *Gardening,* a ſpacious level ſpot of ground in the pleaſure garden, divided into many little partitions of different figures and dimenſions; by means of edgings or lines of dwarf-box, or by verges of graſs turf, with fine gravel walks between, &c. Theſe ſorts of works were formerly in great eſtimation, and were commonly ſituated directly in the front of the houſe, generally the whole width, and ſometimes more, extending proportionably in length: and where the intermixture of the figures is artfully diſpoſed, they ſtrike the eye very agreeably, and afford an ornamental effect at all ſeaſons.

For the moſt part, the general figure of a parterre is an oblong or long ſquare, about as long again as broad: a level open ſpot in ſome conſpicuous part, as above, is moſtly choſen for the purpoſe: firſt forming a long bed, or border of earth, all round for a boundary; the internal ſpace within this border being then traced out into various little partitions, or incloſures, artfully diſpoſed into different figures correſponding to one another, ſuch as long ſquares, triangles, circles, various ſcroll-works, flouriſhes of embroidery, and various other devices; all of which are formed either by lines of dwarf-box, with intervening alleys and tracks of turf, ſand, fine gravel, ſmall ſhells, &c. as above, or formed ſometimes entirely of verges of fine turf, diſpoſed into wide or narrow compartiments, as the figure may require: and ſometimes they conſiſt of box-edgings, and tracks of turf, together; the partitions, or beds of earth, formed by the tracks of box and turf, &c. being planted with ſome choice flowers; but no large plants to hide the form, as the regularity of it, in the artful diſtribution of the different figures, is intended as a decoration to the whole place long after the ſeaſon of the flowers is over. Some prefer parterres compoſed entirely of turf and beds of earth, perfectly even, without any other figure than the long ſquare, forming a border of earth all round, within which are ſpots of graſs, and beds or borders of earth of different ſizes. and ſometimes parterres, with box-edgings, are formed into labyrinths, or mazes; and ſome are made to repreſent coats of arms with the proper ſupporters. All crowded deſigns, however, loſe their effect. But works of this ſort are now almoſt wholly in diſuſe in this country: however, for the ſake of variety, they may, on ſome occaſions, ſtill be admitted, though not immediately in the front of the houſe, but in ſome convenient place.

Parterres, therefore, vary in their forms, extents, and kinds from thoſe of the common flower gardens to be met with in many parts of the country, or the remains of thoſe old French parterres, which contained the ſhapes of family arms, animals, &c. cut in the trees, and ſhell-works of different ſorts. Nuneham and Beaumont-hall have gardens of the firſt kind; and Wentworth-caſtle, and Leven's-park, furniſh examples of the latter deſcription.

It is noticed by Mr. Loudon, that in *ornamental* gardens and parterres of every kind, the ſoil ſhould be unmanured, and rather poor than otherwiſe; but the ſituation and expoſure ſhould be good, and the ſurface of the ground beautifully varied. The extent of them muſt be in proportion to the nature of the place to which they belong. In general they need not be large. In almoſt every kind, a few trees and ſhrubs ſhould be introduced, to remove from the general view the appearance of inſipidity, and to break it into ſeparate ſcenes; one of which alone ſhould be ſeen at a time, that the extent of viſion being circumſcribed, the ſpectator may thus be induced to examine or admire the minute beauties of ſingle objects, or ſmall compoſitions. And it is obſerved, that where parterres are intermingled with lawns, thoſe diſguſting lines of ſeparation at the edges of walks, or round groups and dug patches of flowers or ſhrubs, which abound every where, ſhould not be introduced; the gravel of the walk, and the earth at the edges of the dug patches or groups, ought to be kept nearly on a level with the graſs on the lawn. Where much culture is requiſite in the groups, the line of ſeparation ſhould be delicate and graceful; and where this is not neceſſary, or not much attended to, both the lines of the walk, and the lines of the dug group, or patch, ſhould blend and harmonize, and, in a natural eaſy manner, glide inſenſibly into each other. The moſt remarkable varieties of parterres are theſe.

1ſt. The general flower garden parterre, that ſhould contain ſuch a variety of beautiful trees, ſhrubs, and flowers, &c. as that a number of each will be in perfection every month of the year, particularly in the ſummer ſeaſon. They ſhould be placed in irregular groups and thickets, of different ſizes, gliding into one another on ſmooth lawn, beautifully varied, and broken into ſmall confined ſcenes by trees and ſhrubs of the moſt elegant ſorts. And throughout the whole, ſmooth gravel walks ſhould wind in a graceful and eaſy manner. In this kind of garden parterre, a greenhouſe and ſtoves for exotic plants and trees may be placed. In the ſummer ſeaſon, thoſe plants which are reared in the green-houſe may be diſperſed throughout the garden; and the pots being ſunk in the earth, the plants will appear as natives; or they may be arranged in a ſituation by themſelves, and retain their own character; and, during this ſeaſon, the houſe may be filled with balſams, coxcombs, amaranths, and other tender annuals. And few elegant ſeats, both covered and uncovered, may alſo be introduced; but no grottos, urns, buſts, or temples, which have all their proper places in ornamental ſcenery, but which, as has been formerly remarked, are unſuitable to this kind of ſcene.

2dly. The winter garden parterre, which ſhould contain principally ſuch trees, ſhrubs, plants, and other kinds of growing vegetables, as are in perfection, or retain their verdure, during this ſevere ſeaſon; as moſt of the evergreen tribe; and ſeveral flowering plants, as aconite, Chriſtmas-roſe, &c. and they ſhould be *grouped* and arranged in the *natural* manner, a dry gravel walk being carried and conducted throughout the whole. In regard to ſituation, this ſort of parterre ſhould conſtantly be placed near to the manſion or reſidence, in order that it may be conveniently and comfortably approached in the winter months, and the conſervatory ſhould be occaſionally placed in it.

3dly. The ſpring garden parterre, which ſhould comprehend all thoſe deciduous ſhrubs and trees which bloſſom or put forth leaves the moſt early in the ſpring, ſuch as the almond, the mezereon, the fringe tree, and ſeveral others which poſſeſs the ſame qualities. Alſo all the early-blowing flowers, as well thoſe of the bulbous, as the fibrous-rooted kinds, as the narciſſus, crocus, iris, cowſlip, auricula, hepatica, and many others. Here the walks ſhould likewiſe be gravelled, and but very little, or no lawn at all, appear to the eye.

And it is proper that this ſort of garden parterre ſhould contain a houſe or other erection for heaths, auriculas, and other early-flowering plants. It ſhould alſo be placed near to the former, and be connected with it and the manſion or reſidence by a comfortable gravel walk, that they may be approached at any ſeaſon. The ſoils of both ſhould be light and dry, the ſituations well expoſed to the ſun, and ſheltered from the north and eaſterly blaſts or ſtorms.

4thly. The autumn garden parterre, which ought to comprize ſuch a collection of ornamental plants and trees as may be in full perfection at this ſeaſon of the year, as moſt ſorts of annual flowers when late ſown; many kinds of herbaceous plants, as the aſter, ſolidago, and ſeveral others, as well as various trees and ſhrubs that continue a long time in perfection, as the honey-ſuckle, the roſe, acacia, and ſome others.

5thly. The bulbous root parterre, which requires to be ſomewhat different in form and deſign from any of theſe. The general form in this ſort ſhould be as regular as poſſible. It may be a ſquare, a circle, or an oval, divided into compartiments, and each of theſe laid out into beds of three or four feet broad. In this ſort may be grown the different varieties of tulips, hyacinths, ranunculuſes, anemonies, and other ſimilar root plants, each being cultivated in its proper ſort of ſoil or earth, and ſuch a parterre may contain a ſtove or hot-houſe for the ixia and amaryllis tribe of plants, as well as for other ſimilar bulbous exotics, and have near it the auricula and carnation ſhed.

6thly. The parterre garden may alſo be formed ſolely for the purpoſe of cultivating any particular family, genus, or ſpecies of ſhrubs or plants. In this way there may be a parterre garden of roſes, of annual flowers, of pinks and carnations, of double flowering plants and trees, of variegated kinds only, and ſeveral others; alſo parterres of ferns, of graſſes, and of the vegetables, natives of any particular country, as thoſe of the Cape, America, Siberia, the Alps, or of any other part of the world.

Parterres may likewiſe exiſt in the forms of the ancient Britiſh flower gardens, the Chineſe gardens, the Grecian, Roman, Italian, French, and Dutch gardens, as well as in thoſe of the modern Britiſh flower gardens.

And they are not only pleaſing and amuſing in themſelves, but when introduced in a pleaſure ground, by their contraſt with other ſcenes, and with one another, may add to the variety and intereſt of that kind of ornamental ſcenery.

PARTESTI, in *Geography*, a town of Bukovina; 18 miles W. of Sueſeva.

PARTHA, a river of Saxony, which runs into the Pleſs, near Leipſic.

PARTHA, in *Mythology*, a name of the Phallic emblem, worſhipped by certain ſects of Hindoos, and called by them *Linga*; ſee that article. The Part'ha is, we believe, a domeſtic idol, made of the uſual conical form, with clay, and without any thing indecent in its appearance, for females to pay their daily adoration to. It is ſometimes placed under a tree, and circumambulated a certain number of times daily, eſpecially by barren females, in the hope of offspring. This ceremony is called *pradakſhna*, and is deſcribed under that word.

PARTHENAY, CATHERINE, in *Biography*, heireſs to the lordſhip of Soubiſe, was married, in 1568, to the baron de Pons, and afterwards, in 1575, to Renatus, viſcount Rohan. The celebrated duke de Rohan, who ſo courageouſly defended the Proteſtant cauſe in France during the civil wars of Louis XIII. was her eldeſt ſon. Catherine, one of her daughters, has rendered her name illuſtrious by the following anſwer which ſhe made to Henry IV. who ſolicited her favours: "I am too poor, ſire, to be your wife, and too proud to be your miſtreſs." She afterwards married the duke de Deux-Ponts. Catherine, the ſubject of this article, was at Rochelle at the time of its memorable ſiege, and when the place ſurrendered, ſhe and her daughters were ſent to the caſtle of Niort. She died in 1631, at the age of ſeventy-ſeven. She publiſhed poems in 1572, and likewiſe a tragedy, entitled "Holofernes," which was performed at Rochelle. She tranſlated the precepts of Iſocrates to Demonicus into the French language. Bayle. Moreri.

PARTHENAY, in *Geography*, a town of France, and principal place of a diſtrict, in the department of the Two Sevres, near the river Thoue. The place contains 3213, and the canton 6319 inhabitants, on a territory of 262½ kilometres, in 11 communes. The trade of the town, which is conſiderable, conſiſts in cattle and corn; 21 miles N.N.E. of Niort. N. lat. 46° 38′. W. long. 0° 10′.

PARTHENIA, is the title of a thin folio book of leſſons for the Virginal, that was engraved on copper, and publiſhed in the reign of king James I. under the following title: "Parthenia, or the Maidenhead of the firſt Muſicke that ever was printed for the Virginalls. Compoſed by three famous maſters: William Byrd, Dr. John Bull, and Orlando Gibbons, Gentlemen of his Majeſties moſt illuſtrious Chappel." Bird being here called "Gentilman of his Majeſties chappel," ſeems to imply, that he was ſtill living when it was publiſhed. King James died in 1525, and Bird in 1523. The three firſt movements in this collection, conſiſting of a *Preludium; Pavana;* ſir William Peder; and *a Galiardo;* are in G minor, and may be called a *Suite* of leſſons. The fourth and fifth movements, *Preludium;* and *Galiardo*, Mrs. Marye Brownlo, in C; and the ſixth, ſeventh, and eighth, *Pavana*, the earle of Saliſbury; *Galiardo primo*; and *Galiardo ſecundo*, Mrs. Marye Brownlo, in A minor; conſtitute what may likewiſe be regarded as two other *Suites de Pieces*, or ſets of leſſons.

PARTHENIA, or *Parthenos*, in *Mythology*, an epithet given to Minerva, becauſe ſhe is ſaid to have preſerved her virginity. When the Rhodians neglected the worſhip of that goddeſs, and their care in improving the fine arts, the Athenians began to diſtinguiſh themſelves in this reſpect, and took her for their patroneſs. Accordingly they dedicated to her a magnificent temple under the name of Parthenos, the virgin. Phidias adorned it with a ſtatue of gold and ivory, which was a maſter-piece; and the Athenians alſo celebrated to her honour a feſtival, which was afterward called "Panathenaia." *Parthenos* was alſo a name given to Juno, from a notion that this goddeſs, by bathing herſelf every year in the fountain called Canathos, which was at Nauplia, recovered her virginity; a fable, founded, according to Pauſanias, upon the ſecret myſteries that were celebrated in honour of this goddeſs.

PARTHENIA, in *Ancient Geography*, a town of Illyria, according to Polybius; called by Julius Cæſar "Oppidum Parthinorum."

PARTHENIAS, a river of Triphylia, which ran from N. to S. and diſcharged itſelf into the river Alpharus, near Olympia.

PARTHENIASTRUM, in *Botany*. See PARTHENIUM.

PARTHENICUM, in *Ancient Geography*, a town of Sicily, upon the route from Lilybæum to Tyndaride, between Segeſtenæ and Hyccara, according to the Itin. of Antonine.

PARTHENIUM, KARANDIP, a village of the Tauric Cherſoneſus, in the narroweſt part of the ſtrait called Cimmerian Boſphorus, 60 ſtadia above Panticapæum, and overagainſt Achillæum. Strabo.—Alſo, a promontory of the Tauric Cherſoneſus, nearly S. of Cherſoneſus. Near this promontory was a temple and a ſtatue of the goddeſs of the country.—Alſo, a town of the Peloponneſus, in Arcadia. Pliny.—Alſo, a town of Aſia, in Myſia, in the vicinity of the Troade. Pliny.—Alſo, a town of Greece, in the iſland of Eubœa.

PARTHENIUM *Mare*, the name of a part of the Mediterranean ſea, which bathed Aſia and Africa, in the place where theſe two regions of the globe joined each other. Macrobius.—Alſo, a promontory in the vicinity of the town of Heraclea.

PARTHENIUM, in *Botany*, a name adopted from Dioſcorides, whoſe παρθενιον however is ſufficiently well deſcribed, particularly in the compariſon of its leaves to thoſe of Coriander, for us to perceive that his plant is the Feverfew, *Matricaria Parthenium* of Linnæus, *Pyrethrum Parthenium*, Sm. Fl. Brit. 900, as all commentators have been agreed. The name, from παρθενος, *a virgin*, alludes to its reputed efficacy in ſome female complaints; ſee MATRICARIA and PYRETHRUM. The above name being therefore unemployed as a generic one, Linnæus applied it to a new genus, much reſembling the ancient herb in aſpect, and perhaps in ſenſible qualities, which Niſſol and Dillenius, on account of ſuch reſemblance, had called *Partheniaſtrum*. Linn. Gen. 489. Schreb. 636. Willd. Sp. Pl. v 3. 2385. Mart. Mill. Dict. v. 3. Juſſ. 191. Lamarck Illuſtr. t. 766. Gærtn. t. 168. (Argyrochæta; Cav. Ic. v. 4. 54)—Claſs and order, *Monoecia Pentandria*, Linn. rather *Syngeneſia Polygamia-neceſſaria*, as Willdenow, and even Linnæus in his earlier publications, have it. Nat. Ord. *Compoſitæ nucamentacea*, Linn. *Corymbiferæ*, Juſſ.

Gen. Ch. *Cal.* Common Perianth perfectly ſimple, of five ſpreading, roundiſh, flat, equal leaves. *Cor.* compound, convex: perfect florets ſeveral, in the diſk, each of one petal, tubular, erect, as long as the calyx, with a five-cleft regular border; female florets five, in the radius, ſcarcely taller than the others, each of one petal, tubular, ligulate, oblique, obtuſe, roundiſh, the length of the former. *Stam.* in the perfect florets, filaments five, capillary, the length of their corolla; anthers as many, thickiſh, ſcarcely cohering. *Piſt.* in the perfect florets, germen inferior with reſpect to the proper receptacle of the floret, but ſcarcely diſcernible; ſtyle capillary, rather ſhorter than the ſtamens; ſtigma none: in the female florets, germen inferior, heart-ſhaped, rather turbinate, compreſſed, large; ſtyle thread-ſhaped, the length of the petal; ſtigmas two, thread-ſhaped, as long as the ſtyle, rather ſpreading. *Peric.* none, except the calyx, which remains unchanged. *Seeds* of the florets of the diſk abortive; thoſe of the female flowers of the radius turbinate-heart-ſhaped, compreſſed, naked. *Recept.* very ſmall, convex. There are ſcales ſeparating the florets, in ſuch a manner that each female has two perfect ones at its back.

Eſſ. Ch. Receptacle chaffy, ſmall. Seeds obovate. Down none. Calyx of five leaves. Florets of the radius five; of the diſk numerous.

1. P. *Hyſterophorus.* Cut-leaved Baſtard Feverfew. Linn. Sp. Pl. 1402. Ait. Hort. Kew. ed. 1. v. 3. 345. (Argyrochæta bipinnatifida; Cavan. Ic. v. 4. 54. t. 378. Matricariæ Achaovan dictæ ſimilis, &c.; Pluk. Phyt. t. 45. f. 3.)—Leaves pinnatifid, many-cleft.—Native of Jamaica, and other parts of the Weſt Indies, as well as of Mexico. The *root* is annual. *Stem* much branched, two feet high. *Leaves* alternate, doubly pinnatifid, with rounded ſinuſes, nearly ſmooth. *Panicles* terminal, compound, ſpreading, of numerous ſmall white *flowers*, which have little beauty to recommend them, ſo that although the plant is raiſed every now and then in gardens, from foreign ſeed, it is ſeldom preſerved. Cavanilles was not aware of its being already deſcribed, when he ſaw it flowering at Madrid in July 1797, and therefore conſidered it as a new genus. He deſcribes the *ſtamens* as four only, the *anthers* forming a tube. The Linnæan ſpecific name alludes to the generic appellation given by Vaillant, founded on an obſcure anatomical compariſon.

2. P. *integrifolium.* Entire-leaved Baſtard Feverfew. Linn. Sp. Pl. 1402. Mill. Illuſtr. t. 80. Willd. Hort. Berol. 4. t. 4. (Partheniaſtrum helenii folio; Dill. Elth. 302. t. 225.)—Leaves undivided, oblong, toothed.—Native of North America; Michaux ſays Virginia and the hilly parts of Carolina. It has been 150 years, or more, in our gardens, flowering from June to the end of autumn. *Root* perennial. *Herb* much ſtouter and taller than the former, rough and harſh. *Leaves* ovate-oblong, acute, rigid, rough, coarſely crenate or toothed, with one rib and many tranſverſe veins; the upper ones claſping the ſtem; the lower larger, and ſomewhat ſtalked. *Flowers* in denſe, terminal, corymboſe panicles, white, ſaid to droop on the approach of night, which we have had no opportunity of obſerving.

PARTHENIUM, in *Gardening*, contains plants of the annual and perennial kinds, of which the ſpecies are the cut-leaved parthenium, or baſtard feverfew (P. hyſterophorus); and the entire-leaved parthenium (P. integrifolium).

Method of Culture.—The firſt ſort may be increaſed by ſowing the ſeeds on a hot-bed early in the ſpring; and when the plants come up, tranſplanting them upon another hot-bed, about five or ſix inches diſtant, giving them water and ſhade until they have taken new root; after which, they muſt have a pretty large ſhare of freſh air in warm weather, by raiſing the glaſſes of the hot-bed every day, and be duly watered every other day at leaſt. When the plants have grown ſo as to meet each other, they ſhould be carefully taken up, preſerving a ball of earth to their roots, and each planted into a ſeparate pot filled with light rich earth; and be plunged into a moderate hot-bed till freſh-rooted; after which they may be expoſed, with other hardy annual plants, in a warm ſituation, where they will flower in July; but if the ſeaſon ſhould prove cold and wet, it will be proper to have a plant or two in ſhelter, either in the ſtove, or under tall frames, in order to have good ſeeds, if thoſe plants which are expoſed ſhould fail.

The ſecond ſort may be increaſed by parting the roots in autumn, and be planted in the full ground, where it will abide the cold of our ordinary winters.

They afford ornament in the borders, and among potted plants.

PARTHENIUS, in *Ancient Geography*, a river of the iſle of Samos.—Alſo, a river of Aſia Minor, which ran into the Euxine ſea, and ſeparated the territories belonging to the towns of Amaſtris and Teium. Strabo. This geographer repreſents it as a beautiful river which purſued its courſe among meadows, and it had the name of the "Virgin," on account of the worſhip paid to Diana on its banks.—Alſo, a river of Aſia, in Cilicia, near the town of Anchiala. Suidas.—Alſo, a mountain of the Argolide, which extended from W. to E., from the Argolic gulf to the frontiers of Arcadia. The poet Callimachus deſcribes this mountain by the expreſſion, "The ſacred mountain of Augé:" denoting, as it is ſuppoſed, that on this mountain paſſed the amours of Hercules and Augæa, of which Telephus was the fruit.

PARTHENOPE, an iſland of the Tyrrhenian ſea. Ptolemy.

PARTHENOPOLIS, a town of Macedonia. Steph. Byz.—Alſo, a town of Aſia, in Bithynia, which did not ſubſiſt in the time of Pliny.—Alſo, a town of Upper Mœſia, ſubjugated by Lucullus.

PARTHIA, called by the Greeks *Parthyæa* and *Parthyene*, a province of the Perſian empire, bounded on the W. by Media, on the N. by Hyrcania, on the E. by Aſia, on the S. by Carmania the Deſert; ſurrounded with mountains, which ſerved for boundaries on all ſides. In this reſtricted ſenſe, Parthia muſt not be confounded with what the ancients called the Parthian empire, which was of vaſt extent; being bounded on the E. by the Indus, on the W. by the Tigris, on the S. by the Red ſea, and on the N. by mount Caucaſus, ſo that it comprehended Arachoſia, Parthia Proper, Aſſyria, Perſis, and Media. The ancient geographers enumerate a great many cities in Parthia; the moſt noted of which were Calliope, Iſſatis, Europum or Arſace, Apamea, Heraclea, Crenonia, Charax, Artacana, Aſpa, Marriche, Rhagæa, and Hecatompylos. The latter was the metropolis of Parthia, or the place where the firſt kings of that country reſided; for after they had made themſelves maſters of Aſſyria, they abandoned Hecatómpylos, paſſing the winter at Cteſiphon, and the ſummer at Ecbatan, or in Hyrcania. (See CTESIPHON.) Hecatompylos was only the metropolis of Parthia properly ſo called: nevertheleſs, it was a place of great note, and about nine miles in compaſs. It had a hundred gates, whence it borrowed its name. Moſt modern travellers are of opinion, that it ſtood on the ſpot where the preſent city of Iſpahan ſtands. Parthia is at preſent known by the name of Erach or Irac, and may be called the royal province of Perſia, ſince the king always reſides in it: and, by way of diſtinction from Chaldæa, which is likewiſe called Erach or Irac, this is denominated *Irac-Agemi*, which ſee. The chief cities it contains at preſent, are, Caſbin or Caſwin, built on the ruins of the ancient Arſace, Sawa or Sava, Kom, Hamadan, Kaſhan, and Iſpahan. Ptolemy reckons twenty-five large cities within the province of Parthia; and it muſt certainly have been very populous, ſince many cities and about 2000 villages are reckoned to have been deſtroyed by earthquakes.

The air of Parthia was anciently, and is ſtill, very clear and healthy; but the ſoil barren, and not affording proviſions ſufficient to maintain the inhabitants, who were once very numerous, and therefore obliged to tranſplant themſelves into other countries. Upon the death of Alexander the Great, it was almoſt entirely neglected, and left as an appendage to Media, that prince's commanders declining the government of ſo poor and barren a province. In fabulous hiſtory the Parthians, who have been reckoned ſo famous, have been traced to Pathruſim, the ſon of Mizraim. However this be, they were, without doubt, originally Scythians, driven out of their own country, and obliged to ſettle in this barren and inhoſpitable region. They called themſelves, on their firſt ſettling here, Parthians; that is, in the old Scythian language, *exiles;* and hence, it is ſaid, originated the name of Parthia.

The Parthians were a courageous and warlike people, not undeſervedly eſteemed the beſt horſemen and archers in the world. They were accuſtomed, from their infancy, ſays Dionyſius (in Poem de ſitu Orb.), to the warlike and manly exerciſes of managing a horſe and handling a bow; and in both excelled all other nations. They had the art, peculiar to themſelves, of diſcharging their arrows with incredible dexterity, whilſt they were retiring at full ſpeed, ſo that their retreat was more formidable than their attack. To theſe exerciſes of horſemanſhip and archery, the air and country very much contributed; for the dry air, as Dio obſerves, ſeaſoned their bows, and their extenſive plains afforded them room for training their horſes. From the age of 20 to 50, they were all, without exception, obliged to ſerve in war, to attend the muſters, learn the military exerciſes, and be ready, at a very ſhort warning, to take the field. Perſons of any rank or diſtinction among them never appeared in public on foot, but always on horſeback, armed with ſcimitars. In war they did not uſe trumpets like other nations, but large hollow veſſels of braſs, covered with ſkins, ſuch as our kettle-drums, which, being beat with hammers, yielded a very warlike ſound. The Roman poets often refer to the military character and evolutions of the Parthians. Thus Virgil ſays in his "Georgics," l. iii.

> "Fidentemque fuga Parthum verſiſque Sagittis."

Horace, "lib. i. Carm. Od. 19." ſays:

> "Et verſis animoſum equis
> Parthum dicere."

And Ovid, "lib. iii. de Art. Am." obſerves,

> "Ut celer averſis utere Parthus equis."

In his "Faſti, lib. v." we have the following couplet:

> "Quid tibi nunc mitti ſolitæ poſt terga ſagittæ?
> Quid loca, quid rapidi profugit uſue equi."

Seneca, the tragedian, in his "Thyeſte," ſays,

> "Nil opus eſt equis
> Nil armis et inertibus
> Telis, quæ procul ingerit
> Parthus, cum ſimulat fugas."

Some have ſaid that they had recourſe to the aid of lions in their combats, and that at the commencement of a battle, they let them looſe againſt the enemy: to this purpoſe Lucretius (l. v.) ſays

> "Et validos Parthi præ ſe miſere leones
> Cum ductoribus armatis, ſæviſque magiſtris."

Their religion was much the ſame with that of the Perſians, and they worſhipped the ſun under the name of "Mithras." They believed that thoſe who fell in battle enjoyed perpetual happineſs; a doctrine ſuited to the genius of a warlike nation. They were religious obſervers of their promiſes, thinking it highly diſhonourable not to perform their engagements, or to deceive thoſe who repoſed their confidence in them.

As to their government, it was monarchical, and in the higheſt degree abſolute. The kings treated their ſubjects as the meaneſt of ſlaves, and ſcarcely as men, whilſt they put themſelves on a level with the immortal gods. Their uſual titles were "the king of kings, the great monarch, the brother of the ſun and moon." Theſe haughty titles they not only aſſumed in all the laws and edicts they enacted, but in their letters to other princes. Their conduct correſponded to the lofty titles which they aſſumed; for they obliged all whom they vouchſafed to ſee, to kiſs the threſhold on their firſt entrance into the royal palace; to proſtrate themſelves before them on the ground, and to acknowledge their majeſty with ſome offering.

The hiſtory of the Parthians is involved in great obſcurity before the time of Arſaces I. They were firſt ſubject to the Medes, afterwards to the Perſians, and laſtly to Alexander the Great, upon whoſe death Parthia fell to the ſhare of Seleucus Nicator, whoſe ſucceſſor held it till the reign of Antiochus Theus, when Arſaces, ſhaking off the Macedonian yoke, founded a new kingdom, which became much the moſt powerful in the Eaſt. Arſaces I. was properly the founder of the Parthian monarchy. Having induced the Parthians to revolt from Antiochus Theus, and having defeated and taken priſoner his ſon and ſucceſſor, Seleucus Callinicus, he aſſumed the title of king, and eſtabliſhed an empire in the Eaſt, which counterbalanced the overgrown power of the Romans in the weſt. He reduced Hyrcania, and ſome other neighbouring provinces; and was at laſt killed in a battle againſt Ariarathes IV. king of Cappadocia. From him all his ſucceſſors of the ſame race took the name of Arſaces; ſo that the empire of the Parthians was ſometimes denominated the empire of the Arſacides. Arſaces II. ſucceeded his father, and made himſelf maſter of Media, whence he was driven by Antiochus the Great. Retiring into Hyrcania, he aſſembled a formidable army, and compelled the king of Syria to make a diſadvantageous peace; for he abandoned Parthia and Hyrcania to Arſaces. After two reigns, the Parthians became very powerful under Mithridates I. The reign of this prince is regarded by authors as the epoch of the Parthian grandeur; for, under him, that empire was by far the moſt extenſive, as well as powerful, in the Eaſt: all the countries that lie between the Euphrates and mount Caucaſus receiving law from him, and moſt of the princes of Aſia being either ſubdued, or obliged to enter into an alliance with him, upon his own terms. Phraates II., who ſucceeded him, was overcome in three ſucceſſive battles by Antiochus Sidetes, king of Syria; and having been deprived of Meſopotamia, Babylonia, and the other countries which his father had reduced, was confined within the narrow limits of the firſt Parthian kingdom. However, the Scythians, and Greek mercenaries, came to the aſſiſtance of Antiochus, and falling upon the Parthians, cut their army to pieces, killed their king, and laid waſte his dominions. On the departure of the Greeks and Scythians to their own countries, Artabanus I. took poſſeſſion of the crown, and after a ſhort reign, he was ſucceeded by his ſon Pacorus I., who, hearing of the great exploits of the Romans, ſent ambaſſadors to Sylla, who was then in Cappadocia, ſoliciting the friendſhip and alliance of ſo powerful a people. In conſequence of this alliance, peace was maintained for ſome time within the two empires, till at length M. Licinius Craſſus, having been created conſul at Rome with Pompey, and having, by the Trebonian law, obtained the dominion of Syria, and the neighbouring provinces, was prompted by his inſatiable avarice to make war with the Parthians, whoſe army was entruſted to the command of Surenas. The preſumption and ardour of the ſon of Craſſus brought on a battle between the two armies, the event of which proved fatal, not only to the father and ſon, but to a great number of the Romans. Although the victory was chiefly owing to the ſkill and valour of Surenas, Orodes, the Parthian monarch, jealous of his fame, perfidiouſly ordered him to be put to death. After this conteſt, the Romans and Parthians continued for ſome time in a ſtate of mutual hoſtility; the latter having often the advantage, and purſuing their conqueſts in Syria, Phœnicia, and Aſia Minor, &c. At length Ventidius re-eſtabliſhed the honour of the Roman arms; and having ſurpriſed the Parthians, attacked them at an unfavourable moment, and defeated them; Pacorus, the ſon of the Parthian king, being killed, whilſt he was fighting with incredible bravery at the head of the Parthian horſe. Some time after, the Parthians took ample revenge; and Statianus, the lieutenant of Sylla, was cut off with 10,000 Romans. Orodes was aſſaſſinated by his ſon Phraates, who exerciſed the ſame cruelty over the nobility, and all the reſt of the royal family, not ſparing his eldeſt ſon, leſt the diſcontented Parthians ſhould place him on the throne. This monſter prolonged his reign under the character of a warlike prince, and proſecuted a proſperous war againſt Antony. In proceſs of time he made peace with Auguſtus, and reſtored all the captives and enſigns which the Parthians had taken in their wars with Craſſus and Antony. He alſo ſent four of his ſons, with their wives and children, as hoſtages to Rome. His ſon Phraatrus remained with him; and it is ſaid that he was poiſoned by his wife Thermoſa, in order to place the ſon upon the throne. The Parthians, however, diſdaining to be governed by ſo wicked a parricide, roſe up in arms, and drove him into baniſhment, where he periſhed ſome years after. The ſucceeding reigns were of ſhort duration; and Artabanus, one of the race of the Arſacides, who reigned in Media, was called to the Parthian throne. His cruelty rendered him deteſtable, and afforded to Tiberius an opportunity of placing on the throne Tiridates, who was likely to be more devoted to the will of the Roman emperor. Artabanus was ultimately reſtored to the kingdom by the influence of Izates, king of the Adiabenians; and from this time he governed the kingdom with great equity and moderation; ſo that, after a reign of 30 years, he died, greatly lamented by all his ſubjects, leaving behind him ſeven ſons, one of whom ſucceeded him. Under the reign of Nero, Vologeſes, the Parthian king, ſent ambaſſadors to the emperor, ſoliciting the kingdom of Armenia, and offering to renew the alliance made by his anceſtors with the Roman people. Nero refuſed to renounce all pretenſions to the crown of Armenia. Vologeſes was incenſed, but dreading the conſequence of a war with the Romans, he at laſt conſented that his brother Tiridates ſhould go in perſon to Rome, and there receive the crown of Armenia, as a gift from Nero, who accordingly beſtowed it upon him. Thus the ancient alliance between the two empires was renewed, and the affairs of the Eaſt were ſettled in peace. However, under the reign of Trajan, Armenia became a ſubject of difference between the two empires. Coſroes, for ſome reaſon that is not known, invaded Armenia, and expelled Exadorus, who had been appointed king of that country by the emperor Trajan, and placed his eldeſt ſon upon the throne. But Trajan, thus incenſed, determined to humble the Parthians, and for this purpoſe haſtened into the Eaſt. His journey was ſo ſudden and unexpected, that he reduced the whole country without oppoſition, and took the Armenian king priſoner. He then entered Meſopotamia, and made himſelf maſter of that opulent kingdom, never before ſubject to Rome, and reduced it to a Roman province. After ſeveral conteſts of various iſſue, Coſroes was defeated by Lucius, a commander detached for this ſervice by Trajan. The emperor having gained poſſeſſion of all the beſt and moſt fruitful provinces of the Parthian empire, and perceiving that he could not maintain his conqueſts, without great expence and hazard, at ſuch a diſtance from Italy, he appointed one of the royal family, named Parthanaſpates, king of Parthia. Thus the Parthians were at laſt ſubdued, and their kingdom made tributary to Rome. But, after Trajan's death, they revolted, drove the king whom he had appointed from the throne, and recalled Coſroes, who had retired into the country of the Hyrcanians. Adrian, who was then in the Eaſt, thought it imprudent to engage in a new war with the Parthians, but contented himſelf with making the Euphrates the boundary of the Roman empire. Coſroes died after a long reign, and was ſucceeded by his ſon Vologeſes II., who invaded Armenia and Syria. Upon this, the emperor Verus, by the advice of his colleague Antoninus, ſurnamed the philoſopher, haſtened into Syria; and having forced the Parthians from that province, ordered Statius Priſcus to invade Armenia, and Caſſius, with Martius Verus, to enter the Parthian territories, and carry the war into the enemy's country. Priſcus drove the Parthians, though not without great loſs, out of Armenia; and Caſſius, having repeatedly defeated Vologeſes, though he had an army of 400,000 men under his command, reduced in four years all thoſe provinces which had formerly ſubmitted to Trajan, and gained other conſiderable advantages. After the revolt and death of Caſſius, Antoninus the philoſopher repaired into Syria, and having been met by ambaſſadors from Vologeſes, who, being unwilling to part with thoſe provinces that had been ſubdued by Caſſius, but which he had recovered, ſolicited the emperor to confirm him in the poſſeſſion of them, promiſing to acknowledge the ſovereignty of Rome. Antoninus readily acceded to theſe terms, and a peace was concluded between the two empires. Upon the death of Vologeſes, another prince of the ſame name ſucceeded him; but taking part with Niger, againſt the emperor Severus, the emperor laid ſiege to Cteſiphon, his metropolis, and took it. Vologeſes, who had made a gallant defence, had the good fortune to eſcape. As ſoon as Severus had croſſed the Euphrates, Vologeſes recovered all the provinces, except Meſopotamia, which he had reduced. The Parthians were moleſted with inteſtine diſturbances, but Vologeſes died before he could reſtore the empire to its former tranquillity. Before Artabanus IV., the ſucceſſor of Vologeſes, had well ſettled the affairs of his kingdom, the emperor Caracalla, deſirous of ſignalizing himſelf by ſome memorable exploit againſt the Parthians, ſent a ſolemn embaſſy to him, deſiring his daughter in marriage. Artabanus, rejoicing in the propoſal, becauſe he thought the connection would be attended with a laſting peace between the two empires, received the ambaſſadors with all poſſible marks of honour, and readily complied with their requeſt. Caracalla, by a ſecond embaſſy, informed Artabanus, that he was haſtening to ſolemnize the nuptials; upon which the Parthian king, with the chief of the nobility, and his beſt troops all unarmed, went out to meet him; but the ſoldiers of the treacherous emperor, on a ſignal given, fell upon the king's retinue, and made a dreadful ſlaughter of the unarmed multitude. Artabanus himſelf eſcaped with great difficulty. However, he determined to revenge himſelf on the Romans, for their inhuman and barbarous treachery; and therefore he entered into Syria with a very numerous army, and put all to the ſword. This was followed with an obſtinate engagement between the Parthian and Roman armies, in which 40,000 on both ſides were killed. When Artabanus heard that his great enemy, Caracalla, was dead, he embraced with eagerneſs the propoſals of peace and amity made to him by the new emperor, Mecrenus; and then the one returned to Parthia, and the other to Antioch. Artabanus, being enfeebled by his combat with the Romans, was alarmed by a revolt of the Perſians; and prepared, by the whole ſtrength of his kingdom, to ſuppreſs it. A bloody battle enſued, and the Parthians, after the moſt valiant exertions, were forced to yield to the Perſians, who were commanded by Artaxerxes, who, though of mean deſcent, poſſeſſed great military experience. The Parthian king was taken priſoner, and ſoon after put to death by the order of Artaxerxes. The Parthians, having loſt their king and their army, were forced to ſubmit to the conqueror, and became vaſſals to a nation which had been ſubject to them for the ſpace of 475 years. Thus was this gallant and warlike nation ſubdued at laſt, and the empire once more transferred to the Perſians. However, the royal family of Arſaces did not end in Artabanus, but continued to reign in Armenia, till the time of the emperor Juſtinian, holding that kingdom of the Perſian monarchs, to whom the Arſacidæ of Armenia were tributaries. See ARSACIDÆ. Anc. Un. Hiſt. vol. ix.

To this hiſtorical account of the Parthians we ſhall ſubjoin a conciſe ſtatement of the geography of their country, more eſpecially as very erroneous ideas concerning the local ſituation of this country have generally prevailed. Thoſe, whoſe knowledge of it has been chiefly derived from its wars with the Romans, have conceived Parthia to be only the country bordering on the Euphrates and Tigris: whereas Parthia proper was a ſmall province very near to the S.E. extreme of the Caſpian ſea, which territory, as we have already hiſtorically detailed, after the diviſion of Alexander's empire, fell to the choice of the Seleucidæ, kings of Syria, and of the eaſt, about 300 years before our era. About 50 years after, Parthia rebelled; and together with Hyrcania, and other adjoining provinces, became an independent ſtate under Arſaces. As the empire of the Seleucidæ grew weaker, the Parthians extended their country weſtward; and the fine province of Media fell to them; and within a century after the foundation of their ſtate, it had ſwallowed up all the countries from the Indus to the Euphrates, Bactria included: and this province had thrown off the yoke of the Seleucidæ, long before Parthia. The Parthian conqueſts in Armenia, about 70 years B. C, brought them acquainted with the Romans; whoſe conqueſts met theirs both in that country and in Syria. The Parthians, together with their conqueſts, had advanced their capital weſtwards, and had eſtabliſhed it on the Tigris at Seleucia, or rather Cteſiphon (near the preſent Bagdad) before their wars with the Romans commenced. The expeditions of Pompey and Antony, and the defeat of Craſſus, need not be again recited. On occaſion of the laſt event, the Parthians extended their conqueſts farther weſtward, but afterwards were compelled to retire; and they generally loſt ground in Armenia and Meſopotamia, during the time of the Roman emperors. Trajan penetrated to their capital; and ſatisfied his curioſity by embarking on the Indian ſea. The moderation of Adrian reſtored the ancient boundary of the Euphrates. In A.D. 245, Perſis, or Perſia proper, which had for ſome ages ranked as a province of Parthia, gained the aſcendancy; and, under Artaxerxes, put an end to the dynaſty of the Arſacidæ, and reſtored the ancient name of Perſia to the empire, after that of Parthia had exiſted about 480 years: ſo that, in fact, the Parthian empire, conſidered generally, was the Perſian, under another name. Rennell's Memoir.

PARTHIA, a town of Aſia Minor, in Caria.

PARTI, PARTY, or *Parted*, in *Heraldry*, is applied to a ſhield or eſcutcheon, denoting it divided, or marked out into partitions.

The French heralds, from whom we borrow the word, have but one kind of *parti*, the ſame with our *parti per pale* which they ſimply call *parti:* but with us the word is applied to all ſorts of partitioning: and is never uſed without ſome addition to ſpecify the particular kind intended.

Thus we have *parti*, or *parted per croſs*, *per chief*, *per pale*, *per feſs*, *per bend dexter*, *per bend ſiniſter*, *per chevron*, &c. See QUARTERING.

The humour of our anceſtors, Colombiere obſerves, turning much upon exploits of arms and chivalry, they uſed to preſerve their battered and hacked armour as honourable ſymbols of their hardy deeds; and thoſe who had been in the hotteſt ſervice were diſtinguiſhed by the moſt cuts and bruiſes that appeared on their ſhields. To perpetuate the memory hereof, ſays the ſame author, they cauſed them to be painted on their ſhields, and thus handed down to poſterity. And when heraldry grew into an art, and officers were appointed to direct the manner of bearing, and blazoning; they gave names to thoſe cuts, anſwerable to the nature thereof; appointing four, from which all the others proceed; theſe are *parti* (called by our heralds, *parti per pale*), *coupe* (*parti per feſs*), *tranche* (*parti per bend dexter*), and *taille* (*parti per bend ſiniſter.*) See COUPED, TRANCHE, &c.

PARTI *per pale.* See PALE.

PARTI *per feſſe.* See FESSE.

PARTI *per bend dexter*, is when the cut comes from the upper corner of the ſhield on the right hand, and deſcends athwart to the oppoſite lower corner.

PARTI *per bend ſiniſter*, is when the cut coming from the upper left corner, deſcends acroſs to the oppoſite lower one.

From theſe four partitions have proceeded an infinite number of others of various and extravagant forms.

Spelman, in his Aſpilogia, obſerves, that the preſent diviſions of eſcutcheons were unknown in the reign of the emperor Theodoſius; and were brought up in the time of Charlemagne, or later; they were little uſed among the Engliſh in the days of king Henry II. but more frequently under Edward III.

The erect or upright ſection, he obſerves, is called in Latin *palaris*, from its reſemblance to a *palus*, or *ſtake;* and two coats are often entire on the ſides, the huſband's on the right, and the wife's on the left. The direct ſection acroſs, being in the place of a belt, is called *baltica*, &c.

When the ſhield is *parti*, and *coupée*, it is ſaid to be *ecartelé.*

It is ſaid to be *parti one from the other*, when the whole ſhield is charged with ſome honourable bearing divided by the ſame line that parts the ſhield. Here it is a rule, that one ſide be of metal, and the other of colour. Thus he bears ſable, parti d'argent, a ſpread eagle parti from one to the other.

PARTIAL CAUSE. See CAUSE.

PARTIAL *Differences*, *Theory of*, is one of the higher branches of the modern analyſis, for the developement of which we are principally indebted to d'Alembert, though the ſubject had been previouſly conſidered, *in abſtractio*, by a few other mathematicians, but it does not appear that any of them had any explicit idea of its application.

Fontaine ſeems to have been the firſt who prepared and adopted the notation for expreſſing the partial differences of any variable function; but it is in a memoir of N. Bernoulli, on Trajectories, that we firſt find an attempt to aſcertain the relation that has place between the partial differences of a function of two variable quantities. See Act. Eruditorum, ann 1720, or the works of John Bernoulli, tom. ii. p. 443.

Clairaut alſo diſcovered the ſame theorem, of which he availed himſelf, in two memoirs on the Integral Calculus, printed amongſt thoſe of the Academy of Sciences, for the years 1739 and 1740. Theſe memoirs are far more elegant and perſpicuous than thoſe of Fontaine, in which this notation is firſt adopted, and the latter in particular is very intereſting: here we find the equation $\frac{dA}{dy} = \frac{dB}{dx}$ drawn from the conſideration of curve ſurfaces, and ſome remarks in this paper, firſt ſuggeſted by Fontaine, Lagrange employed as the baſe of his elegant theory of Particular Integrals, publiſhed by him in the Memoirs of Berlin for 1774, and afterwards in his Leçons des Fonctions. But of all thoſe who preceded d'Alembert in the theory of partial differences, Euler has perhaps the greateſt claim to priority of invention, having completely integrated an equation of this deſcription in 1734, in vol. vii. of the Acta Petrop., but afterwards forgot or neglected his new calculus, not being aware probably of its extenſive application to phyſical problems. This application we owe entirely to d'Alembert, and the great ingenuity and taſte diſplayed in the integration of his equations, cannot fail of placing him amongſt the firſt of modern mathematicians. D'Alembert was firſt led to this integration on attempting the ſolution of certain problems relating to the vibration of muſical chords, and afterwards employed it with great ſucceſs in his theory of the winds, the reſiſtance of fluids, and other very difficult and delicate inveſtigations.

Theory of Partial Differences.—Having given a ſlight ſketch of the progreſs of this intereſting branch of analyſis, let us now endeavour to explain more particularly the nature of the calculus, and its application in one or two particular caſes.

When we have any function z of two variables x and y, or of a greater number, we know that in differencing at firſt with x as variable and y as conſtant, and again with y as variable and x as conſtant, we obtain $dz = p\,dx + q\,dy$, p and q being the co-efficients that affect dx and dy reſpectively. Hence the complete differential of dz is $p\,dx + q\,dy$; and $p\,dx$ and $q\,dy$ the partial differences. This definition is ſufficient for our preſent purpoſe, which will be farther illuſtrated in the ſequel.

Theſe co-efficients above denoted by p and q, are more commonly denoted by $\frac{dz}{dx}$, $\frac{dz}{dy}$, which are in fact the ſame; for, if we difference firſt with x variable and y conſtant, and divide by dx, we have $\frac{dz}{dx}$, which repreſents what the function becomes on this ſuppoſition, and in the ſame way $\frac{dz}{dy}$ will repreſent its value, ſuppoſing y variable and x conſtant; ſo that the complete value of dz is expreſſed by $dz = \frac{dz}{dx}dx + \frac{dz}{dy}dy$, and it is commonly under this form that equations of partial differences ariſe.

Hence every equation between the quantities

$$z,\ x,\ y,\ \frac{dz}{dy},\ \frac{dz}{dx},\ \&c.$$

is called an equation of partial differences, and which may be compounded or not with known quantities: thus, $a\frac{dz}{dx} + b\frac{dz}{dy} - xy = 0$, is an equation of this kind, the ſolution and integration of which requires, that we ſhould find ſuch a function of x and y, that the co-efficient of the differential dx plus the co-efficient of the differential dy; the firſt multiplied by a and the ſecond by b, may produce xy; and the method of performing this is what is called the *integral calculus of partial differences.*

Again, $$\frac{dz}{dx} + \frac{dz}{dy} - x^2 - 4xy - y^2 = 0,$$

is alſo an equation of partial differences, the integral of which is $z = x^2y + y^2x$.

For differencing this firſt with x variable and y conſtant, we have $\frac{dz}{dx} = 2xy + y^2$; and again, with y variable and x conſtant, $\frac{dz}{dy} = x^2 + 2xy$;

whence $$\frac{dz}{dx} + \frac{dz}{dy} = x^2 + 4xy + y$$

or $$\frac{dz}{dx} + \frac{dz}{dy} - x^2 - 4xy - y^2 = 0,$$

Theſe equations, in which only the firſt differentials of the variables enter, are the moſt ſimple, and are called partial differential equations of the firſt degree. If the ſecond differentials enter, the equation is ſaid to be of the ſecond degree; if the third enter, of the third degree; and ſo on of others:

thus, $$\frac{d^2z}{dx^2} + \frac{d^2z}{dx\,dy} + P = 0,$$

is an equation of the ſecond degree; and

$$\frac{d^3z}{dx^3} + \frac{d^3z}{dy^3} + P = 0,$$

is an equation of the third degree, and ſo on of ſuperior orders; but the firſt and ſecond are thoſe only that can be employed to any advantage, the integration of the higher orders being too complex to admit of a ſolution except in a few partial caſes: indeed, the complete integrations of equations of the firſt and ſecond degreee, is at preſent a *deſideratum* of modern analyſts.

In the preceding part of this article, we have only mentioned functions of two variables, but it it needleſs to appriſe the reader that the ſame may have place in thoſe of three or more variable quantities; we have merely limited our obſervation to thoſe of two, for the ſake of greater ſimplicity.

In the limits to which we are under neceſſity of confining this article, we cannot enter at any great length upon the method of integrating equations of this kind; but in order to give ſome idea of it, let us take one of the moſt ſimple caſes; *viz.* $\frac{dz}{dy} = P$, P being any function of x and y, with or without conſtant or known quantities.

Here, then, our object is to find a function z, of x and y, which being differenced with y as variable, and divided by dy, ſhall be equal to the given function P. In order to this, let us multiply the whole by dy, and we ſhall have $\frac{dz}{dy}dy = P\,dy$, from which it follows that $P\,dy$ is only a part of the differential of z, *viz.* that part which ariſes by conſidering y as variable; ſo that the integral of $\frac{dz}{dy}dy$, which is z, (ſince the expreſſion above reſults from its differentiation)

rentiation) in making only y variable, will be equal to $\int . \mathrm{P}\, dy$ plus a function which contains only x, and which may be found after the ſame manner as the correction of any other integral to render it complete from the conditions of the problem.

Let us repreſent this function of x by $\mathrm{F}(x)$, and we ſhall have $z = \int . \mathrm{P}\, dy + \mathrm{F}(x)$; and in the ſame manner, if we had $\frac{dz}{dx} = \mathrm{P}$, we ſhould have for a ſolution $\int . \mathrm{P}\, dx + \mathrm{F}(y)$.

Suppoſe, for example, the integration of the equation

$$\frac{dz}{dy} = axy + y^3$$

were required. Here we ſhould have

$$\frac{dz}{dy}\, dy = axy\,dy + y^3\, dy = \mathrm{P}\, dy,$$

and $$\int . \mathrm{P}\, dy = \frac{axy^2}{2} + \frac{y^4}{4};$$

and as in this expreſſion of P, we have only y variable, we have, as above,

$$z = \frac{axy^2}{2} + \frac{y^4}{4} + \mathrm{F}(x).$$

For differencing this with y variable, we obtain again

$$\frac{dz}{dy} = (axy + y^3)\, dy = \mathrm{P}\, dy$$

$\mathrm{F}(x)$ having no differential, from the nature of the equation being conſidered as conſtant with regard to y, and as to the particular value of $\mathrm{F}(x)$, this muſt be determined from the nature of the problem from which the equation has been obtained, in the ſame manner as is found the correction of an integral or fluent.

The next equation to the preceding in the order of difficulty is,

$$\frac{\mathrm{M}\, dz}{dy} + \frac{\mathrm{N}\, dz}{dx} = 0.$$

then again

$$\frac{\mathrm{M}\, dz}{dy} + \frac{\mathrm{N}\, dz}{dx} + \mathrm{P}z = 0;$$

and, finally, the moſt general of all,

$$\frac{\mathrm{M}\, dz}{dy} + \frac{\mathrm{N}\, dz}{dx} + \mathrm{P}z + \mathrm{Q} = 0;$$

in which M, N, P, are any functions of x, y, and conſtant quantities, and conſequently theſe will be more or leſs complex, according to the degree of compoſition of M, &c. But the limits of this article will not allow of our entering more at length upon the integrations of equations of the firſt order; we can, therefore, only refer the reader for farther information to the "Traité du Calcul Integral" of Couſin and Boſſut, and to the "Traité du Calcul Differentiel et du Calcul Integral" by La Croix, and the other works above referred to.

It will be proper, however, before we diſmiſs this article, to ſay a few words with regard to partial differential equations of the ſecond degree; all that has been ſaid above being with reference to the firſt degree only.

We have before obſerved, that every equation between a function z, of two variables x and y, and its partial differences

$$\frac{dz}{dx}, \quad \frac{dz}{dy}, \quad \frac{dz^2}{dx^2}, \quad \frac{d^2 z}{dy^2}, \quad \frac{d^2 z}{dx\, dy},$$

is an equation of partial differences of the ſecond order, and from which an idea may be formed of thoſe of a higher degree, as the third, fourth, or even of the indefinite order n; as alſo of thoſe comprehending a greater number of variables, as x, y, u: x, y, u, t, &c. We ſhall here, however, as in the preceding caſe, limit our remarks to thoſe only of two variables, and of theſe we ſhall propoſe, firſt, the equation $zy - \frac{d^2 z}{dz^2} = 0$, this being the ſimpleſt partial differential equation of the ſecond degree.

Let it be then propoſed to integrate the equation

$$xy - \frac{d^2 z}{dx^2} = 0.$$

In order to this, make $\frac{dz}{dx} = u$, and we ſhall thus have $\frac{du}{dx} = \frac{d^2 z}{dx^2}$, conſidering dx as conſtant, and thus the propoſed equation becomes $xy = \frac{du}{dx}$, or $yx\,dx = du$. Integrating now only with regard to x, we ſhall have $u = \frac{x^2 y}{2} + \mathrm{F}(y)$.

But now inſtead of u put its value $\frac{dz}{dx}$, and we obtain $\frac{dz}{dx} = \frac{x^2 y}{2} + \mathrm{F}(y)$, which, multiplying by dx, becomes $dz = \frac{yx^2\, dx}{2} + dx\, \mathrm{F}(y)$, and finally integrating with regard to x only, we have

$$z = \frac{yx^3}{6} + x\,\mathrm{F}(y) + f(y):$$

and that this is the integral ſought will appear by differencing again this expreſſion, obſerving that y, $\mathrm{F}(y)$, and $f(y)$, being each conſidered conſtant with regard to x, will have no difference; thus

$$dz = \frac{yx^2\, dx}{2} + dx\, \mathrm{F}(y), \text{ or}$$

$$\frac{dz}{dx} = \frac{yx^2}{2}\, \mathrm{F}(y)$$

And differencing again, and making dx conſtant, we have

$$\frac{d^2 z}{dx} = \frac{2yx\,dx}{2} \text{ or } \frac{d^2 z}{dx^2} = xy,$$

as firſt propoſed.

Whence it appears, that in equations of the ſecond degree, in order to render the integral complete, we muſt connect with it two different arbitrary functions of the variable, of which the differential enters not into the given equation, and the particular form of which muſt be found from the nature of the problem whence the equation is deduced.

If the equation were of the third order, as $xy = \frac{d^3 y}{dx^3}$, the ſteps of the operation would be nearly the ſame. Thus in ſuppoſing at firſt $\frac{d^2 z}{dx^4} = u$, we deduce $\frac{d^3 z}{dx^3} = \frac{du}{dx}$; and ſubſtituting $\frac{du}{dx}$ in the place of $\frac{d^3 z}{dx^3}$, we ſhall have $xy = \frac{du}{dx}$, or $d u = y x d x$; integrating again; $u = \frac{y x^2}{2} + F(y)$; that is $\frac{d^2 z}{d x^2} = \frac{y x^2}{2} + F(y)$, by which the equation is reduced to the ſecond degree; and in like manner it may now be transformed into one of the firſt, as

$$\frac{d z}{d x} = \frac{y x^3}{6} + x F(y) + f(y),$$

from which the final integral is obtained as above, *viz.*

$$z = \frac{y x^4}{24} + x^2 F(y) + x f(y) + \phi(y),$$

which may be verified the ſame as before by taking the ſucceſſive differences.

If the propoſed equation of the ſecond order were $\frac{d^2 z}{d x d y} = x y$; we muſt ſuppoſe $\frac{d z}{d y} = u$, and then proceeding as above, we ſhall find u or $\frac{d z}{d y} = \frac{y x^2}{2} + F(y)$, and conſequently $d z = \frac{x^2 y d y}{2} + d y F(y)$, and integrating this again,

$$z = \frac{y^2 x^2}{4} + \int d y F(y) + f(x);$$

or (becauſe $\int d y F(y)$ is itſelf a function of y)

$$z = \frac{y^2 x^2}{4} + F'(y) + f(x).$$

Laſtly, if z was a function, theſe variables x, y, and u, and the propoſed equation for integration, was

$$z y u = \frac{d^3 z}{dx\ dy\ du} = 0,$$

we ſhould find by ſimilar ſubſtitutions,

$$z = \frac{x^2 y^2 u^2}{6} + F(y, u) + f(x, y) + \phi(x, u)$$

where the three arbitrary functions, neceſſary for completing the integral, are thoſe formed from the different combinations of the three variables x, y, and u, taken two and two at a time.

And in a ſimilar manner, the integral of a function conſiſting of any greater number of variables may be obtained, the number of arbitrary functions being equal to the exponent of the order of the equation.

The integral calculus of partial difference is ſometimes conſidered under a different point of view, which is by finding a function of many variables, when we know the relation of the differential co-efficients of the total differential. The notation employed is alſo given by ſome authors, rather different from that given above, but our limits will not admit of entering, in this place, into any farther explanation; we ſhall, therefore, conclude this article with an enumeration of the principal memoirs and works on this intereſting ſubject, not mentioned in the preceding part of this article, and to which the reader is referred for more complete information; *viz.* Lagrange Memoirs of Berlin, 1774, 1775; Leçons ſur le Calcul des Fonctions by the ſame author; Legendre Memoires de l'Académie of Paris 1787; La Place Memoires de l'Académie 1773; and in various parts of his Mechanique Celeſte. Condorcet Memoires de l'Académie des Sciences for the years 1770, 1771, and 1772; Monge Memoirs preſented to the Academy of Sciences, vols. vii. and ix. and in vol. iv. of the Memoirs of the Academy of Turin; Boſſut, Traité du Calcul Integral; Couſin, Traité Calcul Integral; La Croix Traité du Calcul Differentiel, et du Calcul Integral; Paoli Elementi d'Algebra, and the article *Integral Calcul des Differentiel Partielles*, Encyclopédié Methodique. We cannot but regret, that in this enumeration, we are under the neceſſity of confining our references to foreign works only; no Engliſh author, to the beſt of our knowledge, having any where attempted an inveſtigation or illuſtration of this difficult branch of analyſis.

PARTIAL *Eclipſe.* See ECLIPSE.

PARTICIPATION, PARTICIPATIO, that which gives us a part or ſhare in any thing, either by right or grace.

In Italy, they diſtinguiſh *participating* officers, as prothonotaries, &c. which have a real function; from *honorary* ones, which have only a title, without any duty or employ.

PARTICIPATION, in *Muſic*, in the tuning of keyed inſtruments, implies equal harmony; that is, dividing the imperfections of the ſcale equally among all the ſounds of the ſyſtem. By this means the 5ths are better, and the ſharp 3ds worſe, than in common tuning, when there is a *wolf*. (See WOLF.) This manner of tuning ſeems neceſſary now, and to be generally received; as modulation is ſo licentious, that in a long movement it is impoſſible, by relative ſounds, for the performer to gueſs where he ſhall be carried, as every key, and every chord on the inſtrument, are ſure to be called into uſe before the final cloſe in the original key. In making all the 5ths perfect, there is a redundance of a half tone. Now, if that is divided into twelve parts among all the ſemitones, it ſhould ſeem as if no one key would ſuffer much; yet an ear not accuſtomed to ſuch harſh major 3ds, is at firſt much offended.

PARTICIPATIONIS MEDIUM. See MEDIUM.

PARTICIPATO, Ital. ſee TEMPERAMENT. Participato is likewiſe a mixture of the diatonic and chromatic genera in the muſic of the ancients, according to Padre Martini. We may, indeed, ſay that all modulation in modern muſic is brought about by the mixture or participation of the diatonic and chromatic genera. The riſing or falling by minor ſemitones is chromatic. So that in the key of C natural, an F ⋇ which modulates into G is chromatic.

PARTICIPLE, PARTICIPIUM, in *Grammar*, an adjective formed of a verb; ſo called becauſe it ſtill participates of ſome of the properties of the verb; retaining the regimen and ſignification of it: whence moſt authors confound it with the verb.

Mr. Harris obſerves, that, as a complete verb is expreſſive of an attribute, of time, and of an aſſertion, if we take away the aſſertion, there will remain the attribute and the time, which make the eſſence of a participle. There are two kinds of participles, the one called *active*, becauſe expreſſing the ſubject which makes the action of the verb; as *legens*, *audiens*, *reading*, *hearing*. The other called *paſſive*, becauſe expreſſing the ſubject that receives the action of the verb; as *lectum*, *auditum*, *read*, *heard*.

As our adjectives are not declined, the participles, being real adjectives, are alſo not declined: in the Latin, &c. where the adjectives are declined, the participles active are declined likewiſe. Thus they ſay *audiens*, *audientis*, *audienti*, &c. and in the French the participles paſſive are declinable like their adjectives, as *j'ay lu*, *elle a lue*, *nous avons lus*, &c.

In our language, the participles and gerunds are not at all diſtinguiſhable.

The Engliſh grammar lays down a good rule with reſpect to its participle of the paſt, that they all terminate in *d*, *t*, or *n*; which analogy is liable to as few exceptions as any.

PARTICLE, PARTICULA, in *Phyſics*, the minute part of a body, or an aſſemblage or coalition of ſeveral of the atoms of which natural bodies are compoſed.

PARTICLE, in *Phyſics* and *Chemiſtry*. Thoſe minute parts of matter, by which bodies are conſtituted, are called atoms or particles of ſimple bodies. The particles of ſimple bodies are unchangeable under all circumſtances, ſo far as regards their weight and figure. The changes which bodies undergo by heat and chemical attraction, are to be aſcribed only to a change of diſtance and arrangement of their unalterable atoms. Mathematicians may prove the infinite diviſibility of matter, but nature has evidently given limits to this diviſion. Without ſuch limitation there would be no definite point for the commencement of compoundability, and the number and variety of compounds would be infinite. Nothing, however, is more clearly proved, than that the number and proportions of compounds are limited. This alone is ſufficient to eſtabliſh the following facts, that ſimple bodies are conſtituted by ſtrictly ſimilar atoms, which are unalterable in figure, ſize, and weight: that compound bodies are conſtituted by compound particles, which are equally unchangeable by heat or mechanical action, ſo long as they remain combined: and that their decompoſition conſiſts in the operation of their ſimple atoms. When chemiſts have aſcertained the relative weights of the ſimple atoms, which is no difficult taſk, the proportions of all compounds will be known without the aid of experiment, and chemiſtry will ſtand on as firm a baſis as mechanical ſcience. Although we are indebted to Dalton for this beautiful ſyſtem of chemical philoſophy, the principles on which it is founded did not eſcape the penetrating eye of Newton. We find the following obſervations at the latter end of his 31ſt query.

" All theſe things being conſidered, it ſeems probable to me, that God in the beginning formed matter in ſolid, maſſy, hard, impenetrable, moveable particles, of ſuch ſizes and figures, and with ſuch other properties, and in ſuch proportion to ſpace, as moſt conduced to the end for which he formed them; and theſe primitive particles being ſolids, are incomparably harder than any porous bodies compounded of them, even ſo very hard as never to wear or break in pieces: no ordinary power being able to divide what God himſelf made one in the firſt creation. While the particles continue entire, they may compoſe bodies of one and the ſame nature and texture in all ages; but ſhould they wear away, or break to pieces, the nature of things depending upon them would be changed. Water and earth, compoſed of old worn particles, and fragments of particles, would not be of the ſame nature and texture now with water and earth compoſed of entire particles in the beginning: and, therefore, that nature may be laſting, the changes of corporeal things are to be placed only in the various ſeparations and new aſſociations, and motions of theſe permanent particles, compound bodies being apt to break, not in the midſt of ſolid particles, but where thoſe particles are laid together, and only touch in a few points." He farther ſuppoſes that theſe primitive particles may act upon each other by laws ſimilar to gravity, which determines the motions of maſſes of matter. We may, perhaps, at ſome period find, that chemical affinity, or that power by which the particles of ſimple matter act upon each other, may be no more than the force of gravity, acting upon each other at ſuch ſmall diſtances, as to make their attractions equal to greater maſſes at greater diſtances. The primitive particles, even when their weights are the ſame, may attract other matter with very different forces, by being of different degrees of denſity. The attraction of one particle for another would be as their weights, and as the ſquares of their diameters inverſely. For inſtance, the atom of copper appears to be nearly of the ſame weight with an atom of zinc, but their attraction for oxygen are very different. If, then, chemical affinity be of the ſame force with gravity, we muſt ſuppoſe the atom of zinc to be denſer than the atom of copper in the ratio of their affinity for oxygen. If the relative affinities of bodies can be known, and can be proved of the ſame force with gravity; the relative denſity, as well as the relative weight of the atoms of bodies, may be known. A view of the Daltonian theory, with more particulars on this intereſting ſubject, will be given under the article PROPORTIONS *definite of chemical compounds*.

The coheſion of the particles of matter, the Epicureans imagined, was effected by means of hooked atoms; the Ariſtotelians by reſt, that is, by nothing at all. But ſir Iſaac Newton ſhews it is done by means of a certain power by which the particles mutually attract, or tend towards each other.

By this attraction of the particles he ſhews that moſt of the phenomena of the leſſer bodies are effected; as thoſe of the heavenly bodies are by the attraction of gravity.

PARTICLES, *for the laws of this attraction of the*. See ATTRACTION and COHESION.

All bodies, the ſame great author ſhews, conſiſt of the ſame ſolid, perfectly hard particles or corpuſcles.

PARTICLE, in *Grammar*, denotes a little indeclinable word, conſiſting of one or two ſyllables at the moſt.

Thoſe are properly particles which are neither declined nor conjugated.

Brightland calls particles, *manners of words*, becauſe they rather ſerve to expreſs the circumſtances and manners of other ideas and objects of the mind, than to repreſent any diſtinct objects of their own.

Particles may be reduced under three heads: the firſt ſhew the manners or qualities of words, by being added to them; called *adverbs*.

The ſecond denote ſome circumſtances of actions, and join words to words, ſentence to ſentence, &c. See CONJUNCTION.

The third expreſs the emotions of the ſoul. See INTERJECTION.

It is in the right uſe of particles, Mr. Locke obſerves, that more particularly conſiſt the clearneſs and beauty of a good ſtyle. To expreſs the dependence of his thoughts and reaſonings one upon another, a man muſt have words to ſhew what connection, reſtriction, diſtinction, oppoſition, emphaſis, &c. he gives to each reſpective part of his diſcourſe. This cannot be rightly underſtood without a clear view of the poſtures, ſtands, turns, limitations, exceptions, and ſeveral other thoughts of the mind. Of theſe there is a great variety, much exceeding the number of particles that moſt languages have to expreſs them by; for which reaſon it happens that moſt of theſe particles have divers, and ſometimes almoſt oppoſite ſignifications. Thus the particle *but*, in Engliſh, has ſeveral very different ſignifications: as in, *but* to ſay no more, where it intimates a ſtop of mind in the courſe it was going, before it came to the end of it. I ſaw *but* two planets; here it ſhews, that the mind limits the ſenſe to what is expreſſed with a negation of all other. You pray, *but* it is not that God would bring you to the true religion, *but* that he would confirm you in your own: the former of theſe intimates a ſuppoſition in the mind, of ſomething otherwiſe than it ſhould; the latter ſhews, that the mind makes a direct oppoſition between that and what goes before. All animals have ſenſe, *but* a dog is an animal: here it ſignifies the connection of the latter propoſition with the former.

PARTICLES is alſo a term in *Theology*, uſed in the Latin church for the crumbs or little pieces of conſecrated bread, called μεριδες in the Greek church.

In the Greek church they have a particular ceremony, called των μεριδων, *of the particles*, wherein certain crumbs of bread, not conſecrated, are offered up in honour of the Virgin, St. John Baptiſt, and ſeveral other ſaints. They alſo give the name ϖροσφορα, *oblation*, to theſe particles.

Gabriel, archbiſhop of Philadelphia, has a little treatiſe expreſs, ϖερι των μεριδων, wherein he endeavours to ſhew the antiquity of this ceremony, in that it is mentioned in the liturgies of St. Chryſoſtom and Baſil.

There has been a conſiderable diſpute on this head, between the Reformed and the Catholic divines. Aubertin and Blondel explain a paſſage in the theory of Germanus, patriarch of Conſtantinople, where he mentions the ceremony of the particles as in uſe in his time; in favour of the former: Meſſieurs de Port Royal conteſt the explanation: but M. Simon, in his notes on Gabriel of Philadelphia, endeavours to ſhew, that the paſſage itſelf is an interpolation; not being found in the ancient copies of Germanus: and conſequently that the diſpute is very ill grounded.

PARTICLE *out of Share*, in *Aſtronomy*. See PARTICULA *Exſors*.

PARTICOTTY, in *Geography*, a town of Hindooſtan, in the Carnatic; 7 miles N.E. of Tinevelly.

PARTICULA EXSORS, in *Aſtronomy*, the difference between the equatorial triangle L A C (*Plate* XVIII. *Aſtron. fig.* 16.) and its fellow B L Z.

To find the particula exſors, the menſtrual eccentricity A C, and the annual argument of the longitude H A D, being given; from the data in the triangle B C A, find the hypothenuſe A B to the angle C, and to the angle C A B, find the ſubtenſe C B. Multiply C B into half the menſtrual eccentricity A C; the product is the area of the triangle A C B. Find likewiſe the area of a circle deſcribed by the radius of the eccentric B L. Then as the area of the circle is to 360° or 129600″; ſo is the area of the triangle A C B to its value in thoſe ſeconds: which value is the particula exſors.

PARTICULAR, PARTICULARIS, a relative term referring to ſpecies, or individual; and oppoſed to general, or univerſal. See GENERAL, &c.

In the ſchools, particular is defined to be ſomething included under an univerſal; as man under animal.

Though ſometimes it is alſo taken for an individual, as Peter.

There is a difference between particular and ſingular, that particular denotes a thing taken as a part; as Peter in reſpect of mankind: whereas ſingular denotes the part taken after the manner of a whole; as Peter conſidered in himſelf.

PARTICULAR *averment*, *character*, *geography*, *gravity*, *maps*, *nature*, *propoſition*, *quality*, *rheumatiſm*, *tenant*, *theorem*, and *winds*. See the ſeveral ſubſtantives.

PARTICULAR *Eſtate*, in *Law*. See REMAINDER.

PARTICULAR *Integral*, in the *Integral Calculus*, is that which ariſes in the integration of a given differential equation, by giving a particular value to the arbitrary quantity or quantities that enter into the general integral.

Thus, for example, in the equation

$$y = \frac{2x\,dy}{dx} - \frac{y\,dy^2}{dx^2},$$

the general integral is

$$y = 4m(x - m);$$

and by taking $m = 1$, we have

$$y = 4(x - 1),$$

which is a *particular integral*.

We call alſo a particular integral, that which is obtained by means of an equation of inferior dimenſions; thus in the above, if we make $x = y$, we ſhall have

$$y = \frac{2y\,dy}{dy} - \frac{y\,d.y^2}{dy^2} = 2y - y,$$

which obviouſly anſwers the conditions of the equation.

So likewiſe in the equation

$$x\,dx + y\,dy = dy\sqrt{(x^2 + y^2 - a^2)}$$

we ſee immediately, that $x^2 + y^2 = a^2$, will anſwer the conditions, and is therefore called by ſome authors a particular integral.

But neither this equation $x^2 + y^2 = a^2$, nor that obtained above, *viz.* $x = y$, is deducible from the general integration of their reſpective equations, and they therefore thus far differ from thoſe integrals defined above, which ariſe out of the general integration, by giving to the arbitrary quantity ſome particular and definite value.

The term particular integral, then, though ſufficiently expreſſive for either of theſe caſes, ought not to be employed for both, and accordingly ſome authors diſtinguiſh the two caſes as follows; they call a *complete integral* that which is drawn from the general integration; an *incomplete integral*, that which is found, as in the latter of the above equations, by means of an equation of inferior dimenſions; and laſtly, a *particular integral*, that which ariſes by giving to the indeterminate quantity in the general integral ſome particular determinate value. But Lagrange, in his Leçons, as alſo in his Theorie des Fonctions Analytiques, inſtead of incomplete integrals, uſed the term *valeurs ſingulaire*.

One of the moſt remarkable caſes of theſe incomplete integrals was firſt noticed by Clairaut. He obſerved there are ſome differential equations of the firſt degree, of which the integration is attended with conſiderable difficulty by proceeding in the uſual manner, which may ſometimes be found by a ſecond differentiation, inſtead of leading us farther from it, as in the uſual caſes. Such is the differential equation

$$y\,dx - x\,dy = a\sqrt{(dx^2 + dy^2)}$$

to which we are led in the ſolution of the following geometrical problem. A point being given to find a curve line ſuch, that drawing to this line a tangent, and from the given point on the tangent a normal, it ſhall be always of the ſame length. We may arrive at the ſolution of this problem, by ſuppoſing $y = u\sqrt{(a^2 - x^2)}$, and ſeparating the variables u and x, which ultimately produces the equation

$$\frac{du}{\sqrt{(u^2 - 1)}} = \frac{dx}{\sqrt{(a^2 - x^2)}}.$$

But by differencing we are led to the ſolution in a much more ſimple manner; for if, in order to ſimpliſy the differentiation, me make $dx = p\,dy$, the above equation,

$$y\,dx - x\,dy = a\sqrt{(dx^2 + dy^2)}, \text{ becomes}$$

$$y = px + a\sqrt{(1 + p^2)};$$

which, although in appearance an equation in finite terms, is ſtill a differential equation, becauſe $p = \frac{dx}{dy}$. If now we difference this equation again, we ſhall have

$$dy = p\,dx + x\,dp + \frac{ap\,dp}{\sqrt{(1 + p^2)}}.$$

which, becauſe $dy = p\,dx$, gives

$$0 = x\,dp + \frac{ap\,dp}{\sqrt{(1 + p^2)}}$$

and dividing by $d\,p$, we have

$$0 = x + \frac{a\,p}{\surd\,(1 + p^2)}, \text{ or } x = - \frac{a\,p}{\surd\,(1 + p^2)};$$

and, laſtly, if in the above equation

$$y = p\,x + a\,\surd\,(1 + p^2)$$

we put inſtead of $p\,x$ its proper value, as before determined, we find $y = \frac{a}{\surd\,(1 + p^2)}$.

Now, if by means of theſe two values of x and y, we eliminate p, we ſhall find ultimately

$$x^2 + y^2 = a^2,$$

which is the equation to the circle the curve required, as is obvious, on the ſlighteſt conſideration of the nature of the problem. It is to be obſerved, however, that this queſtion admits of another ſolution, which ariſes alſo out of the equation $x\,dp + \frac{a\,p\,d\,p}{\surd\,(1 + p^2)} = 0$, by making $d\,p = 0$, whence it follows that p is any conſtant quantity $= n$, that is $\frac{d\,x}{d\,y}$ a conſtant quantity, which ſhews it to be a right line; and becauſe of the indeterminate n, an infinite number of right lines will equally anſwer the conditions of the equation; and this laſt is one of thoſe caſes of particular integrals, as above defined.

Euler has propoſed many equations of this kind, which he was led to in the ſolution of certain geometrical problems, which he had propoſed to himſelf; as alſo many others, which belong more directly to the caſes of incomplete integrals, or ſingular values mentioned in the ſecond caſe above; ſuch are

$$x\,d\,x + y\,d\,y = a\,\surd\,(x^2 + y^2 - a^2),$$

in which the ſingular value is $x^2 + y^2 = a^2$, an equation to the circle: but in the complete integral, *viz.* $y + c = \surd\,(x^2 + y^2 - a^2)$, we can by no means arrive at the firſt equation.

This and ſome other caſes mentioned by Euler were conſidered by that celebrated analyſt as inſolvable paradoxes; but Lagrange, in the Memoirs of Berlin for 1774, has explained this apparent anomaly nearly as follows.

The integral of a differential equation between two variables, contains one conſtant arbitrary quantity. If we regard theſe variables as the rectangular co-ordinates of a curve line, referred to ſome determined axis, it is obvious that we may imagine as many different curves to be deſcribed, all particular integrals of the propoſed equation, as we can give different values to the conſtant arbitrary quantity, that is, we may have an infinite number. How if it happens that theſe curves have one conſtant quantity common to them all, the equation of this common tangent ought to ſatiſfy the differential equation propoſed; becauſe ſome one element of this tangent is confounded with ſome of the elements of the curves: ſtill this tangent forms no part of the curves, and therefore ought not to be contained in the complete integral, but in an incomplete integral, as above defined; See Memoirs of Berlin for 1774; the Theorie des Fonctions Analytiques, and the Leçons des Fonctions, by Lagrange; the article *Integrals Particulieres*, Encyclopédié Methodique, and Montucla Hiſtoire des Mathematique, tome iii. p.180.

PARTICULARIST, among *Polemical Divines*, a perſon who maintains particular grace, *i. e.* who teaches or believes, that Chriſt died for the elect only; and not for mankind in general. See GRACE.

PARTIDO, in *Geography*, a ſmall iſland, under the hill of St. Martin, in the S.W. part of Campeachy gulf.—Alſo, a river of Mexico, which runs into the Pacific ocean, S. lat. 11° 20′.

PARTIE, Fr. *Part*, in Engliſh implies the melody or notes allotted to a ſingle voice, or inſtrument, many of which parts conſtitute a chorus, ſymphony, or concerto. Three ſounds, at leaſt, are neceſſary to form a chord; but a complete chord built on the generator or fundamental baſe with its 3d, 5th, and 8th; and each of theſe ſounds diſtributed into different parts, would furniſh a firſt treble, ſecond treble, tenor, and baſe. The high notes in moſt inſtruments played with a bow have no bounds, as the perſecuted audience can tell; but below there is a *ne plus ultra.* Violins can go no lower than G on the fourth ſpace in the baſe, the tenor to C, uniſon with the ſecond ſpace in the baſe, and the violoncello to double C.

PARTIES, in *Law*, are thoſe who are named in a deed, or fine, as parties to it; *e. gr.* thoſe who levy the fine, and to whom the fine is levied.

So they who make any deed, and they to whom it is made, are both called parties to the deed.

PARTILE ASPECT, in *Aſtrology*. See ASPECT.

PARTING, in the art of refining metals, is a proceſs by which gold is ſeparated from ſilver. When thoſe metals which are oxydable in the cupel have been ſeparated from gold, the ſilver not undergoing that change remains alloyed with it. This is always the caſe in refining jewellers' gold. In order to ſeparate the ſilver, the alloy is firſt rolled into very thin plates, the thinner the better; theſe plates are to be boiled with pure nitric acid. By this means, the ſilver is diſſolved by the nitric acid, giving to the plates a corroded appearance, as if perforated with a ſmall inſtrument. When the ſilver ceaſes to be diſſolved, the plates are to be melted. If the gold is required of greater purity, it may be rolled in plates, and expoſed to the acid a ſecond time. If the nitric acid contains any muriatic acid, which is generally the caſe with the acid of commerce, ſome of the gold will always be diſſolved. Should this be the caſe, the ſilver ſhould firſt be precipitated in the form of muriat, with common ſalt, and the gold afterwards thrown down with green ſulphat of iron.

The moſt effectual method of ſeparating gold from ſilver is to diſſolve the whole of the thin plates in nitro-muriatic acid. The ſilver will be found at the bottom of the veſſel in the form of muriat, while the gold remains in ſolution, and may be precipitated with ſulphat of iron. The ſilver may be obtained by heating the muriat with ſoda in a crucible. The muriat of ſoda ſublimes, while the ſilver is left pure. See ASSAYING.

PARTING, *Dry*, or parting by fuſion, is performed by ſulphur, which has the property of uniting eaſily with ſilver, while it does not attack gold. The moſt advantageous method, ſays Dr. Lewis, of ſeparating a ſmall portion of gold from a large one of ſilver, appears to be by means of ſulphur, which unites with and ſcorifies the ſilver without affecting the gold: but as ſulphurated ſilver does not flow thin enough to ſuffer the ſmall particles of gold diffuſed through it to re-unite and ſettle at the bottom, ſome addition is neceſſary for collecting and carrying them down.

In order to the commixture with the ſulphur, fifty or ſixty pounds of the mixed metal, or as much as a large crucible will receive, are melted at once, and reduced into grains by lading out the fluid matter, with a ſmall crucible made red-hot, and pouring it into cold water ſtirred with a rapid circular motion. From an eighth to a fifth of the granulated metal, according as it is richer or poorer in gold, is reſerved; and the reſt well mingled with an eighth of powdered ſulphur. The grains enveloped with the ſulphur are again put into the crucible, and the fire kept gentle for ſome time, that the ſilver, before it melts, may be thoroughly penetrated by the ſulphur; if the fire was haſtily urged, great part of the ſulphur would be diſſipated without acting upon the metal.

If to ſulphurated ſilver in fuſion pure ſilver be added, the latter falls to the bottom, and forms there a diſtinct fluid, not miſcible with the other. The particles of gold, having no affinity with the ſulphurated ſilver, join themſelves to the pure ſilver, wherever they come in contact with it, and are thus transferred from the former into the latter, more or leſs perfectly according as the pure ſilver was more or leſs thoroughly diffuſed through the mixed. It is for this uſe that a part of the granulated metal was reſerved. The ſulphurated maſs being brought into perfect fuſion, and kept melted for near an hour in a cloſe covered crucible, one-third of the reſerved grains is thrown in; and as ſoon as this is melted, the whole is well ſtirred, that the freſh ſilver may be diſtributed through the mixed, to collect the gold from it. The ſtirring is performed with a wooden rod; an iron one would be corroded by the ſulphur, ſo as to deprive the mixed of its due quantity of ſulphur, and likewiſe render the ſubſequent purification of the ſilver more troubleſome. The fuſion being continued an hour longer, another third of the unſulphurated grains is added, and an hour after this the remainder; after which the fuſion is farther continued for ſome time, the matter being ſtirred at leaſt every half hour from the beginning to the end, and the crucible kept cloſely covered in the intervals.

The ſulphurated ſilver appears in fuſion of a dark brown colour: after it has been kept melted for a certain time, a part of the ſulphur having eſcaped from the top, the ſurface becomes white, and ſome bright drops of ſilver, about the ſize of peas, are perceived on it. When this happens, which is commonly in about three hours after the laſt addition of the reſerved grains, ſooner or later, according as the crucible has been more or leſs cloſely covered, and the matter more or leſs ſtirred, the fire muſt be immediately diſcontinued; for otherwiſe more and more of the ſilver, thus loſing its ſulphur, would ſubſide and mingle with the part at the bottom in which the gold is collected. The whole is poured out into an iron mortar greaſed and duly heated; or if the quantity is too large to be ſafely lifted at once, a part is firſt laded out from the top with a ſmall crucible, and the reſt poured into the mortar. The gold, diffuſed at firſt through the whole maſs, is now found collected into a part of it at the bottom, amounting only to about as much as was reſerved unſulphurated. This part may be ſeparated from the ſulphurated ſilver above it by a chiſſel and hammer; or more perfectly, the ſurface of the lower maſs being generally rugged and unequal, by placing the whole maſs with its bottom upwards in a crucible: the ſulphurated part quickly melts, leaving unmelted that which contains the gold, which may thus be completely ſeparated from the other. The ſulphurated ſilver is eſſayed, by keeping a portion of it in fuſion in an open crucible, till the ſulphur is diſſipated; and then diſſolving it in aqua fortis. If it ſhould ſtill be found to contain any gold, it is to be melted again; as much more unſulphurated ſilver is to be added as was employed in each of the former injections, and the fuſion continued about an hour and a half.

The gold thus collected into a part of the ſilver may be farther concentrated into a ſmaller part, by granulating the maſs and ſeparating the whole proceſs. The operation may be again and again repeated, till ſo much of the ſilver is ſeparated, that the remainder may be parted by aqua fortis without too much expence.

The foregoing proceſs, according to Mr. Schlutter, is practiſed at Rammelſberg, in the Lower Hartz. The prevailing metal in the ore of Rammelſberg is lead: the quantity of lead is at moſt forty pounds in a quintal or hundred pounds of the ore. The lead worked off on a teſt or concave hearth yields about a hundred and ten grains of ſilver, and the ſilver contains only a three hundred and eighty-fourth part of gold; yet this little quantity of gold, amounting ſcarcely to a third of a grain in a hundred weight of the ore, is thus collected with profit. The author above mentioned confines this method of ſeparation to ſuch ſilver as is poor in gold, and reckons parting with aqua fortis more advantageous where the gold amounts to above a ſixty-fourth of the ſilver: he adviſes alſo not to attempt concentrating the gold too far, as a portion of it will always be taken up again by the ſilver. Mr. Scheffer, however, relates (in the Swediſh Memoirs for the year 1752), that he has by this method brought the gold to perfect fineneſs; and that he has likewiſe collected all the gold which the ſilver contained; the ſilver of the laſt operations, which had taken up a portion of the gold, being reſerved to be worked over again with a freſh quantity of gold-holding ſilver. The ſulphurated ſilver is purified by continuing it in fuſion for ſome time with a large ſurface expoſed to the air; the ſulphur gradually exhales, and leaves the ſilver entire. Lewis's Comp. Phil. Techn. p. 161, &c. See Gold and Refining.

Parting-*Glaſſes* are uſed in the operation of parting: they have the form of truncated cones, the bottom being commonly about ſeven inches wide, the aperture about one or two inches wide, and the height about twelve inches. Theſe glaſs veſſels ought to have been well annealed, and choſen free from flaws; as one of the chief inconveniences attending the operation is, that the glaſſes are apt to crack by expoſure to cold, and even when touched by the hand. Some operators ſecure their glaſſes by a coating. For this purpoſe they ſpread a mixture of quick lime ſlaked with beer and whites of eggs upon linen cloth, which they wrap round the lower part of the veſſel, leaving the upper part uncovered, that they may ſee the progreſs of the operation; and over this cloth they apply a compoſition of clay and hair. Schlutter adviſes to put the parting-glaſſes in copper veſſels containing ſome water, and ſupported by trevets, with fire under them. When the heat communicated by the water is too great, it may be diminiſhed by adding cold water, which muſt be done very carefully by pouring againſt the ſides of the pan, to prevent too ſudden an application of cold to the parting-glaſs. The intention of this contrivance is, that the contents of the glaſſes, if theſe ſhould break, may be received by the copper veſſel. Into a glaſs fifteen inches high, and ten or twelve inches wide at bottom, placed in a copper pan twelve inches wide at bottom, fifteen inches wide at top, and ten inches high, he uſually put about eighty ounces of metal, with twice as much aqua fortis.

Parting *Roots*, in *Gardening*, the practice of dividing the roots of ſome ſorts of plants in order to their being ſet out; which is an expeditious mode of increaſing a great number of fibrous-rooted perennial plants. A great number of herbaceous, fibrous, and tuberous-rooted perennial plants often increaſe by the root into large cluſters or bunches, compoſed of numerous ſmall ſlips or offsets, particularly many of the flowery tribe, ſuch as the campanula, perennial. ſun-flower, golden-rod, perennial aſter, polyanthus, and daiſy, balm, mint, burnet, cives, and pennyroyal, with innumerable other ſorts; which from one ſmall ſlip or offset of the root, often in a ſeaſon or two multiply into a large cluſter of ſuch offsets; and theſe cluſters of roots being parted into ſeveral ſeparate ſlips, with root-fibres at their bottom, and one or more buds at top, each commences a diſtinct plant; ſo that, by parting the roots in this way, one plant may inſtantly be multiplied into many, each of which becomes alike in growth and general habit to the original, and all flower in the enſuing ſeaſon in their due courſe; and in their turns detach from their ſides all around, a due ſupply of offsets for further propagation.

Commonly the beſt general ſeaſon for parting roots is in the latter end of ſummer or autumn, after they have done flowering, and the ſtalks are decayed; which is in Auguſt, and the two following months; in which, when the detached offsets are planted directly, they will take good root before winter. But in many hardy ſorts it may be performed almoſt any time, in open weather, from September till March; and ſome of the tender kinds ſucceed beſt in ſpring. In theſe caſes it ſhould, however, be done before they begin to ſhoot forth their ſtalks or advance conſiderably in their ſpring ſhoots.

In performing the buſineſs, when any plant deſigned to be increaſed has multiplied by its roots into a cluſter of offsets, the whole may be either taken up entirely, and the root parted into as many ſlips as are furniſhed with fibres, &c., or a quantity of ſlips may be detached from the ſides all around as the parent plant ſtands in the ground: in either method, the work may in many ſorts be effected eaſily with the hand; and in others by the aſſiſtance of a knife, &c. And when it is wanted to make as great an increaſe as poſſible, the root may be parted into as many ſlips as may be convenient, provided each is furniſhed with ſome fibre or root-part, and crowned with one or more buds or eyes for forming ſhoots at top. But in the flowery tribe, when the detached offsets are wanted for flowering as ſtrong as poſſible the enſuing ſeaſon, they ſhould not be parted too ſmall, but into middling-ſized ſlips, where practicable; which being planted in the proper places will flower in tolerable perfection in the following ſeaſon. The ſlips ſhould generally be planted directly by dibble; the very ſmall ones in nurſery-beds to ſtand till next autumn, to acquire ſtrength: then tranſplanted with balls into the places where they are to remain; but the larger ones at once where they are to grow.

This method may be practiſed in many ſorts annually, as numbers of the herbaceous perennials multiply in one ſeaſon into large bunches.

Parting, in *Sea Language*, denotes the ſtate of being driven from the anchors, when the ſhip has broke her cable by the violence of the wind, waves, or current, or all of them together.

PARTISAN, in the *Military Art*, the commander of a partiſan-party.

Partisan-*Party*, a ſmall body of infantry, light horſe, and huſſars, given to a partiſan, to make an incurſion upon the enemy, to lurk about their camp, to diſturb their foragers, to interrupt their convoys, and to procure intelligence.

Partisan has been alſo applied to a halberd or pike, and to a marſhal's ſtaff.

PARTITI, Ital. in *Muſic*, the ſcore of a compoſition ſeparated or drawn out in ſingle parts.

PARTITION, the act of parting, dividing, or diſtributing, a thing.

The denomination *partitiones oratoriæ* is alſo given to a dialogue of Cicero's, between him and his ſon; in regard the diſcourſe is, as it were, parted or divided between them.

Partition, in *Architecture*, that which divides or ſeparates one room or apartment from another.

Partition, in *Heraldry*. See Quartering.

Partition, in *Huſbandry*. The partitions in land ſown with wheat by the drill, for the horſe-hoeing huſbandry, are different according as the wheat is ſown, in double, treble, or quadruple rows. The double row has but one partition, and this is beſt to be uſed in caſes where the land is ſuſpected to be full of the ſeed of weeds, which muſt be taken out with the hand-hoe. This partition ſhould be twelve or fourteen inches wide. Whole fields drilled in theſe rows might formerly have been hand-hoed at the expence of four ſhillings an acre; and when there is but one foot in ſix, the price of that work ought to be proportionable.

The common width of the two partitions, when the wheat is ſown in treble rows, is ſix or eight inches. Care is to be taken in this particular; for if they are planted cloſer, they will ſtarve one another before the intervals are hoed to give them a freſh ſupply of nouriſhment; and, if they are planted too far aſunder, the two outer rows will thrive well, but the middle row will be ſtarved, and look worſe and weaker, becauſe of its being at ſo great a diſtance from the hoed intervals.

In quadruple rows, the partitions are beſt to be ſeven inches wide each: at this diſtance the plants will thrive ſufficiently, and if they are ſet nearer, the whole will be worſe; and, if farther off the two outer rows will thrive, but the two inner ones will be ſtarved, by reaſon of their diſtance from the ploughed intervals. See Alley, and Husbandry.

Partition, in *Law*, a dividing of lands deſcended by common law, or cuſtom, among coheirs, where there are two at leaſt.

The partition is made ſeveral ways; whereof four are by agreement, and one by compulſion.

The firſt partition by agreement is, when the parceners divide the land equally themſelves into ſo many parts as there are coheirs: and each has a determinate part.

The ſecond is, when they agree to chooſe ſome of their friends to make the diviſion for them: and each takes a part according to ſeniority of age, or otherwiſe, as ſhall be agreed. In this caſe ſeniority is perſonal; ſo that if the eldeſt ſiſter be dead, the next ſiſter, and not the iſſue of the firſt, chooſes. However, with reſpect to an advowſon it is otherwiſe: the eldeſt and her iſſue, and even her huſband, or her aſſigns, ſhall preſent alone, before the younger.

The third method of partition is, when the eldeſt divides, but chooſes laſt.

The fourth is by drawing lots, thus: having firſt divided the land into as many parts as there are perſons, they write every part ſeverally in a diſtinct ſcroll, and, wrapping it up, throw each into a hat, or ſuch a thing; out of which each one draws according to ſuperiority; and ſo the land is ſeverally allotted.

The other partition, which is by compulſion, is, when one or more of the heirs, by reaſon of the refuſal of ſome other, ſues out a writ of *partitione facienda*, upon which the ſheriff ſhall go to the lands, and make partition thereof by a verdict of the jury there impannelled; and aſſign to each of the parceners her part in ſeveralty. In Kent, where land is of gavel-kind nature, they call their partition, ſhifting.

Partition alſo may be made by joint-tenants, and tenants in common, by aſſent, by deed, or by writ. By the 8 & 9 W. c. 31. it is enacted, that if the high ſheriff cannot conveniently be preſent at the execution of any judgment in partition, in ſuch caſe the under ſheriff, in preſence of two juſtices, may proceed to execution of the writ of partition.

PARTITION, in *Muſic*, is the diſpoſition of the ſeveral parts of a ſong, ſet on the ſame leaf; ſo as upon the uppermoſt ranges of lines are found the treble; in another the baſs; in another the tenor, &c. that they may be all ſung or played either jointly or ſeparately.

PARTITION, *Partitio*, in *Rhetoric*, otherwiſe called enumeration, is that part in which the orator acquaints his hearers with the ſeveral parts of his diſcourſe upon which he deſigns to treat. Some alſo comprehend under this head ſeparation, in which the orator ſhews in what he agrees with his adverſary, and wherein he differs from him. The requiſites of a good partition are the following: it muſt be ſhort, ſo that each propoſition contains in it nothing more than what is neceſſary; it ought to be complete, no neceſſary part being omitted in the enumeration; and it ſhould conſiſt of as few members as is conſiſtent with the nature of the ſubject. The ancient rhetoricians preſcribe three or four at the moſt; and Cicero never exceeds that number. It may be afterwards convenient to divide theſe general heads of a diſcourſe, or at leaſt ſome of them, into ſeveral parts or members: and this is beſt done as the ſpeaker comes to each of them, in the order at firſt laid down. Inſtances of this kind occur in Cicero's oration for the Manilian law.

A good partition is attended with conſiderable advantages; it gives light and ornament to a diſcourſe, and affords great relief and aſſiſtance to the hearers. However, ſome orations, particularly of the demonſtrative kind, do not require any particular propoſition, being little more than a continued narrative or illuſtration of the ſubject. Ward's Orat. vol. i. p. 210, &c.

PARTITIONE FACIENDA, in *Law*, a writ which lies for thoſe who hold lands or tenements *pro indiviſo*, and would ſever to every one his part, againſt them that refuſe to join in partition, as copartners, &c. F. N. B. 61. 31 H. VIII. cap. 1. Cowel.

PARTITURA, Ital., *Partition*, Fr., in *Muſic*, implies a *ſcore*, or the ſeveral parts of a compoſition arranged over each other, and ſeparated into equal portions of time by *bars*, or perpendicular lines drawn through all the parts; whence the word *ſcore*.

PARTIUM PRECE. See PRECE.

PARTNER, and PARTNERSHIP. See COMPANY, COPARCENER, and FELLOWSHIP.

PARTNERS, in a *Ship*, are ſtrong pieces of timber nailed round the ſeveral ſcuttles, or holes, in a ſhip's deck, wherein are contained the maſts and capſterns. They are uſed to ſtrengthen the deck, where it is weakened by ſuch breaches, but particularly to ſupport it when the maſt leans againſt it, as impreſſed by a weight of ſail, or when the capſtern bears forcibly upon it, whilſt charged with a great effort.

Some ſhips do not ſail well unleſs their maſts are looſe, and have leave to play in the partners; but in a ſtorm, this is dangerous, leſt the partners ſhould be wronged (as they ſay), *i. e.* forced out of their places; for then there is no help but to cut the maſt by the board.

PARTNERS is alſo a name given occaſionally to the ſcuttles themſelves, wherein the maſts and capſterns are fixed.

PAR-TOUT. See PASS-PAR-TOUT.

PARTRIDGE, PERDIX, the tetrao perdix of Linnæus, in *Ornithology*, a bird well known and eſteemed at table. See TETRAO *Perdix*.

The partridge is a timorous and ſimple bird, and yet ſo valuable at the table, that there are a great many ways of taking it invented by ſportſmen, all of which ſucceed from the folly and fear of the animal.

The places which partridges moſt delight in are corn-fields, eſpecially while the corn grows; for that is a ſafe retreat, where they remain undiſturbed, and under which they uſually breed. They frequent the ſame fields after the corn is cut down, and that with another intent; for they then feed on the corn that has fallen from the ears, and find a ſufficient ſhelter for them under cover of the ſtalks, eſpecially thoſe of wheat ſtubble. When the wheat ſtubble is much trodden by men or beaſts, they retire to the barley ſtubble, and will there hide themſelves in coveys of twenty or thirty. When the winter comes on, and the ſtubble fields are trodden down or ploughed up, they can retire to the upland meadows, where they lodge in the high graſs, and among the ruſhes; ſometimes they reſort to the low coppice woods, eſpecially if there be corn lands near them.

In the harveſt-time, when the corn-fields are full of men, they are found in the fallow fields next to the corn-fields, where they lie lurking among the woods till evening, and then they get over into the corn, and feed late and early on the corn in the ſheaves. When the proper haunts are known, the next thing is to find the birds in them: this is done variouſly; ſome will do it by the eye only; and this art can never be taught, but can be had only from long obſervation: the colour of the birds being ſo like that of the earth at a diſtance, that no eye but a very converſant one could diſtinguiſh them. When they are once ſeen, the buſineſs is to keep an eye upon them, and then to keep in continual motion. They are a very lazy bird, and by this means will let a perſon almoſt tread upon them; though, if the perſon ſtands ſtill to eye them, they will riſe immediately, though they are at a conſiderable diſtance.

Another method of obſerving them is by going to their haunts very early in the morning, or at the cloſe of the evening, which is called jucking-time. The noiſe of the cock partridge is to be attended to at this time, and is very loud and earneſt. The hen will ſoon come up to the cock after her making the noiſe, which ſhe does by way of anſwer; and when they are got together, their chattering will diſcover them. Thus they may always be found at theſe times: but there is a yet better method of finding this bird, which is by the call. The buſineſs, in order to have ſucceſs in this way, is carefully to learn the notes of the partridge, and be able to imitate all the ſeveral ſounds. When perfect in this, the perſon is to go to the haunts morning and evening, and, placing himſelf in ſome ſituation where he can ſee the birds without being ſeen by them, he is to liſten to their calling; and, when they are heard, he is to anſwer in the ſame notes, doubling again as they do: by continuing this, they may be brought ſo near, that the perſon, lying down on his back, may count their whole number. Having in this manner found where the birds are, the next care is to catch them.

They are ſo fooliſh, that it is extremely eaſy to take them in nets. In order to this, there needs no more than the going out, provided with two or three nets, with meſhes ſomewhat ſmaller than thoſe of the pheaſant nets, and walking round about the covey, a net is to be fixed ſo as to draw over them, on pulling a line at a diſtance. All this may be eaſily done; for ſo long as the ſportſman continues moving about, and does not fix his eyes too intently upon them, they will let him come near enough to fix the nets, without moving. If they lie ſo ſtraggling, that one net will not cover them, then two or three muſt be fixed in the ſame manner. The ſportſman may then draw the nets over them; and they will often lie ſtill with the nets upon them till he comes up to fright them, then they will riſe, and be entangled in the net.

A ſecond method of taking them is with bird-lime: this is done by means of wheat-ſtraws. Theſe muſt be large, and cut off between knot and knot; they muſt be well limed with the beſt and ſtrongeſt bird-lime, and the ſportſman muſt carry a great number of them out with him. Having found a field where there are partridges, he is to call; and, if they anſwer, he is then to ſtick up the limed ſtraws in rows acroſs two or three lands, and, going backward, call again to them, leading them on in the road where the ſtraws are: they will follow one another like a flock of chickens, and come out to the call; and will in their way run upon the ſtraws, and liming themſelves, they will daub one another by crowding together, ſo that very few of them will be able to eſcape.

But there is yet a pleaſanter way of taking them than this, that is, by driving of them: in order to this, an engine is to be made of canvas ſtuffed with ſtraw, to repreſent a horſe: this horſe and nets are to be taken to the haunts of the partridges, and the nets being placed ſlanting or ſlopewiſe in the lower part of the field, the ſportſman is to take the wind in his back, and get above them, driving them downwards; his face is to be covered with ſomething green or blue; and, placing the horſe before him, he is to go towards them ſlowly and gently; and by this means they will be raiſed on their legs, but not on their wings, and will run before the horſe into the nets. If in the way they go into a wrong path, the horſe is to be moved to face them; and they will be thus turned back again, and driven every way the ſportſman pleaſes. See GAME.

Partridges are often found very troubleſome and deſtructive to the grain produce of the farmer. Theſe ſorts of birds principally delight to lie and baſk in the corn-fields, eſpecially while the grain is upon the land in its growing ſtate, as it then affords them a ſafe and pleaſant retreat, where they can remain without being in any way diſturbed, and in which they can the moſt conveniently breed and rear their young. In this way they, however, frequently commit much injury upon the different crops, by feeding and trampling upon them, and therefore require to be deſtroyed. When the corn is cut, they alſo frequently continue in the ſtubble of the ſame fields, feeding upon the grain which has fallen out of the ears, and find in theſe a ſufficient cover for concealing them, eſpecially in thoſe of the wheat kind. Afterwards, when theſe become thin, and much trodden down, they betake themſelves to the barley and oat ſtubbles, or the clovers, where they collect together in large coveys, and conceal themſelves. In the winter part of the year they are not ſo often met with in theſe places, but retire to the low woods and uplands, or paſtures, where they lie in the buſhes, and among the high coarſe plants. The low coppices very frequently ſupply a covering for them at this ſeaſon, particularly where there are corn lands at no great diſtance, where they can get food that is ſuitable for them. They likewiſe conſume the grain at the time of putting it into the earth, in which way they are alſo miſchievous to the farmer.

PARTRIDGE, *Indian*, *Coturnix Indica*, the name given by the Spaniards to a bird of the Weſt Indies, of which there are three or four ſpecies; all of which Nieremberg ſays, are properly of the partridge kind. See TETRAO (*Coturnices*). See alſo COLIN, and QUAUHTZONECOLIN.

PARTRIDGE, *Red-legged*, a very delicate and valuable bird, called *cotumo* by the Italians.

It is diſtinguiſhed from the common partridge by the redneſs of its beak and legs; it is of a greyiſh-aſh colour on the back; its throat is white near the head, but has a ſmall black ſpot on each ſide at the angle of the bill, and this white ſpace is ſurrounded by a black line; its breaſt is of a yellowiſh-brown, and its wings are variegated with black, yellowiſh, and white. It is not found in England, but is ſometimes ſhot in the iſlands of Guernſey and Jerſey. See TETRAO *Rufus*.

PARTRIDGE, *White*, *Perdix Alba*, a name given by many to the lagopus, a rough-footed bird of the gallinaceous kind, common on the ſnowy mountains, and by ſome called the *rabolane*. See PTARMIGAN. See alſo TETRAO *Lagopus* and *Albus*.

PARTRIDGE, *Sea*, *Perdix Marina*, in *Ichthyology*, a name given by ſome authors to the ſoal-fiſh, from the firmneſs and delicacy of its fleſh.

PARTRIDGE *Bay*, in *Geography*, a bay on the ſouth coaſt of Labrador. N. lat. 50° 16′. W. long. 63° 20′.

PARTRIDGE *Iſland*, an iſland of the South Pacific ocean, in the vicinity of Van Diemen's land, and diſcovered in the voyage for ſearch of La Perouſe, May 1792, and ſo called by ſome of the crew who firſt obſerved it, from an apprehenſion that it abounded with partridges, which were probably miſtaken for quails. This ſmall iſland is upwards of 100 toiſes in length, and ſituated in S. lat. 43° 23′ 30″. On the ſhore was found the low ſpecies of parſley, called "apium proſtratum," in great abundance. Many ſpecies of the "caſuarina" grow here, and, among the plants, ſeen for the firſt time, was a remarkable ſpecies of the "limodorum." Numerous kinds of ferns were alſo collected, and a beautiful ſpecies of the "glycine," remarkable for its ſcarlet flower. No freſh water was found upon this iſland; though ſeveral forſaken huts ſhewed that it had been frequented by the ſavages. Labillardiere's Voyage in Search of La Perouſe, vol. i.

PARTRIDEFIELD, a townſhip of America, in Berkſhire county, Maſſachuſetts; 26 miles W.N.W. of Northampton; containing 1361 inhabitants.

PARTUNDA, in *Mythology*, a goddeſs among the Romans, who preſided over women at their delivery.

PARTURITION, in *Midwifery*, the act of bringing a child into the world, from *parturio*, to be in labour. See LABOUR.

PARTUS, LABOUR, the birth of a child, from *pario*, to bring forth. It is alſo uſed to denote the fruit, or thing produced. "Feræ diligunt partus ſuos." Cicero. Beaſts love their offspring. See LABOUR.

PARTUS *Cæſareus*, the delivery of a child through an opening made through the integuments of the abdomen, and into the uterus. See CÆSAREAN *Section*.

PARTY, or PARTIE, a faction, intereſt, or power, conſidered as oppoſite to another.

England was, for upwards of a century, divided into two parties. See WHIG and TORY.

PARTY, in *Law*. See PARTIES and CHARTER-PARTY.

PARTY, in the *Military Senſe*, is uſed for a ſmall body of men, whether cavalry, infantry, or both, commanded out on any expedition, ſuch as pillaging the country of an enemy, taking priſoners, and obliging the country to make contribution.

Parties are alſo ſent out to view the roads and ways, get intelligence, ſeek forage, reconnoitre, or amuſe the enemy upon a march; they are alſo frequently ſent upon the flanks of an army, or regiment, to diſcover the enemy, if near, and prevent ſurpriſe or ambuſcade. The following allowances are granted to parties eſcorting deſerters, in conſideration of the unavoidable extraordinary wear of their clothing and neceſſaries on that duty; *viz.*

Diſtances from Quarters.		For each Man.		
		£.	s.	d.
Between 8 and 20	miles	0	1	0
20 — 50	——	0	2	0
50 — 100	——	0	4	0
100 — 150	——	0	5	0
150 — 200	——	0	6	0
above 200	——	0	7	6

In the like proportion allowances are to be made for parties of four, five, and ſix men, but no higher. This, however, is to be underſtood as a regulation of allowance merely; it not being the intention of government thereby to reſtrain any commanding officer from employing larger parties on the eſcort duty, if he ſhould think proper, but that whatever may be the actual number of the parties, the allowances are to be in the proportion of

Three men for an eſcort of	from	5 to 8 deſerters.
Four - - - - - -	——	9 — 12
Five - - - - - -	——	13 — 16
Six - - - - - - -	——	17 — 20

Exact returns of the ſaid duty, as performed by each corps, are to be made up, according to a preſcribed form, as ſoon as poſſible after every 24th of June and 24th of December, for the half years immediately preceding, and are to be tranſmitted to the office of the ſecretary at war, in order that the allowance may be ſettled. James Mil. Dict.

Party, *Firing*, denotes thoſe who are ſelected to fire over the grave of any one interred with military honours, if below the rank of brigadier-general. The ſpecific number of which the party is to conſiſt, depends upon the rank of the officer interred.

Parties, *Working*, conſiſt of ſmall detachments of men under the immediate command and ſuperintendance of officers who are employed on fatigues, which are not purely of a military nature. They are generally called fatigue duties, being different from thoſe of parade, or of exerciſe in the field. They principally conſiſt in digging canals, repairing roads, working on fortifications, except ſuch as may be conſtructed in one field, or upon actual ſervice. An addition is made to their pay, as a reward for their labour, and a compenſation for their extraordinary wear of neceſſaries; half of which ſhould always be paid into the hands of the captains and commanding officers of companies, for this latter purpoſe. James.

Party *Arches*, in *Building*, are arches built between ſeparate tenures, where the property is intermixed, and apartments over each other do not belong to the ſame eſtate.

Party *Bleu*, in the *Military Art*, a name formerly given to a party of robbers, who infeſted the roads in the Netherlands. They belonged to neither army, but robbed both ſides, without any regard to paſſes. Hence the term has been more generally applied to a band of military robbers.

Party *China*, a name given by the Engliſh merchants, and others, to a ſort of porcelain or china-ware, which is elegantly painted on the outſide with ſome bright colour, and blotted or variegated with round or ſquare ſpots of a different tinge. The manner in which the Chineſe do this is a very ſimple and eaſy one, and may be imitated in our potteries with great eaſe.

They prepare as many pieces of paper as they intend to have ſpots on the veſſel, and cut them exactly into the ſhape of thoſe ſpots: they wet theſe, and then ſpread them ſmoothly on the places where the ſpots are to be. When this is done, they cover the veſſel with the brown and gold, or any other varniſh, and then take off the papers; in the places which they covered no varniſh has come; ſo that they are ſo many regular white ſpaces. Theſe they cover with ſome other colour, laying it on carefully with a pencil: when this is done, they varniſh over the whole veſſel with the common varniſh, and bake it. In ſome veſſels they lay on only plain blue, or plain black, in the ſpaces deſtined for ſpots; and after the firſt baking, they cover theſe with gold, and make them ſo many figures of ſquares, triangles, or globes, pure gold.

Party *Walls*, in *Building*, are partitions of brick made between buildings in ſeparate occupations, for preventing the ſpread of fire. For the regulations preſcribed by an act of 14 Geo. III. ſee Building, ſubſtituting for 42d 14th.

Party *Jury*, in *Law*. See Medietas *Linguæ*, and Jury.

Party, in *Heraldry*. See Parti, Pale, and Fesse.

PARU, in *Geography*, a fort of Braſil, in the juriſdiction of Paru, on the N. ſide of the river Amazon. N. lat. 1° 50′. W. long. 54° 10′.

Paru, or *Ginipape*, a river of Braſil, which runs into the Amazon, near Paru.

Paru, in *Ichthyology*, the name of a very ſingular American fiſh. See Stromateus *Paru*, and Chætodon *Paru*.

PARUA, in *Geography*, a river of Braſil, which runs into the Atlantic, S. lat. 13° 20′.

PARVATI, in *Mythology*, is the conſort of the Hindoo deity Siva, the perſonification of the deſtructive, or rather renovating or changing power in their triad. (See Siva.) The conſorts of the Hindoo male divinities are termed their Sakti, which means their energy, or active power. (See Sakti.) The females are thus coequal to their ſpouſes, and are endowed with the ſame attributes, and differ, in ſex excepted, very little from them. (See Matri.) A hiſtory of the goddeſs Parvati, under her various forms and names, might be extended to volumes, and many volumes, we may ſay ſcores of volumes, have, in fact, been written thereon. The ſacred romances called Puranas, abound in legends relating to the origin and proceedings, the amours, quarrels, incarnations, battles, &c. adventures of this all-producing, all-pervading perſonification of nature. She is ſaid, like her lord, to have a thouſand names; they are ſtrung metrically together, and are recited by her votaries in their propitiatory adorations. Parvati means *mountain-born*, ſhe having, in one of her many terreſtrial deſcents, ſprung from ſuch a parentage, as is noticed under the article Mera. In her name and character of Parvati, many magnificent temples are erected to her honour in different parts of India, eſpecially on mountains and elevated ſituations. All mountains, as bearing a conical form, a form naturally aſſumed by fire, are typical of this goddeſs or her lord; he being a perſonification of that *deſtructive*, and in its form of heat, *renovating*, element. Throughout India, from Nepaul to Ceylon, and from Siam to Surat, temples are raiſed to this extenſively worſhipped couple, and their ſectaries, under various names, ſtill offer adoration in them. At Poona the principal temple is on a high hill called Parvati, or Parbutty, which gives a name to the quarter of the city in its neighbourhood. Durga is another of her names, and this name, meaning *difficult of acceſs*, is appropriately given to hill forts, provincially corrupted into Droog or Durgam. Chitteldroog, for inſtance, is corrupted from Sita, and Durga, names of this goddeſs, which, in compoſition, and with a grammatical copulative, mean the hill, or inacceſſible place of Sita. See Chitteldroog;

DROOG; and, in the ſame page of this work, CHITTAGONG, which latter is altered from Sita-gao, or gom, the town of Sita. Much of the geographical nomenclature of India is thus derivable from its mythological perſonages. Another inſtance of the extenſive ſcope of Hindoo mythology will be found under the article LANKA, where a ſplendid temple is noticed as dedicated to this goddeſs in her character of Kaumari or the Virgin; correſponding, in this inſtance, as ſhe does likewiſe in many others, with the Taurican Diana. She may be identified ſimilarly with moſt of the female deities of Greece and Rome, not in name merely, but in attributes and character. Moſt of thoſe female deities are found, on minute inſpection, to melt into one, as do thoſe of India into Parvati; who is a perſonification of the moon, as her conſort Siva is of the ſun; coequal emblems merely of "that infinitely greater light, whence all proceeded, whither all muſt return, and which alone can illumine our intellects." This is the ſubſtance of the moſt ſacred text of the Hindoo ſcripture. (See O'M.) Under her names of *Idita* and *Ilita* in this work, ſhe appears in the character of *Lucina*, one of whoſe names was *Ilithya*. See thoſe articles.

The attributes of Durga are conſpicuous in the feſtival called by her name Durgotſava; and, in this character, we are told by ſir W. Jones ſhe reſembles Minerva—"not the peaceful inventreſs of the uſeful and fine arts, but Pallas, armed with a helmet and ſpear; both repreſent heroic virtue, or valour united with wiſdom. Both ſlew demons and giants with their own hands; and both protected the wiſe and virtuous, who paid them due adoration." Aſ. Reſ. vol. i.

As the mountain-born goddeſs, or Parvati, ſhe has many properties of the Olympian Juno; her majeſtic deportment, high ſpirit, and general attributes are the ſame; and we find her on mount Kailaſa. (See KAILASA.) And at the banquets of the deities uniformly the companion of her huſband." Ib. In her character of Bhavani, ſir W. Jones ſuppoſes the wife of Mahadeva, or Siva, to be as well the Juno Cinxia, or Lucina of the Romans (called alſo by them Diana Solvizona, and by the Greeks Ilythya) as Venus herſelf; not the Italian queen of laughter and jollity, who, with her nymphs and graces, was the beautiful child of poetical imagination, and anſwers to the Indian Rhemba (ſee RHEMBA), with her train of Apſaras, or damſels of Paradiſe; but Venus Urania, ſo luxuriantly painted by Lucretius, and ſo properly invoked by him at the opening of a poem on nature. "Venus preſiding over generation, and on that account exhibited ſometimes of both ſexes, (an union very common in the Indian ſculptures,) as in her bearded ſtatue at Rome; and perhaps, in the images called Herma-thena, and in thoſe figures of her which had a conical form; for the reaſon of which we are left (ſays Tacitus) in the dark. The reaſon," continues our author, "appears too clearly in the temples and paintings of Hindooſtan, where it never ſeems to have entered the heads of the legiſlators or people, that any thing natural could be offenſively obſcene; a ſingularity which pervades all their writings and converſation, but is no proof of depravity in their morals." Ib.

This highly gifted author, in his diſſertation on the Gods of Greece, Italy, and India, identifies the Stygian, or the Tauric Diana, otherwiſe named Hecate, and often confounded with Proſerpine, with Kali, a name and form of Parvati, in her character of wife of Kal, who correſponds with the Stygian Jove. Human victims, as well as the ſacrifice of horſes and bulls, enjoined by the Veda, being in the preſent age abſolutely prohibited, kids are now offered to Kali, or the black goddeſs; and to palliate the cruelty of the ſlaughter, which gave great offence to the Hindoo followers of milder tenets and practice, the Brahmans inculcate a belief, that the poor victims riſe in the heaven of Indra (ſee INDRA), and become the muſicians of his band. Under the article KALI of this work, a minute deſcription is given of Hindoo images of this black goddeſs. A cap, called by both Romans and Hindoos *patera* (ſee PATRA), a whip, or cord (ſee PASH), a ſceptre, a child, a car drawn by peacocks, and by lions, a turreted crown, a drum (called *dyndima* both in Greek and Sanſcrit), a ſphere, a torch, a lily or lotos, a ſerpent, a ſpear, a bow, with other common attributes, might be noticed as identifying the multiform, myrionimous goddeſſes in queſtion. A conſideration of what is given in this work under the articles ASTARTE, CYBELE, DIANA, JUNO, PROSERPINE, VENUS, and other names of the ſame goddeſs, compared with that under this, and the various articles hence referred to, is more than ſufficient to convince us of their identity.

That the names juſt noted, as well as Urania, Iſis, and many others, are in fact of the ſame goddeſs Nature, under different forms, there can be no doubt. The Pantamorpha Mater; Dea Jana, or Diva Jana, was eaſily made by the Romans into Diana. Devi-jenni, the teeming goddeſs; Viſwa-jenni, the all-producing, are Sanſcrit terms, applicable to Parvati in her character of Prakriti or Nature. Juno may be derived from Yoni; Ceres from Sri, or in one caſe Sris; Anna Perenna, from Ana-purna, a name of Parvati, meaning, in Sanſcrit, abundance of food, or one who fills with food. In this character ſhe holds a ladle. Aſtarte, as well as Eſther, Aſhtaroth, and the Perſian Sitara, meaning a ſtar, or ſomething ſidereal, may be traced to Aſhtara, another name of the Hindoo goddeſs, derived from a legend in which ſhe was ſeated among eight points, and hence applied to the radii of a ſtar. The learned antiquary Spon (Miſc. Erud. Ant.) gives a print of a monument where Diana is called Clatra; her attributes are thoſe of Parvati, one of whoſe names is Kalratri, the goddeſs of darkneſs, the origin poſſibly of its unmeaning ſynonime. Under the articles LINGA and SIVA, is ſhewn that the firſt in the ſhape of a cone, moſtly a black conical ſtone, is the phallic emblem of the latter, and of courſe of his conſort Parvati. Weſtern mythologiſts tell us of a black conical ſtone that fell from heaven; it was placed in a temple of Aſtarte, or the moon, and itſelf adored as a type of the ſun. See ASTARTE.

The Paphian goddeſs was alſo anciently ſymboliſed by a cone. When Dr. Clarke, in his recently publiſhed "Travels," deſcribes ſome antiquities of the holy land, we might almoſt imagine that he was in the country of the Hindoos. He deſcribes "a ſubterraneous conical temple, having no reſemblance to any Chriſtian temple, its ſituation under the pinnacle of a mountain, one probably of the three points of the Mount of Olives, (ſee MERU,) the higheſt of which was ſet apart for the worſhip of Aſtaroth," &c. (vol. ii. p. 578.) denoting ſtrongly the Hindoo ſuperſtition having been anciently prevalent there. The pyramids of Egypt, Stonehenge in England, and many other antiquities now remote from its ſcenes, are referred, and with plauſible arguments, to the ſame polytheiſtic ſource.

It is curious to ſee in Dr. Clarke's plate delineating "the ſacred pictures in uſe among the Calmuck tribes," exact repreſentations of Hindoo deities. In the figure that he properly ſtyles "Diva Triformis, Luna, Diana, and Hecate," we recogniſe, unequivocally, the Hindoo Parvati, in one of thoſe many forms in which ſhe is generally termed Devi, or the goddeſs. Devi Tri Sakti, or with three forms, or powers, is one of her names. In Dr. Clarke's plate, ſhe has her own myſtical hieroglyphic, a type of the Yoni, on the forehead; collars, of ſkulls perhaps, round and pendent on her neck and belly; a glory, or nimbus round her head; ſix-handed, holding a bow and arrow, the triſula or trident of Siva (ſee TRISULA), a cone or linga, the chakra, or diſcus of Viſhnu, his club, and lotos (ſee VISHNU), and the cord, or paſha of Devi, before referred to; and the Kalmuck divinity ſits in one of Devi's commoneſt poſitions on a lotos throne. Such a ſubject we ſhould have expected to find in the Hindoo Pantheon, rather than in Ruſſian travels. A repreſentation is likewiſe given of "Oſiris or Bacchus of the Calmucks." This is alſo a Hindoo ſubject, but being only two-handed there is not much ſcope for attributes; it has the diſtinguiſhing forehead-mark, attitude, countenance, and character of the Hindoo ſchool. The next, "Hyperion or Phœbus of the Calmucks," is a barbarous repreſentation of Kriſhna, with the ſerpent Kaliya, and other Hindoo attributes. (See KALIYA.) The "Terpſichore of the Calmucks playing on the Balalaikas," is Saraſwati with her Vina. Dr. Clarke does not ſay where he obtained theſe ſubjects, nor in what degree they are honoured; but we ſee no reaſon to doubt their genuineneſs. They have found their way into Aſiatic Tartary, through China probably; and would lead us to infer that the Kalmucks have, or have had, ſome Hindoo ſuperſtitions among them. Their name is eaſily traceable to the ſame ſource. Kal-mu-ki is pure Sanſcrit, and means black-faced, or with the countenance of Kal; a name that is applicable to Parvati in ſome of her characters; although we do not recollect any ſpecific authority for giving her that appellation.

But it would be tireſome and almoſt endleſs to follow this female Proteus through her varied changes, and the many legends detailing them in the Puranas. We will proceed to offer a liſt of ſome of her names; and for beauty's ſake, ſuch of them as have furniſhed articles for this work are put in capitals, to which articles the reader deſirous of farther information is thus generally referred. Amba (ſee UMA). Annapurna. Annada. Anjanabha. Anumati. Antargati: under this name ſhe is invoked as a martial goddeſs, for ſtrength of heart and courage. Aparajita: this has been thought the ſame word as the Greek Aphrodite (ſee MATRI). Aranya-Devi, or the goddeſs of the foreſt. Ardha Nari, or half women: in this character ſhe is repreſented conjoined to her ſpouſe; one ſide being Siva with his attributes, the other ſide her own. The celebrated one-breaſted gigantic figure in the cavern temple at Elephanta, is of this ſubject. Aſhtara. Aſita. Aſvini, meaning a mare; in this form the ſun approached her as a horſe, and on their noſtrils touching ſhe conceived twins, who are called Aſwini-Kumari, repreſented like Caſtor and Pollux, and each has the character of Eſculapius among the gods. It will be recollected, that he is fabled to have deſcended from a nymph, who in the form of a mare was impregnated with ſun-beams. His name is traceable to the Sanſcrit, in which language Aſva-Kalupa means mare-deſcended. Bhadra. Kali, (ſee KALI). Bhagi, as the conſort of Bhaga, a name of Siva, and of the ſun. Bhavani, as conſort of Bhava, a name of Siva, the author of exiſtence. Bhavani is the general power of fecundity. Venus generatrix. Bhudevi, goddeſs of the earth. (See PATALA-DEVI.) Cawſiki, or Kawſiki. Chamunda. Chandika. Charchika. Devi, the goddeſs, the queen, pre-eminently ſo called by her ſectaries, and by others. This title is, however, ſometimes given to other female divinities. Devi-jenni, the prolific goddeſs, or the mother of gods. Durga, or difficult of acceſs, as noticed in an earlier part of this article. Feringahi. Ganga, the river Ganges: in this character ſhe ſprung from the head of Siva, and bore a ſon to him, named *Karlikya*, which ſee, and MENA and MERA. Gauri, meaning fair or young. When ſeen together, in pictures or ſtatues, or conjoined as noticed before of Ardha Nari, the goddeſs and her ſpouſe are frequently called Har-gauri; Hara being a name of Siva, and Hari of his conſort. IDITA. ILITA. ISI. ISANI. ISWARI (ſee ISWARA). IVA, or of one letter, derived from I, and pronounced as a diſſyllable exactly like Eve. Kalratri. Kirti. KAUMARI. KALI. KATTAYANI. Kawſiki. Lileſwari (ſee LILESWARA.) MA. MAHAKALI. MAHAMARI. Mahamayi. MAHESWARI. MALSARA. Manaſa. MEKARA. NILA. PALYANGHI. PARA. PARAMESWARI. PATALADEVI. PEDMADEVI. PIKESWARI. PRABHA. PRAKRITI. RAJARAJESWARI. RAMI. RAUDRI. RUDRI. RUDRANI. SAMI. SAMIDEVI. SAMIRAMI. SARASWATI. SARVAJAYA. SARVAMANGALA. SATARUPA. SATI. SATWI. SATWIKI. SHASHTI. SHYAMULA. SRI. SUDURGA. SUKALI. SWARDEVI. SWETADEVI. SYAMA. TAMASI. TRIKALADEVI. TRISAKTIDEVI. TRIVIDHA. UMA. VAGESWARI. VAJRESWARI. VISWAJENNI. VYAGRAYAHI. YONI.

In her character of Parvati, ſhe is uſually ſeen in pictures in company with her ſpouſe, and is repreſented as of perfect beauty, ſplendidly dreſſed and decorated; ſometimes ſitting on his knee, or on a carpet beſide him, or on a tiger's or elephant's ſkin, preſenting him amrita (ambroſia) in a golden goblet. Sometimes ſhe is mounted with him on a white bull (ſee NANDI), with their reputed ſons *Kartikya* and *Pollear*; ſee thoſe articles.

Under her various forms and characters ſhe is variouſly armed and arrayed; ſee, for inſtances, under KALI and MATRI. Sometimes ſhe has four, eight, twelve, ſixteen, and as far as thirty-two arms. In the plates of the Hindoo Pantheon, ſhe is repreſented upwards of fourſcore times, in varied form and character; and legends are ſaid to be found in the theogonical and mythological writings of the Hindoos, detailing her origin and achievements in each. In ſome plates of the work juſt alluded to, ſhe is repreſented, from original ſubjects, pre-eminently placed as the ſupreme object of adoration; the chief of the gods, even the three perſons of the Hindoo triad, being among her votaries. See of the Hindoo triad, under TRIMURTI. Such pictures and ſculptures may be aſcribed to the ſects who adore her excluſively as Nature. Such ſects are called *Lingi-Lingaja*, and *Sakta*. See thoſe articles, and LINGA.

Like their copies, the Jupiter and Juno of the Greeks, the Hindoo Mahadeva and Parvati, have, in the Puranic legends, many quarrels and reconciliations. Theſe are, in fact, the phenomena of nature, hidden from the vulgar eye in a veil of allegory, and in ſuch a veil ſometimes, as not to be altogether decent to the taſte of people leſs groſs than the Greeks and Hindoos. The language of Parvati is occaſionally as free as Juno's in the page of Homer. In illuſtration of this allegorical ſtyle, the following verſe may be aptly introduced from ſir W. Jones' ſpirited hymn to Ganga, a perſonification of the river Ganges. It exhibits the popular notion of a ſolar eclipſe, for Siva's frontal or central is, like himſelf, the ſun, obſcured by the intervention of the hand of Parvati, or the moon. We ſee too, (for the ideas of the hymn accord ſtrictly with the legends of Hindooſtan,) the means confidently reſorted to by a prieſt-ridden people for reſtoring the equilibrium of nature's elements; and that Ganga ſprings, like Pallas, from the forehead of the Indian Jove.

" Above the ſtretch of mortal ken,
On bleſt Kailaſa's top, where every ſtem

Glow'd with a vegetable gem,
Maheſa ſate, the dread and joy of men;
While Parvati, to gain a boon,
Fixed on his locks a beamy moon,
And hid his frontal eye, in jocund play,
With reluctant ſweet delay.
All nature ſtraight was lock'd in dim eclipſe,
Till Brahmans pure, with hallowed lips
And warbled prayers reſtored the day;
When Ganga from his brow, by heavenly fingers preſt,
Sprang radiant, and deſcending, graced the caverns of the [weſt."

Parvati and Saraſwati are ſometimes ſeen to correſpond in character. It may, perhaps, be thus accounted for; Siva is the *changing*, or *renovating*, rather than the *deſtroying* power; he re-produces: for deſtruction, ſay the philoſophers, is but reproduction in another form, This is ſo ſimilar to making or creating, the province of Brahma, that the terms and powers almoſt coaleſce. Brahma, indeed, is merely a periodical reorganizer of chaotic matter. (See KALPA.) Parvati and Saraſwati are the energies of the perſonification of thoſe changing powers, and we may hence diſcern why their characters and attributes are ſometimes made to accord. The conſort of Brahma is occaſionally, though but rarely called Prakriti, and the helpmate of Siva, Satarupa; here changing names and characters, as it were. Bhavani is alſo occaſionally invoked as the goddeſs of ſpeech, or eloquence, a character more eſpecially of *Saraſwati*. (See that article.) In like manner this pantomorphic goddeſs is found now and then to correſpond in name and attributes with Lakſhmi. She is occaſionally ſeen with the chank or ſhell of the latter power; and with the lotos, more eſpecially her emblem, and hence Padma-devi is a name common to both, meaning the goddeſs of the lotos, that plant being the emblem of female beauty, and being aquatic, alſo of humidity; and both theſe goddeſſes aſſume the character of the Venus of the Greeks. (See LAKSHMI and RHEMBA.) Sri, or the bleſſed or fortunate, is likewiſe a name given to them both.

The ſectaries of this goddeſs, who under different names, and adoring her under different forms, are numerous, have various ſymbolical marks by which they are diſtinguiſhed. Generally ſpeaking, horizontal lines on the forehead diſtinguiſh the *Saivas* from the *Vaiſhnavas*, (ſee thoſe articles,) the latter having them perpendicular. On the ſubject of ſuch ſectarial marks and diſtinctions, a plate exhibiting a great many, with copious remarks, is given in the Hindoo Pantheon, to which we refer thoſe deſirous of farther information hereon.

It has been noticed that to this goddeſs, in her character of Kali, it was that human victims were formerly offered. The rites and ceremonies to be obſerved on theſe horrid occaſions, are minutely laid down in the Kalika Purana, extracts from which are given under the article NARAMEDAH of this work. See alſo KALI and PURANA.

PARVETI MONS, in *Ancient Geography*, a chain of mountains deſcribed by Ptolemy, correſponding to the heights of Suhmandroog, lying S.E. of Candahar, and being the ſouthern boundary of the province of Paro-pamiſus.

PARVICH, in *Geography*, a ſmall iſland in the Adriatic, near the coaſt of Dalmatia, fertile in grapes, olives, and mulberries.

PARVISE. See PERVISE.

PARULIS, from ϖαρα, and ȣλον, *the gums*, in *Surgery*, an inflammation, or abſceſs of the gums; a gumboil. See GUMS, *Diſeaſes of*.

PARUR, in *Geography*, a town of Hindooſtan, in Cochin; 10 miles E.S.E. of Cranganore.

PARUS, the Titmouſe, in *Ornithology*, a genus of birds of the order Paſſeres. The generic character is; bill very entire, narrow, ſubcompreſſed, ſtrong, hard, pointed and covered at the baſe with briſtles; the tongue is truncate, briſtly at the end; the toes are divided to the origin, the hind one large and ſtrong. Theſe birds are found in almoſt every part of the old continent, from the north of Europe to the ſouth of India. They are highly prolific, laying eighteen or twenty eggs, which they hatch with unwearied patience. They build their neſt with particular neatneſs and ſkill, and frequently on the extremity of ſome branch ſuſpended over water, by which they ſecure it from the attack of various animals, to which it might otherwiſe fail a prey. They are wonderfully active and alert, rapid and aſſiduous in their ſearch for inſects, on which they principally ſubſiſt, under the bark, and in the crevices of trees, which they clear of the immenſe multitudes of caterpillars covering them in ſpring, and which would totally blaſt their vegetation. They are not migratory, though they occaſionally change their reſidence for ſhort diſtances. They are irritable and iraſcible to a great degree, and when angry, will diſplay the ardent eye and ruffled plumage, which indicate the paroxyſm of agitation. They poſſeſs a very extraordinary degree of courage, and will ſometimes attack birds three times their ſize. The owl is not ſecure from their rage; and whatever bird they purſue, their firſt attempts are levelled at the head, and particularly at the eyes and brains, the latter of which they devour with particular avidity and reliſh. According to Gmelin, there are thirty-one ſpecies, though Latham deſcribes twenty-ſeven only.

BICOLOR; Toupet Titmouſe. Head creſted, on the forepart black; body cinereous; beneath whitiſh rufous. It inhabits the woods of North America, and is ſix inches long. The bill is black; creſt pointed, grey; orbits pale rufous; quill and tail-feathers edged with grey rufous; the tail is ſlightly forked, the legs are of a lead colour. The female has a white belly.

CRISTATUS; Creſted Titmouſe. Head is creſted; collar black; belly white. Inhabits Europe, chiefly in firwoods; is five inches long, ſolitary, and not eaſily tamed.

* MAJOR; Great Titmouſe. Head black; temples white, nape yellow. The bill, chin, and tail are black; the back and wings are olive; rump blue-grey; belly greeniſh-yellow, divided in the middle by a band of black, extending to the vent; the quill-feathers are of a duſky colour, edged partly with blue, and partly with white; exterior ſides of the outmoſt tail-feathers white, of the others blueiſh; inner ſides duſky, legs lead-coloured. This ſpecies weighs little more than an ounce, and is almoſt ſix inches in length. It is found in Europe, Aſia, and Africa, and is very common in this country, frequenting gardens and orchards, where it does a deal of miſchief, by picking off the tender buds of trees. The neſt is made of moſs, lined with hair, and placed in the hole of a wall, or of a tree. The female lays ſix or eight or ten eggs, which are white, ſpotted with a ruſty kind of colour, and ſo exactly like thoſe of a nut-hatch, as not to he diſtinguiſhed from them. The common note of the great titmouſe is a ſort of chatter, but in the ſpring it aſſumes a greater variety, a ſhrill whiſtle, and a very ſingular noiſe, ſomething like the whetting of a ſaw, but theſe ceaſe with incubation. There is a variety of this ſpecies, called the croſs-billed titmouſe, which is olive-brown, beneath dirty-yellowiſh; the head is black, the temples cinereous; the bill forked. This bird was killed once near Feverſham in Kent; it had its bill croſſed, as in the Loxia curviroſtra.

IGNOTUS; Stræmian Titmouſe. Yellow-green; breaſt yellow, ſpotted with rufous; belly blue; vent yellowiſh. It inhabits Norway, and very much reſembles the Major.

CYANUS; Azure Titmouſe. Pale blue, beneath ſnowy; rump and crown whitiſh-hoary; neck above white, with a broad blue band; ſhoulders and tail-coverts blue. It is found in divers parts of Ruſſia and Siberia, and is about five inches long.

AMERICANUS; Creeping Titmouſe. Blueiſh; temples, breaſt, and back yellowiſh; flanks of a purple colour. It inhabits Carolina and Canada, is nearly five inches long; continually runs up and down trees in ſearch after inſects.

* CÆRULEUS; Blue Titmouſe. Quill-feathers blueiſh, the primaries white on the outer edge; front white; crown blue. The bill is blackiſh; line from the bill to the eyes, and one ſurrounding the temples, black; the back is of a yellowiſh-green; wing-coverts blue; quill-feathers black, with duſky edge; tail blue, the middle feathers longer, body whitiſh-yellow beneath; legs and claws black. It is about four inches and half long, and weighs leſs than half an ounce. This ſpecies would, probably, be much admired for its beauty, if it were leſs common. In winter it frequents houſes, and will devour fleſh very greedily. It is alſo a conſtant attendant where horſe-fleſh is kept for hounds, and in the farm-yard, being very fond of oats, which it plucks out, and retiring to a neighbouring buſh, fixes the grain between its claws, and hammers it with the bill, to break the huſk. In ſummer it feeds chiefly on inſects, in ſearch of which it plucks off a number of young buds from the trees. The neſt is made very like that of the Major, and the female is ſo tenacious of her neſt, that ſhe will often ſuffer herſelf to be taken rather than quit it. She menaces every intruder in a ſingular manner, hiſſing like a ſnake, erecting all its feathers, and uttering a noiſe like the ſpitting of a cat, biting, at the ſame time, ſeverely, if handled.

ATRICAPILLUS; Canada Titmouſe. Cap and chin black; body cinereous, beneath it is white. It inhabits North America, is four inches and a half long; feeds on worms and inſects, and is very patient of cold.

ATER; Colemouſe. Head black, back cinereous; hind head and breaſt white; the bill and chin are black; a broad black ſtripe beneath the eyes, from the bill to the neck; belly and vent reddiſh-white; wing-coverts grey, tipt with white; quill and tail-feathers browniſh-aſh, edged with grey; legs and claws lead-coloured. It does not weigh much more than a quarter of an ounce, and is four inches in length. It has frequently been confounded with the next, the Paluſtris, but is not ſo common; it keeps more to the woods, ſeems to live entirely on inſects, and has alſo a different note.

* PALUSTRIS; Marſh Titmouſe. Head black; back cinereous; temples white. There are three varieties. 1. Wings without the white bands. 2. Body beneath and band on the hind-head white. 3. Crown black; nape yellowiſh. This ſpecies inhabits different parts of Europe: it is fond of fleſh and alſo of oats, like the blue titmouſe. It is partial to low wet ground, in the holes of which it frequently neſtles.

VIRGINIANUS; Virginian Titmouſe. Rump yellow; body cinereous. It inhabits Virginia and Carolina, and is five inches long. The bill is blackiſh, body above olive brown, beneath grey; legs and claws brown.

PEREGRINUS; Crimſon-rumped Titmouſe. Rump ſcarlet; body cinereous, beneath white. It is of the ſize of the P. major. The quill-feathers are brown; tail-feathers black, except the four middle ones, which are obliquely yellow on the hind part.

GRISEUS; Crimſon-crowned Titmouſe. This is of a grey colour; the crown is red. It inhabits Greenland.

AFER; Black-breaſted Titmouſe. Blackiſh; cheeks, nape, and belly white; neck beneath, and breaſt black. It is found at the Cape of Good Hope, and is ſix inches long.

CAUDATUS; Long-tailed Titmouſe. Crown white; tail longer than the body; it weighs about a quarter of an ounce, and meaſures five inches and a quarter in length. This is a very elegant and ſingular ſpecies, and is chiefly confined to the woods and thickets of Europe and Siberia, where it makes a curious oval neſt of lichens, firmly woven together with wool, and having only a ſmall hole on the ſide, placed in the fork of ſome buſh, or branch of a tree. The female lays from nine to ſeventeen eggs, which are white, and ſparingly marked with ſmall ruſt-coloured ſpots towards the larger end.

CAPENSIS; Cape Titmouſe. Grey-aſh; quill-feathers black, edged with white; tail above black, beneath white. The bill and legs are black. It inhabits the Cape of Good Hope. It conſtructs a luxurious neſt of the down of a ſpecies of aſclepias; near the upper end projects a ſmall tube, about an inch in length, with an orifice about three-fourths of an inch in diameter. Immediately under the tube is a ſmall hole in the ſide, that has no communication with the interior of the neſt. In this hole the male ſits at night, and thus both male and female are ſcreened from the weather.

BIARMICUS; Bearded Titmouſe. Rufous; crown hoary; tail longer than the body; head bearded; vent black. It inhabits the marſhy places in many parts of Europe, is about ſix inches long, ſuſpends its neſt between three reeds; the eggs are reddiſh-white, with ſmall red ſpots.

SINENSIS; Chineſe Titmouſe. Ruſty-brown; head and neck paler; quill-feathers and long tail brown, edged with black. It inhabits China; is not quite four inches long. The bill is black; the legs are red.

MALABARICUS; Malabar Titmouſe. Grey; chin, wings, and middle tail-feathers black; body beneath, rump, ſpot on the wings, and baſe of the lateral tail-feathers, tawny. It inhabits Malabar, is nearly ſix inches long. The bill is black; the irids red. The under part of the female is rufous yellow.

ALPINUS; Alpine Titmouſe. Black, beneath pale rufous, ſpotted with black; from the baſe of the bill to the neck there is a white line; hind-claw very long. It inhabits the alpine parts of Perſia, and is about the ſize of the P. caudatus.

SIBIRICUS; Siberian Titmouſe. Grey-brown, beneath whitiſh; belly rufous-grey; lower part of the neck black in the middle; ſides pale rufous. A variety of this ſpecies has the belly and vent white. It is found in Siberia, and is about five inches long.

KNIASCIK. White; beneath, ocular line, and collar livid. It is found among the oak foreſts of Siberia.

HUDSONIUS; Hudſon's Bay Titmouſe. Reddiſh-brown; back cinereous; throat black; band under the eyes and breaſt white; the ſides are rufous. It inhabits Hudſon's Bay, and is about five inches and a half long.

MACROCEPHALUS; Great-headed Titmouſe. Black; breaſt orange; belly yellowiſh; head tumid; ſpot on the front and wings, and two outmoſt tail-feathers, white. A variety of this ſpecies has the breaſt ſcarlet. It is found in New Zealand, and is about four inches and a half long.

NOVA SEELANDIÆ; New Zealand Titmouſe. Red-aſh, beneath rufous-grey; eye-brows white; two middle tail-feathers black; the lateral ones in the middle with a ſquare black ſpot. It inhabits New Zealand, and is five inches long. The bill is brown, tipt with black; legs duſky-black.

PENDULINUS; Penduline Titmouſe. Head ferruginous; ocular band black; quill and tail-feathers brown, and edged on each ſide ferruginous. It is about four inches and a half long. It inhabits Europe and Siberia, frequenting watering-places for the ſake of aquatic inſects, on which it feeds. Theſe birds diſplay great art in the conſtruction of their neſts. They employ the light down found on the buds of the willows, the poplar, on thiſtles, and the dandelion. With their bill they entwine this filamentous ſubſtance, and form a thick cloſe web, almoſt like cloth. This they fortify externally with fibres and ſmall roots, which penetrate into the texture, and, in ſome meaſure, compoſe the baſis of the neſt. They line the inſide with the ſame down, but not woven, that their young may lie ſoft; they ſhut it above to confine the warmth, and they ſuſpend it with hemp, nettles, &c. from the cleft of a ſmall pliant branch over ſome ſtream, that it may rock more gently, aſſiſted by the ſpring of the branch. In this ſituation, the brood are well ſupplied with inſects, which conſtitute their chief food, and, at the ſame time, they are protected from their enemies. The neſt ſometimes reſembles a bag, and ſometimes a ſhort purſe. The aperture is made in the ſide, and is almoſt always turned towards the water. It is nearly round, and only an inch and a half in diameter, and is frequently ſurrounded by a brim. Theſe neſts are found in the fens of Bologna, Tuſcany, Lithuania, Poland, and Germany. The peaſants regard them with ſuperſtitious veneration, one of them being uſually ſuſpended near the door of each cottage, as a charm againſt lightning.

NARBONENSIS; Languedoc Titmouſe. Rufous-grey; crown hoary; wings and tail blackiſh, edged with rufous, primary quill-feathers edged with white; four inches long. It inhabits France, and builds a ſtrong pendulous neſt on the forked branch of a tree. The bill is black; the upper mandible edged with yellow-brown; the legs are of a lead colour.

CELA; Guiana Titmouſe. Black; bill white; ſpot on the wings and baſe of the tail yellow. It inhabits Guiana.

AMATORIUS; Amorous Titmouſe. Blackiſh-blue; longitudinal ſpot on the middle of the wings half yellow, and rufous; five inches and a half long. It inhabits Northern Aſia, and is remarkable for the mutual affection of the two ſexes. The bill is black at the baſe, and tipt with orange.

COCCINEUS; Scarlet Titmouſe. Cinereous; breaſt, ſpot on the wings, rump, and lateral tail-feathers on the hind part, ſcarlet. The bill and legs black, the vent is yellowiſh.

INDICUS; Indian Titmouſe. Above cinereous, beneath ferruginous; chin and throat of a dirty white; the limbs are a black-brown. It inhabits India.

PARUSHA, in *Mythology*, is a name applied by the Hindoos to ſeveral of their deities. The word ſeems to mean the primeval perſon or man; and in ſome fables it is related that he was produced by the Creator at the formation of the world, with Prakriti, a perſonification of Nature. (See PRAKRITI.) The allegorical union of theſe two powers, male and female, have furniſhed endleſs fancies for Hindoo metaphyſicians, who, among ſuch fancies, deſcribe an allegorical immolation of this primeval being; ſometimes making Paruſha, or Puruſha, the victim; ſometimes Brahma, or Narayana. In the Veda, called Yajur, or Yajuſh, the neceſſary ceremonies for the ſacrifices called Aſwamedha and Puruſhamedha, are laid down; "but they are not," as the words imply, "really ſacrifices of horſes and men." In the firſt mentioned, ſix hundred and nine animals of various kinds, domeſtic and wild, including birds, fiſh, and reptiles, are made faſt; the tame ones to twenty-one poſts, and the wild ones in the intervals between them; and after certain prayers, the victims are let looſe without injury. In the other a hundred and eighty-five men of various ſpecified tribes, characters, and profeſſions, are bound to eleven poſts, and after a certain hymn concerning the allegorical immolation of Narayana has been recited, theſe human victims are liberated unhurt; and oblations of butter are made on the ſacrificial fire. This mode of performing the Aſwamedha and Puruſhamedha as emblematical ceremonies, not as real ſacrifices, is taught in this Veda; and the interpretation is fully confirmed by ſeveral rituals, and by commentators, one of whom aſſigns as a reaſon, 'becauſe the fleſh of victims, which have been actually ſacrificed, muſt be eaten by the perſons who offer the ſacrifice: but a man cannot be allowed, much leſs required, to eat human fleſh.' This paſſage is cited by Mr. Colebroke from memory: he adds, "It may be hence inferred, or conjectured at leaſt, that human ſacrifices were not authorized by the Veda itſelf; but were either then abrogated, and an emblematical ceremony ſubſtituted in its place, as they muſt have been introduced in later times on the authority of certain Puranas and Tantras, fabricated by perſons, who in this, as in other matters, eſtabliſhed many unjuſtifiable practices on the foundation of emblems and allegories which they miſunderſtood." (Aſ. Reſ. vol. viii.) A human ſacrifice is called *Naramedha*, and, as deſcribed under that article, was formerly a uſage among the Hindoos. For the ſignification of the words *Narayana*, *Purana*, *Tantra*, and *Veda*, that occur above, the inquirer is referred to thoſe articles.

PARUSHA-*Medha*, among Hindoos, is an allegorical ſacrifice of a man, as noticed under the preceding article.

PARUTA, PAOLO, in *Biography*, a noble Venetian, was born in 1540. He ſucceeded Contarini as hiſtoriographer of the republic in 1579, and afterwards filled various offices in the ſtate. He was employed in ſeveral embaſſies, was made governor of Breſcia, and finally was elected a procurator of St. Mark. With a high character for wiſdom, integrity, and zeal for the public welfare, he died in 1598, at the age of 58. The following is an enumeration of his principal works, "A funeral Oration to the Praiſe of thoſe who fell in the Battle of Curzolari in 1571;" "Della Perfezione della vita Politica;" "Diſcorſi Politica," publiſhed by his ſons in 1599; "A Hiſtory of Venice, from 1513 to 1551, with the Addition of an Account of the War of Cyprus:" this work is written in Italian, and is accounted one of the beſt works of that claſs in the language. He had begun to write it in Latin, in imitation of the ſtyle of Salluſt, and had finiſhed four books in that language. A new edition of this hiſtory was given by Apoſtolo Zeno in 1703.

PARUTA, FILLIPPO, a learned antiquarian, was a noble of Palermo, and ſecretary to the ſenate of that city, where he died in 1629. He was author of ſeveral works, but is principally known by his "Sicilia deſcritta con Medaglie," publiſhed at Palermo in 1612. This work was afterwards enlarged by Leonardo Agoſtini, and printed at Rome in 1649, and at Lyons in 1697. Havercamp publiſhed a Latin edition of it in three volumes folio, 1723, which makes part of the Italian antiquities of Grævius and Burmann.

PARVUM CAPE. See CAPE.

PARWAN, in *Geography*, a town of Candahar; 60 miles N.W. of Cabul.

PARWIDA, a town of Sweden, in Tavaſtland; 45 miles N.N.E. of Jamſio.

PARWIS, a town of the Tyrol; 18 miles W.N.W. of Inſpruck.

PAR-YARD, in *Agriculture*, a term provincially applied to the ſtraw, or fold-yard.

PARYPATE, in the *Ancient Muſic*, was the name of that note or chord of a tetrachord which lay next to the hypate.

As the hypate was the *principalis*, the firſt, or principal ſound, according to Martianus Capello's tranſlation; ſo the parypate was, according to him, the *ſub-principalis*. See TETRACHORD.

The name parypate was given to this ſecond note when a tetrachord was conſidered ſeparately from others; but, when combined, this chord ſometimes took the name *trite*. See DIAGRAM, and TRITE.

PARYPATE *Hypaton*, in the *Ancient Greek Scale of Muſic*, was the ſecond note of the hypaton tetrachord, and anſwers to the *C-fa-ut* of Guido's ſcale. See DIAGRAM, and PARYPATE.

PARYPATE *Meſon*, in the *Greek Muſic*, was the ſecond note of the meſon tetrachord, and anſwers to the *F-fa-ut* of the Guidonian ſcale. See DIAGRAM.

PARYS, in *Geography*, a mountain of North Wales, in the iſland of Angleſea, about nine miles in length, and half as much in breadth; apparently waſte and barren in the extreme, but abounding in the richeſt mines of copper and lead ore, with a mixture of ſilver in the latter: the bed of copper ore is ſuppoſed to be the largeſt that is known on the globe; 2 miles S.E. of Amlwch.

PARZANEGA, a town of Italy, in the department of the Serio; 15 miles E.N.E. of Bergamo.

PAS, MANESSES DE, *Marquis de Feuquieres*, in *Biography*, was the poſthumous ſon of Francis de Pas, who was ſlain at the battle of Ivry. He was born at Saumur in 1590, and diſtinguiſhed himſelf as an able general and negociator. At the ſiege of Rochelle he was taken priſoner, was continued in confinement nine months, and was ranſomed in exchange for general Ekenfort, two colonels, and 18,000 crowns. The reduction of the city of Rochelle has been attributed chiefly to him. He was afterwards ambaſſador to the court of Sweden and Germany, where he diſplayed great talents. In 1635 he commanded the army in conjunction with the duke of Saxe-Weimar. He died in 1640. His negociations in Germany were printed in 1753, in 3 vols. 12mo. Moreri.

PAS, ANTHONY DE, *Marquis de Feuquieres*, grandſon of the above, was one of the greateſt generals of his time. He ſignalized himſelf at the battle of Stafarde, at the taking of Suza, and other ſtrong places in Italy, but he was ſo ſevere a diſciplinarian, that it was a common ſaying, that De Pas muſt be the braveſt man in the world, ſince he ſlept every night in the midſt of a hundred thouſand enemies. He was governor of Verdun, and in 1689 he was made, on account of his great talents, a field-marſhal. He died in January 1711, aged 63. His memoirs were printed in 4 vols. 12mo. Moreri.

PAS, in *Geography*, a town of Pruſſia, in Bartenland; 10 miles N.E. of Raſtenburg.

PAS, a town of France, in the department of the Straits of Calais; 13 miles S.W. of Arras.

PAS *de Calais*. See STRAITS *of Calais*.

PAS *de Souris*, in the *Military Art*, the ſame with *liziere*.

PASA, or FESA, in *Geography*, a town of Perſia, in the province of Farſiſtan; 68 miles S.E. of Schiras. N. lat. 29° 10′. E. long. 53° 40′.

PASAGINIANS, or CIRCUMCISED, in *Eccleſiaſtical Hiſtory*, a ſingular ſect, which ſprung up in Lombardy towards the cloſe of the 12th century. Like ſeveral other ſects that ſubſiſted about the ſame time, this ſect had the utmoſt averſion to the dominion and diſcipline of the church of Rome; but it was diſtinguiſhed, at the ſame time, by two religious tenets that were peculiar to itſelf. The firſt was a notion, that the obſervance of the law of Moſes, in every thing except the offering of ſacrifices, was obligatory upon Chriſtians; in conſequence of which, its followers were circumciſed, abſtained from thoſe meats, the uſe of which was prohibited under the Moſaic economy, and celebrated the Jewiſh Sabbath. The ſecond point that diſtinguiſhed this ſect was advanced in oppoſition to the doctrine of three perſons in the divine nature; for the Paſaginians maintained that Chriſt was no more than the "firſt and pureſt creature of God." Nor will their adoption of this opinion ſeem very ſurpriſing, if we conſider the prodigious number of Arians that were ſcattered throughout Italy long before that period. Moſheim.

PASAKA, or BUXADEWAR, in *Geography*, a town of Bootan; 60 miles S.S.E. of Taſſaſudon. N. lat. 26° 48′. E. long. 89° 30′.

PASAKAMENITZ, a town of Bohemia, in the circle of Chrudim; 8 miles W.N.W. of Politzka.

PASAL, a town of Africa, in the kingdom of Fonia. N. lat. 12° 40′. W. long. 15° 36′.

PASAN, *Antilope Oryx*, in *Zoology*, a ſpecies of antelope, with ſtraight, ſlender, diſtinctly annulated horns, which taper to a point; the body and ſides are of a reddiſh aſh colour, having a raiſed duſky line along the back, the hairs of which at the poſterior end are reverſed. This is the Gazella Indica, or Indian antelope of Ray; the capra gazella, or goat antelope of Syſt. Nat. ed. 12.; the oryx of Pliny, and other ancient writers; the Egyptian antelope of Pennant; and the paſan of Buffon. It inhabits Syria, Arabia, Perſia, India, Egypt, Ethiopia, and near the Cape of Good Hope. It is about the ſize of a fallow deer; the horns are near three feet long, the points ſharp, and about 14 inches aſunder; the face is white, with a black ſpot at the baſe of the horns, another on the middle of the face, and one on each ſide reaching from the eye to the throat, joining that on the face by a tranſverſe band of the ſame colour; the belly, rump, and legs are white; the white colour of the belly is divided, on the ſides, from the reddiſh aſh-coloured upper parts, by a broad longitudinal duſky band, which reaches to the breaſt; each leg is marked with a duſky ſpot below the knee; the tail is near two feet and a half long, and is covered with longiſh black hairs. This ſpecies is named gems bock, or chamois, at the Cape, and is ſuppoſed by Gmelin to be the zibi of the ſacred writers.

PASANGA, in *Geography*, a ſmall iſland in the Eaſt Indian ſea, near the coaſt of Sumatra. S. lat. 5° 10′.

PASAR, a town of Hindooſtan, in the Carnatic; 21 miles W. of Tiagar.

PASARGADA, or PASARGADÆ, in *Ancient Geography*, a town of Aſia, in the Perſide. The name ſignifies the camp of the Perſians, and the town had been founded in the place where Cyrus had vanquiſhed Aſtyages or Cyaxares in a pitched battle. According to Plutarch, there was in this town a temple of the goddeſs of war, who was ſuppoſed to have been Pallas.

PASARNA, a town of Aſia, in Leſſer Armenia, at ſome diſtance from the Euphrates, in the Lavinian prefecture. Ptolemy.

PASCAGOULA, in *Geography*, a river of America, in the Miſſiſippi territory, which, after purſuing a S. by E. courſe through Weſt Florida, and part of Louiſiana, diſcharges itſelf into the gulf of Mexico by ſeveral mouths, occupying a ſpace of three or four miles, which is a continued bed of oyſter-ſhells, with very ſhoal water. This river is ſaid to be navigable more than 150 miles. The adjacent ſoil improves as you advance towards its ſource. The bay formed by it lies in N. lat. 30° 23′. W. long. 88° 30′.

PASCAL, Blaiſe, in *Biography*, a celebrated mathematician and philoſopher of the 17th century, was born at Clermont, in Auvergne, in the year 1623. His father was a man of great conſideration in his province, was preſident of the court of aids, and was illuſtrious as a general ſcholar, as well as an able mathematician. To promote the ſtudies of his only ſon Blaiſe, he relinquiſhed his official ſituation, ſettled at Paris, and undertook the employment of being his tutor. The pupil was, from a very early period, remarkably inquiſitive, and deſirous of knowing the principles of things; and when good reaſons were not given to him, he would ſearch for better, nor would he reſt contented with any that did not appear to his mind well founded. His father ſoon diſcovered that the bent of his genius was decidedly to mathematics, from which he was determined, if poſſible, to keep him, leſt he ſhould, by this purſuit, be prevented from learning the languages. He accordingly locked up all the books that treated of geometry, and the ſciences properly called, and refrained even from ſpeaking of them in his preſence. On one occaſion, however, the youth aſked, with an importunity not to be put off, what was geometry? to which the father replied, "geometry is a ſcience which teaches the way of making exact figures, and of finding out the proportions between them;" but at the ſame time, he forbade him to ſpeak or think of the ſubject any more, which was perhaps the very readieſt way to excite in him an earneſt deſire to become acquainted with it. Accordingly the ſcience ſoon occupied all his thoughts; and though but twelve years of age, he was found, in the hours of recreation, making figures on the chamber-floor with charcoal, the proportions of which he ſought out by means of a regular, though perhaps uncouth, ſeries of definitions, axioms, and demonſtrations. It is ſaid, apparently upon unqueſtionable authority, that he had proceeded with his inquiries ſo far as to have come to what was juſt the ſame with the thirty-ſecond propoſition of the firſt book of Euclid, and that without any aſſiſtance either from living inſtructors, or the works of the illuſtrious dead. From this time, young Paſcal had full liberty to indulge his genius in mathematical purſuits, and was furniſhed by his father with Euclid's Elements, of which he made himſelf maſter in a very ſhort time. So great was his proficiency in the ſciences, that, at the age of ſixteen, he wrote a "Treatiſe on Conic Sections," which, in the judgment of the moſt learned men of the time, was conſidered as a great effort of genius. At the age of nineteen he contrived his admirable arithmetical machine, furniſhing an eaſy and expeditious method of making arithmetical calculations, in the fundamental rules, without any other aid than that of the eye and the hand. About this time, owing to ill health, he was obliged to ſuſpend his ſtudies, which he was unable to renew for four years; when having been witneſs to the famous Torricellian experiment reſpecting the weight of air, he inſtantly directed his attention to diſcoveries in the ſcience of pneumatics. He made a vaſt number of experiments, of which he circulated a printed account through the whole of Europe. He ſoon aſcertained the fact of the general preſſure of the atmoſphere, and compoſed a large treatiſe, in which he fully explained the ſubject, and anſwered the objections which were advanced againſt his theory: afterwards, thinking it too prolix, he divided it into two ſmall treatiſes, one of which he entitled "A Diſſertation on the Equilibrium of Fluids;" and the other, "An Eſſay on the Weight of the Atmoſphere." Theſe treatiſes were not publiſhed till after the author's death.

The high reputation which M. Paſcal had acquired, cauſed him to be looked up to by the moſt conſiderable mathematicians and philoſophers of the age, who applied for his aſſiſtance in the reſolution of various difficult queſtions and problems. Among other ſubjects on which his ingenuity was employed, was the ſolution of a problem ſuggeſted by Merſenne, which had baffled the penetration of all who had attempted it: this was to determine the curve deſcribed in the air by the nail of a coach-wheel, while the machine is in motion; which curve was at that time known by the name of the *roullette*, but is now deſignated the Cyloid; to which article we refer our readers for a farther account of the matter.

Before this time he had drawn up a table of numbers, which, from the form in which the figures were diſpoſed, he called his "Arithmetical Triangle." He might perhaps have been an inventor of it, but it is certain that it had been treated of, a century before Paſcal's time, by Cardan, and other arithmetical writers. See Triangle.

When M. Paſcal was in the 24th year of his age, and the higheſt expectations were formed of the advantages to be attained in ſcience from his labours, he on a ſudden renounced the ſtudy of mathematics, and all human learning; devoted himſelf wholly to a life of mortification and prayer; and he now became as great a devotee as almoſt any age has produced. From this period he renounced all kinds of pleaſure, and not only denied himſelf the moſt common gratifications, but was in the habit of daily entrenching ſome part of his dreſs, food, &c. which he did not conſider as neceſſary. He carried the matter much farther, and endeavoured to diminiſh his attachment to his deareſt friends, becauſe ardent affection was due to God alone. He occaſionally wore an iron girdle, full of blunted points, to increaſe his mortification and pain, and to remind him of his duty to God. During the latter years of his life, his principal relaxation from the rigorous ſyſtem which he preſcribed to himſelf, conſiſted in viſits which he paid to churches, where ſome relics were expoſed, or ſome ſolemnity obſerved; and for that purpoſe he had a ſpiritual almanack, or ephemeris, which informed him of the places where particular ſervices were performed. He was not, however, ſo completely abſtracted from the world, as to be wholly indifferent to what was paſſing in it; and in the diſputes between the Jeſuits and Janſeniſts, he became a partiſan of the latter, and wrote his celebrated "Provincial Letters," publiſhed in 1656, under the name of Lewis de Montalte, in which he only employed his talents of wit and humour in ridiculing the former. Theſe letters have been tranſlated into almoſt all the European languages, and probably nothing did more injury to the cauſe of the Jeſuits. They attempted various anſwers, but with little effect: they then obtained a decree of condemnation againſt them, but they ſtill maintained their ground, intereſting the more ſerious readers by their ſolidity, and thoſe of a lighter turn of mind by their wit. After the publication of the "Provincial Letters," he became entirely a recluſe, ſpending his whole time in meditation and prayer. He made his own bed, and performed almoſt all other menial offices; employing a ſervant only to dreſs his food, and to go on unavoidable errands. He allowed himſelf nothing in his apartment but a table, a bed, and two or three chairs. This courſe of life proved unfavourable to his health of body and mind. His reaſon became in ſome meaſure affected, and, in theſe circumſtances, an accident produced on his mind an impreſſion which could not be effaced. In 1654, while he was croſſing the Seine in a coach and four, the two leading horſes became unmanageable at a part of the bridge where the parapet was partly down, and plunged over the ſide into the river. Their weight fortunately broke the traces, by which means the other horſes and the carriage were extricated on the brink of the precipice. From this fright it was difficult to excite the feeble Paſcal, and he never afterwards had the poſſeſſion of his mental faculties. He always imagined that he was on the edge of a vaſt abyſs on the left ſide of him, and he would at no time ſit down till a chair was placed there, to aſſure him there was no real danger. After languiſhing ſome years in this miſerable ſtate, he died at Paris in 1662, at the age of 39. He intended to have written a work againſt atheiſts and unbelievers in Chriſtianity, and had collected a maſs of materials for that purpoſe, which he did not live long enough to digeſt. Theſe conſiſted of reflections upon devout, moral, and other ſubjects connected with the evidences of the Chriſtian religion, which were written down by him at different times, on the firſt piece of paper which he could find. After his deceaſe, theſe pieces of paper were found filed, but without any order or connection; and being exactly copied. were arranged and publiſhed in 32 chapters, under the title of "Penſèes de M. Paſcal ſur la Religion et ſur quelques autres Sujets." They have been tranſlated in our own and other languages, and have been greatly admired as the precious remains of a great and a good, though certainly a miſguided, man. They exhibit, in the original language, ſtriking traits of his ſublimity of genius, beautiful turn of ſentiment, as well as force and true elegance of expreſſion. Many of the ideas do not reflect honour on the wiſdom and benevolence of the deity; and on ſome of them Voltaire has written able animadverſions, in his "Lettres Philoſophiques."

The works of M. Paſcal were collected and publiſhed in five volumes, octavo, in 1779, at the Hague, and alſo at Paris. This collection, which conſiſted in part of poſthumous pieces, was given to the public by the abbè Boſſu, who thus deſcribes the author: "This extraordinary man inherited from nature all the powers of genius. He was a geometrician of the firſt rank, a profound reaſoner, and a ſublime and elegant writer. If we reflect that, in a very ſhort life, oppreſſed with continual infirmities, he invented a curious arithmetical machine, the elements of the doctrine of chances, and the method of reſolving various problems reſpecting the cycloid; that he fixed, in an irrevocable manner, the wavering opinions of the learned concerning the weight of the air; that he wrote one of the moſt perfect works exiſting in the French language; and that in his own "Penſèes," there are paſſages, the depth and beauty of which are incomparable; we can hardly believe that a greater genius ever exiſted in any age or nation." Bayle pronounces M. Paſcal to have been one of the ſublimeſt geniuſes whom the world ever produced; and ſays, if he might make uſe of the expreſſion, he would call him "a paradoxical individual of the human ſpecies." Voltaire, alſo, who did not ſpare the poſthumous works of Paſcal, ſays, in his "Siècle de Louis XIV.," that the "Lettres Provinciales may be conſidered as a model of eloquence and humour. The beſt comedies of Moliere have not more wit than the firſt part of them; and the ſublimity of the latter part is equal to any thing in Boſſuet." In another place, ſpeaking of this ſame work, he ſays, "that examples of all the various kinds of eloquence are to be found in it. Though it has been written almoſt an hundred years, yet not a ſingle word occurs in it favouring of that viciſſitude to which living languages are ſo ſubject. Here then we are to fix the epoch, when our language may be ſaid to have aſſumed a ſettled form." In a moral point of view, as well as an adept in ſcience and literature, Paſcal has been moſt highly applauded. "His heart," ſays his biographer, "was the ſeat of the pureſt benevolence; and his exertions in alleviating the miſeries, and contributing to the happineſs of the unfortunate and indigent, were limited only by the extent of his means. Though his abilities entitled him to aſſume an air of ſuperiority, he never diſplayed that haughty and imperious tone which is commonly obſervable in men of ſhining talents, but was diſtinguiſhed by uncommon modeſty and humility." Moreri. Bayle.

PASCALANK, in *Geography*, a river of North Carolina, which runs into Albemarle ſound, N. lat. 36° 6′. W. long. 76° 32′.

PASCALIA, in *Botany*, ſo named by Profeſſor Ortega, whoſe work we have not at preſent an opportunity of conſulting, but we preſume the genus is deſigned to commemorate ſome botaniſt. Ort. Dec. 4. 39. Willd. Sp. Pl. v. 3. 2228.—Claſs and order, *Syngeneſia Polygamia-ſuperflua.* Nat. Ord. *Compoſitæ oppoſitifoliæ*, Linn. *Corymbiferæ*, Juſſ.

Gen. Ch. ....

Eſſ. Ch. Receptacle chaffy. Seeds pulpy. Down a toothed border. Calyx imbricated.

1. P. *glauca*. Ort. Dec. 4. 39. t. 4.—Native of Chili. *Root* perennial. *Stem* erect, eighteen inches high, ſlightly branched in the upper part only. *Leaves* oppoſite, ſeſſile, ſmooth, glaucous; the lower ones ovate, with angle-like teeth, three-ribbed, veiny; the upper ones lanceolate, narrow, three-ribbed, obſcurely toothed towards the baſe. *Flowers* yellow, ſolitary at the ſummits of the ſtem and branches. The pulpy or drupaceous *ſeeds* appear to render this genus, as Willdenow obſerves, very diſtinct.

PASCATAQUA, in *Geography*. See PISCATAQUA.

PASCHAL I. pope, in *Biography*, a Roman by birth, who flouriſhed in the ninth century, became a preſbyter of the church, and abbot of the monaſtery of St. Stephen. In the year 817, upon the death of pope Stephen V., he was elected his ſucceſſor, by the unanimous ſuffrages of the ſenate, the clergy, and people. Immediately after his elevation to the pontifical throne, he ſent his nomenclator Theodore into France, to carry the tidings of his elevation to the emperor Lewis, who ſent him aſſurances of his protection, and conferred the grants which had been made by his father and grand-father to the holy ſee. No ſooner was his election known in the Eaſt, than letters were ſent to him from the monk Theodore Studita, and the other defenders of image worſhip, containing grievous but very exaggerated complaints of the perſecution which they ſuffered from the ICONOCLASTS (ſee the article); and exhorting him to aſſemble a council for the purpoſe of anathematizing thoſe heretics. This meaſure he refuſed to adopt, but ſent letters to the complainants, confirming them in their adherence to their uſual practice; and to comfort them under their ſufferings, he aſſured them that to be martyrs on account of Images, was in fact to be martyrs on account of Chriſt; and that the ſame reward was reſerved in heaven for thoſe who ſuffered under the Image-breaking emperors, which was conferred on thoſe who ſuffered under the Pagan emperors for the ſake of Chriſt. In the year 818, Paſchal built a monaſtery at Rome for the Greek monks who had fled from Conſtantinople, and the other cities of the Eaſt, rather than renounce the worſhip of images. In the year 823, Lotharius, the eldeſt ſon of the emperor Lewis, who had taken him for his partner in the empire, came to Rome, where he was received with every poſſible mark of reſpect and diſtinction, and crowned by him emperor and king of Italy. Scarcely had the monarch returned to France, when two of his adherents were cruelly murdered at Rome. Lewis inſtantly ſent commiſſioners to examine if the pope were at all implicated in the tranſaction, but after the ſtricteſt enquiry no certain information could be obtained as to the guilt or innocence of Paſchal. They, therefore, acquieſced in an offer which the pope made of declaring his innocence upon oath. He could not be perſuaded to deliver the aſſaſſins, alleging that they were his ſervants, and, in fact, guilty of no crime, ſince the perſons who had been put to death had long and richly deſerved that puniſhment by their treaſonable practices. The pope died in February 824, and ſo firmly was it believed that he was privy to the aſſaſſination which his ſervants had perpetrated, that the people would not allow him to be interred with his predeceſſors in the Vatican, and he remained unburied till his ſucceſſor cauſed his remains to be depoſited in one of the churches that he had rebuilt. Three letters that have been attributed to him are inſerted in the ſeventh volume of the "Collectio Conciliorum;" but very conſiderable doubts are entertained of their genuineneſs. Moreri. Bower.

Paschal II. pope, originally called Rainerius, or Raginerus, was a Tuſcan by nation, and was educated in the monaſtery of Cluny, where he embraced the monaſtic life while he was very young. At the age of 20, he was ſent by his abbot to Rome on buſineſs relating to the monaſtery, when Gregory VII., who was then on the pontifical throne, ſtruck with his talents and behaviour, retained him at his court, and, in a ſhort time, he was ordained prieſt, and ſoon after was promoted to the dignity of cardinal, with the title of St. Clement. In 1099, upon the death of pope Urban II., the cardinals, biſhops, and clergy of Rome, having aſſembled in the church of St. Clement, determined to elect cardinal Rainerius; he wiſhed to eſcape, and withdrew himſelf, but being diſcovered, he was brought back, and unanimouſly placed on the pontifical throne. On the following day his conſecration took place, when he aſſumed the name of Paſchal II. His firſt object was effectually to cruſh his rival Guibert, who had maintained the name of pope for nearly 20 years, and had given conſiderable trouble to three of his predeceſſors. In this the new pope ſoon ſucceeded; attempts were made to introduce other rivals, but the intereſt of Paſchal completely prevailed, and having ſecure poſſeſſion of the apoſtolical chair, he began the exerciſe of his pontifical office by ſending legates to France to remonſtrate with king Philip on account of his living in open adultery with Bertrada, the counteſs of Anjou, and to cut him off from the body of the church, ſhould not admonition bring him to a ſenſe of his duty. The legates were unable to convince the adulterers of the errors of their conduct, and accordingly excommunicated them. In the year 1101 the pope, through the intereſt of Anſelm, archbiſhop of Canterbury, attempted to introduce his own unlimited power into England, and ſent over Guido, archbiſhop of Vienne, with the character of his *legate a latere*; but when king Henry and the nation underſtood that he was commiſſioned to exerciſe in this kingdom the ſame uncontrolled power over all perſons which had been diſplayed in other countries, they would not acknowledge him, nor was he allowed to exerciſe any function of his office. (See Anselm and Henry I.) In the following year Paſchal aſſembled a council at Rome, in which the decrees of his predeceſſors againſt inveſtitures were confirmed, and the pope himſelf, with great ſolemnity, and in the preſence of an immenſe multitude, pronounced the ſentence of excommunication againſt the emperor Henry IV. This prince was afterwards glad to abdicate his throne in favour of his ſon Henry V. Upon the death of the former the pope held a council, in which decrees were paſſed which re-united the whole of Lombardy to the apoſtolical ſee, from which all that country, excepting the places held by the counteſs Matilda, had been ſeparated ever ſince the year 1080, when it declared in favour of the antipope Guibert. By this time the pope had the mortification to find, that the new emperor was determined, equally with his predeceſſors, to maintain his right to inveſtitures; the pope, therefore, to ſtrengthen his own hands, ſought an alliance with Philip of France, whom he had, ſome time previouſly to this, abſolved from the ſentence of excommunication. An attempt was made by Henry to terminate all differences with Paſchal, but as he would not recede in the leaſt from his claims, the object was not accompliſhed. In 1107 the pope preſided in a council at Troyes, conſiſting of the biſhops from many places, who proved themſelves to be wholly ſubſervient to the ambition of the court of Rome, by confirming all the decrees relating to the pretended papal right to inveſtitures. In 1110 a compromiſe took place, and in the following year Henry ſet out for Rome, at the head of a numerous army, to be crowned. He was received with every mark of reſpect, but when the conditions of the treaty were to be mutually fulfilled, the German and Italian biſhops preſent proteſted unanimouſly againſt parting with their eſtates, which they ſaid the pope had no right to diſpoſe of. This produced a warm altercation between the king and the pope, Paſchal declaring that he would not proceed with the coronation unleſs the monarch immediately ratified his part of the treaty Henry, in reply, ordered his guards to arreſt the pope and all his cardinals, thinking that, by this meaſure, he ſhould compel Paſchal to crown him. Two of the cardinals contrived to eſcape in diſguiſe, and they animated the citizens of Rome to fly to arms, to reſcue their pontiff. A civil contention took place, in which the friends of the pope were repulſed with great ſlaughter. After Paſchal had been priſoner about two months, the monarch ſwore, in the preſence of his army, that if he did not fulfil the articles of agreement, he would put him, and all his adherents, to death. The pope was ſtill unmoved, till the cardinals, and other priſoners, begged him to yield for their ſakes, and to prevent the calamities which muſt otherwiſe fall upon the church. The articles of agreement were accordingly ſigned, and the monarch received a papal bull, confirming to him the right of inveſtiture. Things being thus ſettled, the pope and Henry proceeded to the church of St. Peter, where the king was crowned emperor of the Romans by the pope, with the uſual ſolemnity; ſoon after which that prince took his leave of his holineſs and returned to Germany. Paſchal's reception at Rome was highly mortifying, he was accuſed of having ſacrificed the rights of the church, and the dignity of his ſtation, to his own ſafety. He affected great contrition, and ſanctioned the excommunication of the emperor. Hoſtilities were carried on by both parties till 1117, when Henry reſolved to bring matters to a criſis, and ſet out a ſecond time for Italy, at the head of a numerous army. The conteſts now were carried on with great violence, till the beginning of the following year, when the pope died, after a reign of about eighteen years and a half, which he ſpent in inceſſant efforts for extending the power, and promoting the aggrandiſement of the papal ſee. More than 100 of his letters, and ſome fragments of his decrees, are inſerted in the 10th vol. of the Collect. Concil. Moreri. Bower.

PASCHAL III. pope, or antipope, originally known by the name of Guy de Crema, was probably a native of the city whence he derived his ſurname. He was promoted to the ſacred college by pope Adrian IV. who ſent him into Germany as legate to appeaſe the reſentment of the emperor Frederic Barbaroſa, which he had provoked by his exorbitant and arrogant claims to the temporal power and authority. He was not ſucceſsful in the object of his miſſion ; on the death of Adrian, in 1159, the cardinals were divided into two parties, the greater number of whom declared the election to have fallen upon Alexander III., while the minority, in which Guy was one, gave votes for cardinal Octavian, who had long aſpired to the pontificate, and was even prepared to ſupport his pretenſions by an armed force. A double election took place, and the two rivals were conſecrated by their reſpective partizans, on which occaſion Octavian aſſumed the name of Victor. Supported by the emperor, he retained the pontifical dignity till his death in 1164, when cardinal Guy was choſen his ſucceſſor, and took the name of Paſchal III. This election was confirmed by the emperor, and in 1166, Paſchal was acknowledged in the character of ſovereign pontiff by the biſhops and princes of the empire at the diet of Wurtzburg. The Romans, however, declared for Alexander, and received him with the ſame honours which had been paid to his predeceſſors. A furious conteſt was excited, but at length the greater part of the Romans ſubmitted, and acknowledged Paſchal as lawful pope. He died in 1168, after he had held the title about four years. One of the chief acts which he performed in this character was the canonization of Charlemagne in the year 1165, but as the Roman church claſſes Paſchal among the antipopes, it does not agree to the honours of ſaintſhip which are paid to that prince.

There was another antipope of the name of Paſchal, who created a ſchiſm in the Roman church in the ſeventh century. He held the office of archdeacon, and upon the death of Conon, in 687, aimed at the papacy, and was elected by his friends to the high dignity, but in the end he was depoſed even from the more humble office of archdeacon, and ſhut up in a monaſtery, where he died in about five years.

PASCHAL, *Paſchalis*, ſomething belonging to the Jewiſh paſſover, or to the Chriſtian Eaſter.

The paſchal lamb was a lamb which the Jews eat with great ceremony, in memory of their having been brought out of ſlavery in Egypt. It ſhould be eaten ſtanding, their loins girt, the ſtaff in hand.

PASCHAL *Canon*. See CANON.

PASCHAL *Taper*. See TAPER.

PASCHAL *Rents*, are rents or annual duties paid by the inferior clergy to the biſhop, or archdeacon, at their Eaſter viſitations.

They are alſo called *ſynodals*.

PASCHAL *Letter*, in *Church Hiſtory*, a circular letter, which the patriarch of Alexandria firſt, and afterwards the pope, anciently wrote to all the metropolitans; to inform them of the day whereon the feaſt of Eaſter was to be celebrated.

PASCHASIUS-RADBERT, in *Biography*, a celebrated French monk, who flouriſhed in the ninth century, to whoſe writings Proteſtant controverſialiſts trace the origin of the doctrine of tranſubſtantiation, was a native of Soiſſons, and being deſerted in his infancy by his relations, he was brought up by the charity of the nuns in an out-houſe dependent on their convent. When he had attained to manhood, he embraced the monaſtic life among the Benedictines of the abbey of Corbie, where he applied, with great diligence, to his ſtudies; became diſtinguiſhed in polemic conferences, and wrote ſeveral books. In 844, when he was only in deacon's orders, he was, on account of his high reputation, elected abbot, which he ſoon after reſigned, and returned to the ſimple condition of monk, ſpending the remainder of his life in the exerciſes of the cloiſter, cloſe ſtudy, and the compoſition of various books. The firſt work which he gave to the public was a treatiſe "Concerning the Sacrament of the Body and Blood of Chriſt," compoſed by him in the year 831. In this he pretended to explain the doctrine of the church on this head, maintaining that after the conſecration of the bread and wine in the Lord's ſupper, nothing remained of theſe ſymbols, but the outward figure, under which the body and blood of Chriſt were really and locally preſent, and that the body of Chriſt thus preſent in the euchariſt, was the ſame body that was born of the virgin, that ſuffered on the croſs, and was raiſed from the dead. That this doctrine was then new, may be concluded from the great aſtoniſhment which it excited, and the general oppoſition which it met with from the learned men of the age. Moſheim has given an abſtract of the controverſy to which this publication gave riſe. In the year 846, Paſchaſius publiſhed a treatiſe entitled "De Partu Virginis," intended to ſupport an opinion propagated at that time by certain German doctors, that Jeſus was born in a manner entirely different from thoſe general laws of nature that regulate the birth of the human ſpecies. He was author of many other pieces, all which were collected and publiſhed by father Sirmond in 1618, in one volume folio. They are alſo to be found in the fourteenth vol. of the Bibl. Patr. Moreri. Prieſtley, Hiſt. of the Chriſtian Church. Moſheim.

PASCHIUS, GEORGE, a learned German Lutheran divine, was the ſon of a tradeſman at Dantzic, where he was born in the year 1661. When he had completed his ſtudies, he travelled for further improvement in Germany, France, and England. In 1701 he obtained the appointment of profeſſor of moral philoſophy at Kiel in Holſtein, and in 1706 he was nominated profeſſor extraordinary of divinity in the ſame univerſity. He died in the following year at the age of forty-ſix. He was author of various publications, abounding in curious and highly uſeful learning. His firſt and principal work was publiſhed in 1695, entitled "Tractatus de novis inventis, quorum accuratiori Cultui Facem prætulit Antiquitas," which afterwards appeared in a new and enlarged form in 1700, under the title of "Inventorum novantiquorum." It is a work replete with profound enquiries, and calculated to exalt former times at the expence of the preſent. The author attempts to prove, that the knowledge of the moderns has been imperceptibly borrowed from the rich ſtores of ancient wiſdom, and that our boaſted inventions are only improvements on the diſcoveries of the ancients. In endeavouring to eſtabliſh his point, he brought forward a number of intereſting facts relating to the hiſtory and progreſs of the arts and ſciences. One of the other works of this author was entitled "De fictis Rebus publicis," being a treatiſe on the imaginary republics of Plato, ſir Thomas More, and Campanella. The titles of his other pieces may be found in the General Biography, to which we refer the readers.

PASCOMAYO, in *Geography*, a ſea-port of Peru, in the biſhopric of Truxillo, and juriſdiction of Lana, at the mouth of a river of the ſame name.

PASEWALK, a town of Anterior Pomerania, ſituated on the Ucker, by means of which the inhabitants tranſport their goods to the great Haff. In its vicinity are ſome iron works; 21 miles W. of Old Stettin. N. lat. 53° 30′. E. long. 13° 57′.

PASH, or Pasha, in *Mythology*, is an attribute or implement of ſeveral of the deities ot the Hindoos. It ſeems to be an implement of puniſhment, a whip or laſh to chaſtize, or cord to ſtrangle, ſinners. A doubled cord is often ſeen in the hand of Parvati, in any of her terrific or avenging characters, and it is to ſuch characters that the paſha is chiefly confined. (See Kali.) In Hindoo books the paſha is frequently mentioned, and it is generally diſtinguiſhed by the name of the deity to whom it is attributed. Thus the Varuna-paſha is the cord of Varuna, the Hindoo Neptune. "Varuna," ſays Menu, "moſt aſſuredly binds the guilty in fatal cords," ch. xi. v. 308. "The Dherma-paſha, the dreadful Kalapaſha, and the highly valued Varuna-paſha," are mentioned in the Ramayana, as part of the "weapons, miſſile and manual," with which the gods armed Rama for the war of Lanka. They ſeverally mean the cords of Juſtice, of Death, and of Varuna.

PASHA. See Bashaw.

PASHAUNA Beady, in *Natural Hiſtory*, a name given by the people of the Eaſt Indies to a kind of fibroſe talc, found in the ſides of the mountains, and uſed in medicine with them. They calcine it, and then powder and boil it in milk, and give half a dram for a doſe mixed in milk, for the gravel and ſtone.

PASI, Antonio, of Bologna, in *Biography*, a diſciple of Piſtocche, highly extolled by the greateſt maſters of his time. Mancini, in his "Treatiſe on Singing," ſays that he was gifted with a taſte and intelligence in the art of ſinging which were wonderful. To a very ſimple method, and a clear and dignified *portamento*, or carriage of his voice, he was the firſt who united thoſe little licenſes which produce the greateſt effects. By this art his ſtyle became extremely ſingular and piquant. But he had then and ſince many bad imitators, who abuſed the art of which he was the original, and by a redundance of ornaments ſo diſguiſed and disfigured the melody, that it became wholly unintelligible. Yet, from the ambition of ſhining by variations and heterogeneous ornaments, they loſt the true expreſſion of that melody which was thought ſo eſſential to muſic, which was the boaſt of the end of the 17th century, and the beginning of the next; but it is to be feared that it has not ſince been found.

PASICANA, in *Ancient Geography*, a town of India, on this ſide of the Ganges. Ptolemy.

PASIDIUM, a town of Aſia, in Syria, ſituated on the ſea-coaſt, W. of mount Caſius.

PASIGA, in *Geography*, a river which riſes in the province of Darien, and runs into the bay of Panama.

PASIGRAPHY, in *Literary Hiſtory*, the art of univerſal writing. This art was ſuggeſted by lord Bacon in his "Inſtrument of Diſcourſe;" where he ſays, "it is poſſible to invent ſuch ſigns for the communication of our thoughts, that people of different languages may, by this means, underſtand each other; and that each may read immediately, in his own language, a book which ſhall be written in another." Lord Bacon did not think, however, of confining this, as citizen Memieux has lately propoſed to do, to 12 characters, which may be learned in 12 hours; on the contrary, he requires a great number, at leaſt as many as the number of radical words; on which head he quotes the example of the Chineſe; "and although," he adds, "our alphabet may appear more commodious than this method of writing, the thing itſelf is nevertheleſs well deſerving of attention. The problem relates to the ſigns by which thoughts may be rendered current; and as money may be ſtruck of other materials as well as of gold and ſilver, it is poſſible likewiſe to diſcover other ſigns of things as well as letters and words." Des Cartes, in his third letter to father Merſennus, diſcuſſes the invention of a Frenchman, whom he does not name, but who, by means of a certain language and an artificial writing, pretended to underſtand all the different idioms. He remarks on this ſubject, that it would be very poſſible to compoſe a ſhort and convenient grammar, with general ſigns, which ſhould render all foreign languages intelligible. In the year 1661, John Joachim Becher publiſhed a Latin folio, entitled "Characters for the Univerſal Knowledge of Languages; a Steganographic Invention hitherto unheard of." This was in effect paſigraphy; or a method of making one's ſelf underſtood by all foreigners by writing in one's own language, and alſo of comprehending what they write in theirs. Becher, being the firſt who gave a complete treatiſe on this art, may be conſidered as the inventor. He begins his work by a ſet of very delicate and highly intereſting obſervations upon general grammar, and the fundamental relations of all languages with regard to each other. He gives a learned comparative table of the relations and harmony of the Latin, the Greek, the Hebrew, the Arabian, the Sclavonian, the French, and the German. This work cannot be too highly eſteemed, and aſſuredly was not unknown to the author of the work "Du Monde Primitif." A Latin dictionary then follows, in which every word correſponds with one or more Arabic numeral figures arbitrarily taken. Every number is aſſumed as diſtinctive, or denoting the ſame word in all languages; and conſequently nothing more is required than to compoſe a dictionary for each, ſimilar to that which he has given for the Latin. There is likewiſe a table of declenſions and conjugations, which preſents certain determinate numbers for all the caſes, moods, tenſes, or perſons. By means of this general diſpoſition, when a Frenchman is deſirous of writing to a German the following phraſe, *La guerre eſt un grand mal* (war is a great evil), he ſeeks in his index, *guerre, être, grand, mal*; and he writes the correſpondent numbers,

13, 33, 67, 68.

The ſentence might be underſtood by theſe four characteriſtic numbers; but to leave no room for ambiguity, he ſays, *Guerre* is the nominative caſe, and finds, as the characteriſtic of the nominative, the Arabic figure 1. *Eſt* is the third perſon ſingular of the indicative mode, preſent tenſe, of which the characteriſtic is 15. To *grand*, and to *mal*, belong likewiſe the figure 1, for the nominative caſe; he will therefore write

13.1 | 33.15 | 67.1 | 68.1

where the numbers are ſeparated by ſmall vertical bars to prevent confuſion. It may eaſily be conceived how, by the inverſe method, the German will find in his tables the words denoted by the cyphers, which will form *Der krieg iſt ein groſſes uebel*.

This invention of Becher, which is the ſame thing nearly with regard to language, as algebra is to arithmetic, could not have coſt him any great effort of the imagination; and it evidently reduces itſelf, as is the caſe with regard to all paſigraphy, to the learning a new language, or having a dictionary at hand for uſe. It is beſides poſſeſſed of conſiderable ſimplicity, and even a few hours practice will render it eaſy. If any reader ſhould be curious to ſee more applications of this kind, he may have recourſe to the Latin work of Sturmius, "Eſſais d'Expériences curieuſes," probably the "Collegium experimentale, ſive curioſum, &c. Joannis Chriſtophori Sturmii," 4to. Norimberg, 1701.

In the ſame year George Dalgarme, an Engliſhman, publiſhed at London, a work of which the prolix title is ſufficient to ſhew its object. It is "The Art of Signs, or an Univerſal Character and Philoſophical Language, by means of which, Men of the moſt different Idioms may, in the Space of two Weeks, learn to communicate, whether by Word of Mouth or by Writing, all their Thoughts, as clearly as in their Mother Tongue. Beſides which, young Perſons may therein learn the Principles of Philoſophy, and the Practice of true Logic, more ſpeedily and more readily than in the ordinary philoſophic Writings." The book of Dalgarme is written in Latin. Beckmann accuſes him of extreme pedantry. His characters likewiſe were cyphers.

Joachim Friſichius, profeſſor at the Gymnaſium at Riga, was employed on a ſimilar attempt, namely, to introduce a natural, rational, and univerſal language, of which ſome ſheets printed at Thorn in 1681 may give an idea. The death of the author interrupted his labours. He purpoſed to call his new language Ludovicean, in honour of Louis XIV. under whoſe patronage he purſued his labours; a prince who extended his generoſity to the learned of all countries.

The curious in reſearches of this nature may alſo find a project of this kind in a folio volume publiſhed at Rome in 1665, by the celebrated mathematician Athanaſius Kircher, the title of which is, "A New and Univerſal Polygraphia, deduced from the Art of Combination;" and by means of which, ſays Morhoff (Polyhiſtor. l. ii. c. 5.), he who underſtands one ſingle language only may correſpond in writing with all the nations of the earth.

It would be perhaps unjuſt to paſs in ſilence the little-known work of father Beſnier, Jeſuit, who, in a book entitled "La Réunion des Langues, ou l'Art de les apprendre toutes par une ſeule," that is, The Union of Languages, or Art of learning all Languages by one alone, printed at Paris in 1674, has given ſeveral intimations which lead directly to paſigraphy.

The moſt remarkable work of all which has been written on this ſubject is, perhaps, that for which we are indebted to biſhop Wilkins, the brother-in-law of Cromwell. It is entitled "An Eſſay towards a Real Character and a Philoſophical Language," London 1668. It is divided into four parts. I. Conſiderations on the various languages, their defects and imperfections, from which a philoſophical language ought to be exempt. II. Philoſophical enquiries reſpecting all the things and notions to which proper names ought to be aſſigned. III. The organic ſcience of native grammar conſidered as the neceſſary means of repreſenting ſimple ideas in diſcourſe. IV. The application of the general rules to every character and language. Examples, &c. This conciſe outline ſufficiently ſhews the importance of the work.

In his appendix, the author explains the utility of a method of writing without alphabetic characters, by means of ſigns, which are to be uſed to denote all the principal ideas, the relative attributes being deſignated by ſmall ſtrokes added at right, acute, or obtuſe angles, to the right or left, &c. Of principal or chief ideas he admits but forty, under which he ranges all the others, by that means forming a kind of categories. His new language is calculated to afford great facility of comprehenſion, and new openings to the reaſoning proceſſes of ſcience. A learner might make more progreſs in it in a month, than in the Latin in ſeveral years. The Chineſe writing, which is a very complicated paſigraphy, has given two learned men the idea of forming one upon a more ſimple plan. The firſt is Caramuel, in his "Apparat Philoſophique," p. 128; and the other Andrew Muller Grieffenhag, in his "Clé Chinoiſe." The latter promiſed to teach to women and children, in the courſe of a few days, a kind of writing by which all the ſeveral languages ſhould be rendered intelligible to them.

After ſo many attempts more or leſs philoſophical, and of different degrees of perfection, with others probably of which we know nothing, we muſt not overlook the efforts of the celebrated Leibnitz for the introduction of a paſigraphy. His hiſtory and developement of a characteriſtic univerſal language is in every library. Leibnitz exhibited, and with reaſon, his univerſal characteriſtic as the art of inventing and judging. He was convinced that an alphabet might be formed, and of this alphabet ſuch words as would afford a language capable of giving mathematical preciſion to all the ſciences. "Men may thus acquire," ſays he, "as it were a new organ, which would add energy to their moral faculties, as the microſcopic lens increaſes the power of the eye. The compaſs is not more highly valuable to the navigator, than this philoſophical language would be to him who embarks on the ſea of reaſon and experiment, which is now ſo full of danger."

We muſt not forget the ingenious method of the abbé de l'Epée, who, by means of the ſame identical geſtures, dictated to his deaf and dumb pupils certain diſcourſes, which they wrote with equal readineſs in four languages. Nothing can more aſſuredly reſemble a true paſigraphy than theſe geſtures.

The abbé de Condillac, a ſubtle metaphyſician, particularly with regard to human language, has not neglected ſigns and characters. In his "Art of Thinking" (Art de Penſer), in his "Art of Writing" (Art d'Ecrire), and more particularly in his "Logic," he has ſhewn the advantages of a philoſophical language, which ſhould proceed perfectly in the order of the ideas, and of which the ſigns ſhould be the moſt ſimple and analytical. He expreſsly reduces the ſtudy of all the ſciences to that of a well conſtructed language, and quotes, as an example, algebra in the mathematical ſciences. Nicholſon's Journal, vol. ii. or Anderſon, on an Univerſal Character. Dr. Brown's Hints on the Eſtabliſhment of an univerſal written character. See CHARACTERS, LANGUAGE, and WRITING.

PASIN, in *Geography*. See BADKIS.

PASIPEDA, in *Ancient Geography*, a town of India, on the bank of the Ganges, and on this ſide of it, between Piſca and Suſicana. Ptolemy.

PASIRIS, a town of European Sarmatia, on the bank of the river Carcinite, between Torocca and Hercabum Ptolemy.

PASITIGRIS, a name given to the junction of the Euphrates and Tigris, at the mouth of the Perſian gulf.

PASKA, in *Geography*, a town of Africa, in the kingdom of Fonia, in which the king keeps a garriſon of 100 men. The town is ſurrounded with paliſades, and contains about 100 inhabitants.

PASKARETI, a town of Mingrelia; 20 miles N.N.E. of Anarghia.

PASKATAQUES, a large branch of Penobſcot river, on its W. ſide, which waters more than 50 miles, and receives 10 tributary ſtreams.

PASKAU, a town of Moravia, in the circle of Prerau; eight miles E. of New Titſchein.

PASLAKEN, a town of Pruſſia, in Bartenland; 10 miles S.E. of Bartenſtein.

PASMAN, an iſland of the Adriatic, near the coaſt of Dalmatia, 15 miles long, and two broad, which contains ſeven villages, and produces wine and oil in abundance. N. lat. 44° 8′. E. long. 15° 56′.

PASO Ferreira, a town of South America, in the government of Buenos Ayres; 340 miles N.N.W. of Buenos Ayres.

Paso *de Peſcado,* a town of South America, in the province of Tucuman; 50 miles N. of St. Miguel de Tucuman.

PASOLATO, a river of Sicily, which runs into the ſea, on the ſouth coaſt, N. lat. 36° 49′. E. long. 13° 32′.

PASOMDSO, a lake of Thibet, about 50 miles in circumference. N. lat. 29° 42′. E. long. 94° 24′.

PASPALUM, in *Botany,* apparently ſo called from πασπαλη, an ancient name for Millet, which kind of grain this graſs reſembles in the appearance of its ſmall round ſeeds; ſee Panicum *italicum.* Πασπαλη, or παιπαλη, is alſo a name for any fine meal or flour, as Profeſſor Martyn remarks. Linn. Gen. 32. Schreb. 46. Willd. Sp. Pl. v. 1. 330. Mart. Mill. Dict. v. 3. Ait. Hort. Kew. ed. 2. v. 1. 138. Brown Prodr. Nov. Holl. v. 1. 188. Juſſ. 29. Lamarck Illuſtr. t. 43. Gærtn. t. 80. Claſs and order, *Triandria Digynia.* Nat. Ord. *Gramina.*

Gen. Ch. *Cal.* Glume of two membranous, equal, almoſt orbicular, ſlightly concave valves, containing one floret; the inner one flatteſt, turned from the dilated unilateral receptacle. *Cor.* of two roundiſh, cartilaginous valves, the ſize of the calyx, externally convex, inflexed at the baſe. Nectary of two membranous ſcales at the baſe of the germen. *Stam.* Filaments three, capillary, the length of the calyx; anthers ovate. *Piſt.* Germen ſuperior, roundiſh; ſtyles two, capillary, the length of the corolla; ſtigmas pencil-ſhaped, hairy, coloured. *Peric.* none, except the permanent cloſed glumes. *Seed* ſolitary, roundiſh, compreſſed, convex at one ſide, coated by the permanent cartilaginous corolla.

Eſſ. Ch. Calyx of two valves, nearly orbicular, ſingle-flowered. Corolla of the ſame ſize and ſhape, compreſſed. Stigmas pencil-ſhaped. Seed coated with the hardened corolla. Common receptacle unilateral.

Obſ. Mr. Brown remarks, that this genus is very cloſely related to *Panicum,* inſomuch that if, in thoſe ſpecies of the latter which have an unilateral ſpike, the outer valve of the calyx be ſuppreſſed, it makes a real *Paſpalum.* Such a defect does, according to this botaniſt, actually take place in ſome few, in which, however, either the nectariferous ſcales, as Linnæus thought them, or a very minute valve within the inner valve of the calyx, do indeed ſometimes occur; but ſo likewiſe is a ſmall valve, on the outſide of the leaſt convex valve of the corolla, ſometimes obſervable, ſays Mr. Brown, in *Paſpalum orbiculare.* There is a peculiar aſpect of neatneſs, ariſing from the more or leſs perfectly orbicular form, and regular arrangement, of the flowers, which characteriſes the genus before us.

Linnæus at firſt referred ſuch of its ſpecies as he knew, to *Panicum,* but in Syſt. Nat. ed. 10. v. 2. 1359, he gives the generic character of *Paſpalum* at length, for the firſt time, enumerating four ſpecies in p. 855 of the ſame volume, which were all he then knew. He ſubſequently, as we ſhall find, confuſed the hiſtory of the firſt of them, *dimidiatum,* in ſuch a manner, that it could not be developed, but by inveſtigation of his ſpecimens and manuſcripts. He erred at firſt in conſidering the genus as *diandrous,* but this is corrected in his *Species Plantarum.* The hiſtory of the ſpecies has hitherto been ſo imperfectly detailed, that we ſhall attempt a more ample, if not a complete one.

1. P. *diſſectum.* Linn. Sp. Pl. ed. 2. 81. (P. dimidiatum; Syſt. Nat. ed. 10. v. 2. 855. Panicum diſſectum; Sp. Pl. ed. 1. 57. Gramen paniceum, ſpicâ ſimplici, ad caulem intervallatâ, binis granorum ordinibus uno verſu conſtante; Pluk. Mant. 9. Phyt. t. 350. f. 2.)—Spikes alternate, ſeſſile, with a leafy, broad, rough-edged receptacle. Flowers ſmooth, ſlightly elliptical, three-ribbed. Leaves ſmooth. Stipula membranous, beardleſs.—Native of North America; ſent to Linnæus by Kalm. *Stem* leafy, bent at the joints. *Leaves* linear-lanceolate, ſmooth, ſtriated, a little rough at the edges, with long, rather tumid, ſmooth ſheaths. *Stipula* membranous, jagged, unaccompanied by any hairs or briſtles. *Spikes* three or four on the upper part of the ſtem, which ſcarcely riſes above the leaves, each rather more than an inch long. *Common ſtalk,* or *receptacle,* of each ſpike much dilated, linear, exactly even, leafy, ſtriated, rough-edged, one-eighth of an inch, or more, in breadth, having at its inner ſide a ſtrong, angular, longitudinal rib, bearing numerous, alternate *flowers,* in two rows, on ſhort ſtalks. The *calyx-glumes* are exactly but broadly elliptical, rather tumid, pale, with three fine green ribs, perfectly ſmooth and naked. Perhaps this may be *P. membranaceum* of Walter, Fl. Carolin. 75.

2. P. *ſetaceum.* Michaux Boreal-Amer. v. 1. 43.—Spikes one or two, on long ſtraight ſtalks, with a narrow wavy receptacle. Flowers moſtly in pairs, on ſhort, winged, divided partial ſtalks, ſlightly obovate, ſmooth, ſcarcely ribbed. Leaves downy above. Stipula hairy. Sent from Lancaſter, Pennſylvania, by the Rev. Dr. Muhlenberg. We at firſt confounded it with the former, but on examination it proves abundantly diſtinct, and anſwers well to the character in Michaux. The *ſtem* is erect, ſlender and ſmooth, terminated by one *ſpike,* two inches long, on a ſlender, ſtiff, naked ſtalk, many inches in length, whoſe baſe is enfolded by the very long ſheath of the upper *leaf,* from which often proceeds another ſimilar, but ſhorter-ſtalked, ſpike. The upper *leaf,* at leaſt, is much ſhorter than its ſheath, lanceolate, clothed above with ſoft hairs. Michaux ſays his plant grows in dry ſituations in South Carolina.

3. P. *debile.* Michaux ibid. 44.—"Stem weak, briſtle-like at the top. Leaves hairy. Spike moſtly ſolitary, ſlender. Flowers ſolitary, alternate, ſlightly downy, ſlightly obovate."—Native of maritime ſituations, in Carolina and Georgia. This ſeems by Michaux's character, which is all we know of it, to be akin to the laſt.

4. P. *conjugatum.* Bergius in Act. Helvet. v. 7. 129. t. 8. Willd. n. 12. Swartz Ind. Occ. v. 1. 133. (P. diſſectum; Linn. Syſt. Nat. ed. 12. v. 2. 86.)—Spikes two, terminal, equal, nearly ſeſſile. Receptacle narrow, even, with a wavy rib. Flowers ſolitary, very numerous, alternate, imbricated, ovate, acute, ribleſs, fringed with long ſoft hairs. Common in the Weſt Indies, in moiſt paſtures. Linnæus obtained a ſpecimen from Browne's herbarium, which he confounded with the firſt ſpecies, though nothing can be more diſtinct. Hence the ſpecific character of *P. diſſectum* became corrupted in his Syſt. Veg. which Willdenow has copied. The deſcription however in the laſt-named author, copied from Sp. Pl. ed. 2, is right, except the downineſs of the leaves. *P. conjugatum* is a larger ſpecies than any of the foregoing, with broad, taper-pointed, often downy *leaves.* *Stipula* hairy. *Spikes* two, on a level at the top of the ſtem, nearly ſeſſile, ſlender, a little divaricated, each nearly four inches long, of innumerable, crowded, alternate, ſmall, yellowiſh, ovate, acute *flowers,* each on a ſhort ſtalk; their *calyx* ribleſs, remarkably fringed with long, lax, white hairs. One of our ſpecimens bears a third ſpike, an inch below the others. Swartz ſays this is called, in the Weſt Indies, Sour graſs, and is not eaten by cattle.

5. P. *ciliatifolium.* Mich. Boreal-Amer. v. 1. 44.—"Leaves dilated, downy, finely ſerrated, fringed. Spikes one or two, terminal, elongated. Flowers in pairs, ſomewhat obovate,

vate, very obtuſe, ſmooth, forming three rows.—Native of Carolina. *Michaux*. This ſeems akin to the laſt.

6. P. *præcox*. Walt. Carolin. 75. Mich. ibid. 44.—" Erect, ſmooth. Leaves linear, elongated. Spikes alternate, remote. Flowers ſhort, obovate, even and ſmooth." —Native of North America, from Carolina to Florida. *Michaux*.

7. P. *læve*. Mich. ibid. 44.—" Erect, very ſmooth. Leaves ſhortiſh; with compreſſed ſheaths. Spikes ſeveral, alternate. Flowers in two ranks, ovate, ſomewhat orbicular, even and ſmooth."—Native of Georgia. *Michaux*. We have adopted theſe three ſpecies from Michaux, that they might be recorded in a general view of the genus, though we are unacquainted with them. It ſeems the North American *Paſpala* are but incompletely known; nor can we, by the above ſhort, and far from ſcientific definitions, refer theſe to any in Linnæus or Willdenow. Two others, in the ſame predicament, will be noticed hereafter, among the ſpecies to which they may be preſumed moſt nearly to belong.

8. P. *ſcrobiculatum*. Linn. Mant. 29. Willd. n. 2. Ait. n. 1. Houtt. Nat. Hiſt. v. 13. 165. t. 89. f. 3. *Dryandr.* —Spikes alternate, with a leafy, broad, rough-edged receptacle. Flowers alternate, orbicular, on ſimple dilated ſtalks, many-ribbed, dimpled at the baſe externally.—Native of the Eaſt Indies, in watery places. *Root* perennial, of many long, blackiſh, branched fibres. *Stem* one or near two feet high, clothed with ribbed, ſmooth *leaves;* having long purpliſh ſheaths, hairy at the bottom. *Spikes* few and diſtant; their receptacle flat, near a quarter of an inch wide, minutely fringed. *Flowers* not unlike hemp ſeed in ſize and aſpect, very numerous, alternate, imbricated in two rows, each on a ſhort, dilated, cloſe-preſſed partial ſtalk, and very nearly orbicular, tumid, ſmooth and naked, with numerous ribs near the margin, remote from the central one, the flatter valve of the calyx marked with a pair of depreſſions at the baſe.

9. P. *polyſtachyum*. Brown n. 1.—" Spikes numerous, crowded. Flowers ſmooth, orbicular. Outer valve of the calyx five-ribbed. Leaves flat, ſmooth, with a thin finely-toothed margin."—Gathered by Mr. Brown, in the tropical part of New Holland. This ſpecies is deſcribed by him as too nearly related to the laſt, except that the dimples in the baſe of the *calyx* are wanting. We have perceived that character to be doubtful or variable in various ſpecimens of *P. ſtrobiculatum*.

10. P. *villoſum*. Thunb. Jap. 45. t. 8. Willd. n. 3.— Spikes alternate, with a hairy receptacle. Flowers alternate, elliptical, three-ribbed, villous.—Found by Thunberg, near Nagaſaki in Japan, flowering in July. *Stem* three feet high, ſmooth. *Leaves* roughiſh to the touch, ſtriated, naked. *Spikes* about three or four, inclining all one way. *Flowers* crowded, in two rows only, about the ſize of *P. ſcrobiculatum*, but more oblong, and hairy. The *receptacle* is narrow, very hairy like the top of the *ſtem*. We have ſeen no ſpecimen.

11. P. *virgatum*. Linn. Sp. Pl. 81. Willd. n. 4. (Gramen dactylon majus, paniculâ longâ, ſpicis plurimis nudis craſſis; Sloane Jam. v. 1. 112. t. 69. f. 1.)—Spikes rather numerous, alternate, hairy at the baſe. Flowers in pairs, ſomewhat obovate. The tumid valve of the calyx fringed. Native of meadows in Jamaica. Perennial. About the ſize of *P. ſcrobiculatum*, but differing in having ſmaller, obovate, fringed *flowers*, which being diſpoſed in pairs along the narrow wavy *receptacle*, make four rows inſtead of two; each glume has a central rib, with a marginal one at each ſide, and the concave one is finely fringed in the upper part.

12. P. *floridanum*. Mich. Boreal-Amer. v. 1. 44.— " Erect. Lower leaves hairy; upper ones ſmooth, with long ſheaths, upright. Spikes few, erect. Flowers in two rows, nearly orbicular, ſmooth, naked."—Native of Florida and Georgia. This, ſays Michaux, is akin to *P. virgatum* of Linnæus. We know nothing of it but from the above character, which is eſſentially different in almoſt every point from the *virgatum*. Michaux adds that the *flowers* are rather large. We ſubjoin the only remaining ſpecies of that author, not knowing where elſe to place it.

13. P. *plicatulum*. Mich. ibid. 44.—" Erect, very ſmooth and naked. Leaves elongated. Spikes numerous, alternate, upright. Flowers in three rows, ſhort, ovate, naked. The flatter valve of the calyx tranſverſely corrugated at the margin."—Native of Georgia and Florida. The *leaves* are narrow. *Flowers* ſomewhat reddiſh.

14. P. *paniceum*.—Spikes very numerous, crowded, hairy at the baſe. Flowers in four rows, orbicular, even and naked.—Gathered in Jamaica by W. Wright, M.D.—A very fine and handſome ſpecies, whoſe denſe and very numerous *ſpikes*, crowded together into one common *ſpike*, a foot long, give, with their copious little round *flowers* and *ſeeds*, ſome idea of *Panicum italicum*, except that the whole is erect and unilateral. The leaves are long, near two inches broad in ſome parts, tapering to a rough-edged point, but otherwiſe very ſmooth to the touch, and finely ribbed. Each partial *ſpike* is two inches, or more, in length, with a flat rather narrow *receptacle*, bearing a few ſcattered hairs throughout, and very hairy at its baſe. *Flowers* diſpoſed in four rows, on ſhortiſh capillary ſtalks, about the ſize of *Panicum italicum*, almoſt perfectly orbicular, of a light tawny hue, the *calyx-valves* even and ſmooth, each with a central rib, but no others, except at the very edge. This graſs was formerly known in the Bankſian herbarium, by the expreſſive name of *Paſpalum polyſtachyum;* now appropriated by Mr. Brown to our 9th ſpecies, which, from his deſcription, muſt be very unlike the preſent.

15. P. *paniculatum*. Linn. Sp. Pl. 81. Willd. n. 5. Ait. n. 2. (Gramen miliaceum, paniculâ viridi vel purpureâ; Sloane Jam. v. 1. 115. t. 72. f. 2.)—Spikes numerous, crowded, ſomewhat whorled, ſpreading every way, hairy at the baſe. Flowers in alternate pairs, orbicular, even, ſlightly hairy.—Receptacle very narrow.—Sloane ſays this grows in ſeveral plantations in Jamaica, on a moiſt clay ſoil. The *leaves* are an inch wide, hairy on their upper ſide, as well as about the *ſtipula* on both ſides; their ſheaths long, ſmooth, ribbed. *Common ſpike* a ſpan long, compoſed of numerous narrow *ſpikes*, two inches or more in length, partly ſcattered, partly whorled, ſpreading every way, each with an extremely narrow, though ſlightly winged, *receptacle*. *Flowers* numerous, ſmall, rather looſely diſpoſed in alternate pairs, on twin or combined ſtalks; their glumes very nearly orbicular, obtuſe, ſomewhat hairy, ſingle-ribbed.—Such is the genuine plant of Sloane and Linnæus; though the latter had in his herbarium another ſpecimen, from which the particular deſcription in *Sp. Pl.* was taken, but which is a very diſtinct ſpecies; ſee the following.

16. P. *repens*. Bergius in Act. Helvet. v. 7. 129. t. 7. Willd. n. 7. (P. paniculatum; Linn. Sp. Pl. 81, as to the deſcription only.)—Spikes numerous, crowded, ſomewhat whorled, ſpreading every way, naked at the baſe. Flowers alternate, elliptical, acute. Leaves and receptacle rough. —Native of Surinam, according to Bergius, who deſcribes the *ſtem* a foot or more in length, ſtriated, ſmooth, jointed, leafy, creeping by means of fibrous roots thrown out at the joints. *Leaves* linear-lanceolate, acute, ſcarcely a finger's length, ſtriated, downy, dark green, with a ſheathing baſe,

which in his figure and deſcription is repreſented as flying off from the ſtem, probably in conſequence of drying or preſſure; the upper ſheaths are ſmooth, the lower roughiſh, with minute points. *Stipula* oblong, membranous, lacerated, abrupt. *Spikes* numerous, ſlender, drooping, an inch or two long, the upper ones whorled, the lower oppoſite. *Receptacle* linear, broad, taper-pointed, leafy, roughiſh, dark green. *Flowers* ranged alternately, but ſolitarily and not in pairs, each on a ſhort ſtalk. Their form is ovate, or rather elliptical, pointed, by no means orbicular; the larger valve convex, and in our ſpecimen downy; the ſmaller concave and ſmooth, with a pair of minute, parallel, cloſe-preſſed, reddiſh, lanceolate ſcales at its baſe, which perhaps invalidate the generic character, even more than the ſhape of the glumes. (See PANICUM.) Whether they are the rudiments of abortive florets we preſume not to determine. Our ſpecimen, to which no place of growth is attached, is much more luxuriant than what Bergius has drawn, but has only an upper *leaf*. The *ſpikes* are for the moſt part above two inches long, half-whorled, ſpreading in every direction. There are none of the briſtly hairs about the *ſtipula*, ſeen in *P. paniculatum*, nor are there any ſuch hairs below the *ſpikes*, except a very few minute ones to the lowermoſt of all. The *ſtipula* is externally downy.

17. P. *ſtoloniferum*. Boſc. Tr. of Linn. Soc. v. 2. 83. t. 16. Willd. n. 6. Ait. n. 3. (P. racemoſum; Jacq. Ic. Rar. t. 302.)—Spikes very numerous, crowded, racemoſe. Flowers alternate, elliptical, pointed, tranſverſely corrugated, overtopping the lanceolate pointleſs receptacle.—Native of Peru, where it is commonly known by the name of *Alzaillo*. We received ſeeds from Mr. Boſc in 1791, from which plants were raiſed by Mr. Hoy, in Sion gardens. Sir Joſeph Banks ſent this ſpecies to Kew in 1794, where it is kept in the ſtove, flowering in July and Auguſt. This is a very handſome perennial graſs, whoſe *ſtem* is branched, two feet high, leafy, ſmooth, procumbent at the baſe, and throwing out roots from the joints. *Leaves* broad, almoſt ovate at the baſe, from four to ſix inches long, acute, ſmooth, many-ribbed, rough-edged; their *ſheaths* cloſe, long, and ſmooth. *Stipula* ſhort, membranous, without hairs. *Common ſpike* near a ſpan long, elegantly variegated with purple, green and white; *partial* ones numerous, crowded, ſcattered or partly whorled, each ſcarcely an inch long, ſupported by a ſhort downy ſtalk. *Receptacle* lanceolate, broad, wavy, rough-edged, green and leafy, without any taper point. *Flowers* from eight or ten to twenty in each ſpike, alternate, imbricated in two rows, elliptical with a ſmall point; the margins, of the flatter calyx-valve more eſpecially, ſtrongly corrugated and crenate.

18. P. *corymboſum*.—Spikes ſeveral, alternate, corymboſe; the lower ones longeſt. Flowers alternate, nearly orbicular, ſmooth, almoſt ſeſſile. Receptacle wavy. Leaves and ſheaths hairy.—Gathered by Dr. Afzelius at Sierra Leone. The lower part of the *ſtem* is decumbent, and bent at the joints; the reſt erect, leafy, about 18 inches high. *Leaves* rather narrow, ſharp-pointed, clothed on both ſides with ſoft hairs. The *ſheaths* are hairy likewiſe, eſpecially at the upper part. *Stipula* chiefly compoſed of long hairs. *Spikes* about five, crowded near together at the top of the ſtem, alternate, ſpreading every way; the loweſt two inches and a half long, the reſt gradually ſhorter, ſo that all are about level at the ſummit. *Receptacle* linear, but rather narrow, wavy, ſmooth, except at the edge. *Flowers* very numerous, imbricated in two rows, nearly orbicular, ſmooth, ſingle-ribbed, ſo gibbous as to be almoſt hemiſpherical, on ſhort ſmooth ſtalks.

19. P. *orbiculare*. Forſt. Prodr. 7. Brown n. 2.—Spikes alternate, diſtinct, briſtly at the baſe. Flowers alternate, nearly orbicular, ſmooth; their outer glume three-ribbed. Leaves flat; thickened and toothed at the margin.—Gathered by Forſter in the Society iſlands; by Mr. Brown in the tropical part of New Holland, as well as near Port Jackſon. We have ſeen no ſpecimen of this or the next.

20. P. *pubeſcens*. Brown n. 3.—" Spikes alternate, diſtinct, ſeſſile. Flowers ovate, downy; their outer glume three-ribbed. Leaves flat, hairy, and rough above, thickened and toothed at their margin."—Gathered by Mr. Brown, in the tropical part of New Holland.

21. P. *littorale*. Brown n. 4.—Spikes two or three, alternate, downy at the baſe. Flowers ovate, acute, ſmooth. Leaves involute, naked. Stem compreſſed.—Found by Mr. Brown in the tropical regions of New Holland, as well as near Port Jackſon. We have ſpecimens, gathered by Dr. White at the laſt-mentioned place, which anſwer to Mr. Brown's definition, except that though in ſome of them the *ſpikes* are only two, one elevated above the other, in others they are three, ranged alternately along the angular top of the *ſtem*. Each ſtands on a very ſhort downy ſtalk. The *receptacle* is leafy, wavy, rather narrow, one inch and a half or two inches long, ſmooth, except the edges. *Flowers* large, imbricated in two rows, projecting much beyond the receptacle, on ſhort, ſmooth, compreſſed ſtalks.

22. P. *hirſutum*. Retz. Obſ. faſc. 2. 7. Willd. n. 8.—Spikes about two, alternate. Flowers many-nerved, ſmooth. Leaves, ſheaths, ſtem, and partial flower-ſtalks hairy.—Sent from China by Bladh. The *ſtems* are erect, leafy, hairy in their upper part. *Leaves* flat, ribbed, hairy all over, as well as their *ſheaths*, which are bearded at the top. *Spikes* nearly erect, alternate, two only in Retzius's ſpecimen, their *receptacles* leafy, narrower than in *P. ſcrobiculatum*. *Flowers* in two rows, alternate, ſmooth, with three or five ribs, on hairy ſtalks. *Retz.*

Willdenow by miſtake copies from Retzius *ſpicis ſubbinatis*, (placed in pairs) for *ſubbinis*; an important difference.

23. P. *Kora*. Willd. n. 9, excluding Forſter's Syn.—Spikes two or three, alternate, hairy at the baſe. Flowers orbicular, ſmooth, five-ribbed. Stem and leaves ſmooth. Stipula hairy.—Native of the Eaſt Indies. Sent from Tranquebar, by the Rev. Dr. Rottler. The *ſtem* is branched, decumbent in the lower part, ſmooth, as are the *leaves* and their *ſheaths*. *Stipula* membranous, ſhort, accompanied by a few long hairs. *Spikes* two or three, alternate, one and a half or two inches long, of numerous, alternate, crowded, nearly orbicular *flowers*, half as large as *P. ſcrobiculatum*, on very ſhort partial ſtalks. *Receptacle* leafy, narrow, ſtraight and even, ſcarcely zigzag, except its midrib.

24. *P. diſtichum*. Linn. Sp. Pl. 82. Willd. n. 11. Ait. n. 4. Swartz. Obſ. 35. t. 2. f. 1. (Gramen dactylon bicorne repens, foliis latis brevibus; Sloane Jam. v. 1. 112.)—Spikes two or three, alternate. Flowers ovate, acute, ſmooth, three-ribbed. Receptacle ſtraight. Leaves ſmooth, as well as the ſtem. Stipula hairy.—Native of rather moiſt graſſy paſtures in the Weſt Indies. The *ſtem* is ſimple, near two feet high, decumbent at the baſe, very ſmooth. *Leaves* flat, according to Swartz; involute when dry, taper-pointed, ſmooth; with long ſmooth *ſheaths*, crowned with a hairy *ſtipula*, and not (as Swartz ſays) hairy at the baſe. *Spikes* uſually two, one above the other, ſometimes three, approximated, but really alternate, one inch and a half long, with a linear, even, ſtraight, flat, ſmooth, rather glaucous *receptacle*. *Flowers* twenty or thirty, alternate, crowded, nearly ſeſſile, ovate, acute, pale, concave on the outſide, with three ribs. *Anthers* dark purple. *Stigmas* blue.

25. P. *longiflorum*. Retz. Obſ. Faſc. 4. 15. Willd. n. 10.—Spikes two, terminal, equal, on ſhort ſtalks.

Flowers ovate, pointed, ſmooth, three-ribbed. Receptacle zigzag. Root creeping. Stems erect. Leaves ſmooth. Stipula hairy.—Native of the Eaſt Indies. Sent from Tranquebar, by the Rev. Dr. Rottler. This has a long creeping *root*, like *Carex arenaria*, throwing up, like that, many *ſtems*, hardly a ſpan high, ſlender, ſmooth, leafy, rarely branched. *Leaves* ſmooth, narrow, acute, ſpreading, with long ſmooth *ſheaths*, crowned with a ſhort *ſtipula* beſet with briſtly hairs. *Spikes* two, an inch long, on a level at the top of the ſtem, firſt erect, then divaricated, each on a ſmooth, ſhort, tapering ſtalk. *Receptacle* zigzag, ſmooth, with a zigzag furrow. *Flowers* ten or twenty, ſituated and ſhaped nearly as in the laſt, but rather more elongated and more pointed, ſlightly convex rather than concave at the back. Willdenow ſays it has ſometimes three ſpikes, but he neglects to inform us how they are, in that caſe, ſituated. We have never ſeen more than two, always on ſtalks of equal length, ſpringing from one point, which is not the caſe with the *diſtichum*.—The habit and aſpect of this graſs reſemble *Panicum Dactylon*; and it appears deſtined, like that, to grow in looſe blowing ſand, which the many-branched fibres of its roots are calculated to bind together and to fix, thus performing a very important ſervice in the economy of nature.

26. P. *vaginatum*. Swartz Ind. Occ. v. 1. 135. Willd. n. 13.—Spikes two, terminal, equal, on ſhort ſtalks. Flowers ovate, pointed, ſmooth. Receptacle ſomewhat zigzag. Stem creeping, bent at the joints, branched. Stipula hairy.—Native of paſtures, on a clay ſoil, in Jamaica. *Swartz*. By his deſcription, which is our only ſource of information concerning this ſpecies, it comes very near the laſt in technical characters, except that it does not ſeem to have the ſame long creeping *roots*, and numerous, moſtly ſimple, *ſtems*. He deſcribes the *roots* as numerous and thread-ſhaped. *Stem* a foot high, creeping, bent at the joints, and ſubdivided. *Leaves* nearly linear, acute, ſpreading, with broad, compreſſed, two-ranked, ſtriated, ſmooth *ſheaths*, crowned with hairs. *Spikes* an inch long, ſpreading. The reſt of his deſcription we have compared with the laſt, in order to compile a ſpecific character. Had we ſpecimens of both, more differences might appear.

27. P. *filiforme*. Swartz. ibid. 136. Willd. n. 14.—Spike moſtly ſolitary, linear, very ſlender. Flowers very numerous, on ſhort ſtalks, elliptical, three-ribbed. Leaves briſtle-ſhaped, channelled. Common in dry open fields in the Weſt Indies. Communicated by Dr. Swartz. This ſpecies is known from all the reſt by its extremely ſlender habit. It is two feet high, and grows in tufts. The *ſtem* is quite ſmooth, almoſt capillary, but rigid and erect. *Leaves* long, ſtraight, almoſt equally ſlender; convex and ſmooth beneath; channelled above; with long cloſe *ſheaths*, hairy at the top. *Spike* two or three inches long, with a very narrow, ſlightly zigzag *receptacle*, covered on one ſide with a double row of cloſely imbricated, ſmall, ſmooth, elliptical *flowers*. *Anthers* yellow. *Stigmas* blueiſh.

28. P. *decumbens*. Swartz. ibid. 138. Willd. n. 13.—Spikes ſolitary, on long, capillary, ſolitary or aggregate ſtalks. Flowers nearly orbicular, pointed. Leaves ovato-lanceolate, hairy.—Gathered in dry ſandy mountainous ſituations, on the weſt ſide of Jamaica, by Dr. Swartz, to whom we are obliged for ſpecimens. The *ſtems* are procumbent, about a foot long, branched, leafy, ſlender, ſmooth, bent at the joints, apparently compreſſed, though deſcribed as cylindrical. *Leaves* rather broad, lanceolate, acute, ovate at the baſe, clothed, more or leſs, on both ſides, with ſoft ſcattered hairs; with ſlightly tumid ſheaths, about their own length, whoſe edges are thickly fringed. *Stipula* ſhort, membranous, jagged, hairy. *Flower-ſtalks* from one to five, from the ſheaths of ſome of the upper leaves, rather ſhorter than the leaf, capillary, looſely ſpreading, ſimple, angular, downy. *Spikes* ſolitary, hardly an inch long, drooping. *Flowers* from ſixteen to twenty, looſely imbricated, in two rows, on ſhort ſtalks, ſlightly obovate, or very nearly orbicular, quite ſmooth; convex and almoſt hemiſpherical, with ſlight furrows, on one ſide; quite flat, even, and ribleſs on the other. This flat ſide is accompanied at the baſe with a ſmall abrupt ſcale, or imperfect glume, like what Mr. Brown mentions in *P. orbiculare*; ſee obſervations after the generic character; which appears to us to bring the preſent ſpecies very near indeed to *Panicum*. The *receptacle* is narrow and convex, ſmooth, except at the baſe, by no means of the leafy dilated form uſual in *Paſpalum*.

We have thus added thirteen ſpecies to the fifteen in Willdenow, nor are we without ſuſpicion of ſome more, which we have not ſufficient materials to determine. There can be no doubt, that the greater part of the deſcribed ſpecies conſtitute a natural genus, which ought to be kept diſtinct from *Panicum*, whatever may become of ſome ambiguous ones; eſpecially as *Panicum* itſelf is ſo overloaded with ſpecies already, and ſo difficult, in many caſes, to define.

It is remarkable that no *Paſpalum* has been found in Europe, though the ſpecies of *Panicum* are ſcattered all over the world. S.

PASPARDO, in *Geography*, a town of Italy, in the department of the Adda and Oglio; 4 miles N. of Breno.

PASPAYA, a town of South America, in the vice-royalty of Buenos Ayres; 60 miles S. of La Plata.

PASQUA, a town of Mexico, in the province of Xaliſco, ſituated at the mouth of a river, which runs into the Pacific ocean; 45 miles W.N.W. of La Purification. N. lat. 20° 5′.

PASQUALI, SIGNOR, in *Biography*, an excellent performer on the violin, and a good muſician, who came to England about the year 1743, went to Edinburgh in 1752, where he had an eſtabliſhment, and lived much reſpected as a profeſſor, and beloved as a man by all who knew him, till the time of his death in 1757. The following is extracted from the Edinburgh Caledonian Mercury of Saturday, Oct. 15th, 1757.

"Thurſday, October 13th, 1757. Died at Edinburgh ſignior Paſquali, maſter of muſic in this city, a perſon eminent in his profeſſion as a compoſer, performer, and teacher. He joined to a ſingular probity of manners, good ſenſe, and knowledge of mankind, free from the ſmalleſt tincture of *caprice*. One qualification moſt remarkable in him was, that although he did the greateſt juſtice as a teacher, yet he acted in his profeſſion more from a real *delight in muſic*, and regard to fame, than profit or gain. Under his conduct, the ſpirit of this branch of the fine arts has diffuſed itſelf through all ranks, and is now carried to a degree never before known in this kingdom. Signior Paſquali's death is a public loſs to this city, that will not ſoon be ſupplied."

PASQUILINI, SIGNOR, an Italian performer on the violoncello, who arrived in England about the year 1747, and remained here till the time of his death, about 1756. He had great knowledge of the finger-board, and his execution was very neat; but his tone was thin, crude, and unintereſting. After the death of Capoſale, he was the principal performer on the violoncello at the opera, at Ranelagh, and at all the great concerts. He was a good muſician, and performed correctly the part aſſigned him; but without effect. In Dublin, when he had played half his ſolo, the ſteward of the concert for the night, not knowing that his tone was always the ſame, or perhaps not knowing one tone from another, went up to him, crying out with ſome degree of impatience, "Come, come, Paſquali, don't be flouriſhing all night, but begin your ſolo!"

PASQUARO, or Utzila Pasquaro, in *Geography*, a town of Mexico, and preſent capital of Mechoacan, on the S. ſide of a large lake abounding in fiſh. The population conſiſts of 500 families of Spaniards and Mulattoes, and 2000 families of Indians, chiefly employed in ſugar-mills, and neighbouring copper-mines; 120 miles W. of Mexico. N. lat. 19° 50′.

PASQUE-FLOWER, in *Gardening*, the common name of a well-known flower. See Anemone.

PASQUETANK, in *Geography*, a county of North Carolina, in the diſtrict of Edenton, N. of Albemarle ſound, containing 5037 inhabitants, including 1593 ſlaves.— Alſo, a ſmall river of North Carolina, which riſes in the Great Diſmal Swamp, and, paſſing by Hertford, falls into Albemarle ſound.

PASQUIER, Stephen, in *Biography*, a celebrated lawyer and man of letters, was born at Paris in 1528. Having been educated for the bar, he was, at a proper time, admitted an advocate in the parliament of Paris, and became diſtinguiſhed as one of the moſt eloquent pleaders of his time, as he really was one of the moſt learned men of the age. He ſhone particularly in the cauſes which he pleaded againſt the Jeſuits, who, he contended, ought not only to be excluded from the univerſity, but baniſhed wholly from the kingdom. He was at all times a zealous friend to the royal authority, and was rewarded by Henry III. with the poſt of advocate-general of the chamber of accompts, which he exerciſed with great credit, and tranſmitted to his eldeſt ſon. He died in 1615, at the great age of 87. He had been thrice married, the firſt time, as he ſays, in a Latin epigram, for enjoyment, the ſecond for the ſake of money, and the third for help. He was a conſiderable writer in verſe and proſe. His poems are in Latin and French; the former are reckoned by much the beſt. The moſt important of Paſquier's works is entitled "Recherches ſur la France," of which he publiſhed ſeven books, and three more were given from his papers after his deceaſe. The beſt edition of it is that of 1665. His letters, in five volumes, are full of curious anecdotes and remarks. His "Catechiſme des Jeſuites" is a very ſevere attack upon the founders and principles of that order. His ſecond ſon Nicholas, a maſter of requeſts, left a volume of letters abounding with hiſtorical anecdotes. Moreri.

PASQUIN, a mutilated ſtatue, ſeen at Rome, in a corner of the palace of the Urſini. It takes its name from a cobler of that city, called Paſquin, famous for his ſneers and gibes; and whoſe ſhop was the reſort of a number of idle people, who diverted themſelves with bantering folks as they paſſed by.

After Paſquin's death, as they were digging up the pavement before his ſhop, they found a ſtatue of an ancient gladiator, well cut, but maimed, and half ſpoiled. This they ſet up, in the place where it was found, at the corner of the deceaſed Paſquin's ſhop; and, by common conſent, called it by the name of the defunct.

From that time all ſatires and lampoons are aſcribed to this figure, and are put in its mouth, or paſted againſt it; as if they came from *Paſquin redivivus*. Paſquin uſually addreſſes himſelf to Marforio, another ſtatue in Rome; or Marforio to Paſquin, whom they then make reply.

The anſwers are uſually very ſhort, poignant, and unlucky. When Marforio is attacked, Paſquin comes to his aſſiſtance; and Paſquin is aſſiſted by Marforio in his turn; *i. e.* the people make the ſtatues ſpeak juſt what they pleaſe.

PASQUINADE, or Pasquil, is properly a ſatirical libel, faſtened to the ſtatue of Paſquin.

Hence, by extenſion, the term becomes uſed for any ſatire, lampoon, or ſneer upon the public, or upon the ruling powers.

There is this difference between a *paſquinade* and a *ſatire;* that the end of the latter is to correct and reform; whereas that of the former is only to ſcoff and expoſe.

The Italians have publiſhed ſeveral books which they call *Paſquino in eſtaſi, Paſquin in an ecſtacy*.

PASQUINO, Ercole, in *Biography*, a great organ-player at Rome, began to flouriſh about the year 1620, and his ſon, Bernardo Paſquino, the maſter of Gaſparini, about 1672. This laſt was contemporary with Corelli, and frequently played in the ſame orcheſtra with him at the opera in Rome. See Paral. des Fran. et des Ital.

PASS, in *Military Language*, a ſtraight, narrow and difficult paſſage, which ſhuts up the entrance into a country.— Alſo, a voucher for the abſence of a non-commiſſioned officer or ſoldier.

Pass, *To*, is to march by open order of columns, for the purpoſe of ſaluting a reviewing general. Each diviſion or company, on its march, will open its ranks at the diſtance of 50 paces from the general, and again cloſe them, after it has paſſed thirty paces. The whole march in ordinary time, till the leading diviſion arrives at the ſpot where the left of the battalion originally ſtood. The commanding officer then halts the regiment, the muſic ceaſes to play, and the different diviſions which ſupported arms march in quick time until they have completed the third wheel from the ground of original formation, when arms are ordered to be carried, the muſic plays, and as each diviſion completes the third wheel, the officers ſhift to the right, and the whole paſs the general.

Pass, *All's well*, a term uſed by a Britiſh ſentry, after he has challenged a perſon that comes near his poſt, and has given him the proper parole, watchword, or counterſign.

Pass-*Parole*, a command or word, which is given out at the head of an army, and from thence paſſed from mouth to mouth, till it reach the rear.

Pass. See Passport.

Pass, *Paſſade*, in *Fencing*, a leap, or advance upon the enemy.

Of theſe are ſeveral kinds; as *voluntary paſſes*, commencing from the left foot out of meaſure of the firm foot; as when the enemy is not expected.

Others, *neceſſary*, made after a puſh from the right foot; where, being ſo preſſed by the enemy as not to have time to retire, you endeavour to ſeize the guard of his ſword.

The meaſure of the paſs is, when the two ſmalls of the ſwords are ſo near, that they may touch one another.

There are paſſes within, above, beneath, to the right, the left; and paſſes under the ſword, over the line, &c.

Pass, among *Miners*, a frame of boards conſiſting of two or three bottom boards, and two ſide ones, ſet ſlopewiſe; through which the ore ſlides down into the coffer of the ſtamping-mill.

Pass *of Arms*, in *Chivalry*, a place which the ancient knights undertook to defend, *e. gr.* a bridge, road, &c. which was not to be paſſed without fighting the perſon who kept it.

The knights who held the paſs, hung up their arms on trees, pales, columns, &c., erected for the purpoſe; and ſuch as were diſpoſed to diſpute the paſs, touched one of theſe armories with his ſword, which was a challenge the other was obliged to accept. The vanquiſhed gave the victor ſuch prize as was before agreed on.

Pass-*Guards*, in *Ancient Tilting Armour*, were plates fixed on each ſhoulder, declining from the face like wings, which were intended to protect the eyes from the point of the lance: the left ſide of the face, the left ſhoulder and breaſt were covered by a plate called *grand-guard*.

PASSA, *Uva Paſſa*, in *Pharmacy*, a term applied to thoſe dried grapes, which we call raiſins.

Uvæ Passæ is ſometimes alſo uſed, with leſs propriety, for figs.

PASSACAGLIO, a ſlow dance, reſembling the chaconne; the only difference is, that it is generally ſomewhat ſlower, and more pathetic: on this account, the *paſſacaglii* are almoſt always compoſed in the minor keys. Broſſard.

PASSACAILLE, Fr. Rouſſeau gives nearly the ſame definition; adding, that the paſſacaille of "Armida" and "d'Iſſé" are famous in the operas of Lulli and Mondonville.

PASSADE, or Passado, in *Fencing*, a thruſt or paſs.

Passade is alſo a benevolence or alms given to poor paſſengers.

Passade, in the *Manege*, ſignifies a turn or courſe of a horſe backwards or forwards on the ſame plot of ground, paſſing or repaſſing from one end to the other.

This cannot be performed without changing the hand, or turning and making a demi-tour at each of the extremities of the ground. Hence it is, that there are ſeveral ſorts of paſſades, according to the different ways of turning, in order to part or put again, and return upon the ſame piſte, or tread; which we call cloſing the paſſade.

The paſſades are the trueſt proofs a horſe can give of his goodneſs. By his going off, you judge of his ſwiftneſs; by his ſtops, you diſcover the goodneſs or imperfection of his mouth; and by the readineſs with which he turns, you are enabled to decide upon his addreſs or grace.

A *paſſade of five times*, or a demivolt of five times, is a demitour made at the end of the ſtraight line, one hip in, in five times of a gallop upon the haunches; and, at the fifth time, he ought to have cloſed the demivolt, and to preſent upon the paſſade line ſtraight and ready to return. The demivolts of five times or periods are the moſt common airs of changing the hand, or turning, that are now practiſed.

A *perfect* paſſade is made in this manner: your horſe ſtanding ſtraight and true upon all his feet, you go off with him at once, you ſtop him upon his haunches, and in the ſame time or cadence in which he made his ſtop, being exactly obedient to the hand and heels, he ought to make the demivolt, balancing himſelf upon his haunches, and ſo waiting, till you give him the aid to ſet off again. In this caſe it is neceſſary, that the leaſt motion or hint of the rider ſhould be an abſolute command to the horſe. If you would have him go off at full ſpeed, yield your hand, and cloſe the calves of your legs upon him: if he does not anſwer to this aid, give him the ſpurs, in ſuch a manner as not to remove them from the place where they were, and without opening or advancing your legs before you ſtrike.

Raiſed, or *high* paſſades, are thoſe which a horſe makes, when, being at the end of his line, he makes his demivolt in any air he has been taught, either in the mezoir, or in curvets. In high paſſades, let your horſe go off at full ſpeed; let your ſtop be followed by three curvets; let the demivolt conſiſt of the ſame number, and demand of him three more before he ſets off again. It is uſual to make nine curvets, when you work a horſe alone.

Furious, or *violent* paſſades, are when a horſe gallops at his utmoſt ſpeed ſtraight forward, and makes his half ſtop, bending, and playing his haunches two or three times before he begins his demivolt, which is made upon one line in three times; for at the third time he ſhould finiſh the demivolt, and be ſtraight upon the line of the paſſade, in order to go off again and continue it. This kind of paſſade was formerly uſed in private combats.

Paſſade of one time, is a demivolt or turn, made by the horſe, in one time, of his ſhoulders and haunches.

In all paſſades the horſe ſhould, in making the demivolt, gather and bring in his body, making his haunches accompany his ſhoulders, without falling back, or not going forward enough each time; and he ſhould go in a ſtraight line, without traverſing or turning his croupe out of the line. Berenger's Horſemanſhip, vol. ii. chap. 15.

PASSADUNKEAG, in *Geography*, a conſiderable branch of Penobſcot river, meandering through four townſhips, and affording a route by which the Indians have an inland communication with the Schooduck lakes, and other waters which flow into Paſſamaquoddy bay by a ſhort portage.

PASSAGE, in *Sea Language*, denotes a voyage from one place to another by ſea; an outward or homeward bound voyage.

Passage *Boat*, a boat to carry paſſengers and luggage from one place to another by water.

Passage, in *Commerce*, or *Right of Paſſage*, is an impoſition, which ſome princes exact by their officers or farmers, in certain narrow cloſe places of their territories, either by land or ſea, on all veſſels, vehicles, and carriages of all kinds; and even ſometimes on perſons as paſſengers coming in or going out of ports, &c.

The paſſage of the Sound (that famous ſtreight, which carries us out of the German into the Baltic ſea,) is the moſt celebrated paſſage in Europe. The dues thereof belong to the king of Denmark, and are paid at Elſinore or Cronenburg.

Passage, in the *Manege*, an action, in which the horſe raiſes two legs together, a hind and a fore-leg, in form of St. Andrew's croſs; when ſetting thoſe two on the ground again, he raiſes the other two; and thus alternately, never gaining above a foot of ground at a time.

The beauty of the paſſage conſiſts in keeping the legs a good while in the air: ſetting that aſide, the motion of the legs in the paſſage is the ſame as in pacing and trotting.

As the paſſage is the key which opens to us all the juſtneſs of the art of riding, and is the only means of adjuſting and regulating horſes in all ſorts of airs, it is neceſſary to obſerve, that there are many kinds of it. In that which is derived from the trot, the action of the horſe's legs is the ſame as in the trot; and this paſſage is diſtinguiſhed from the trot, merely by the extreme union of the horſe, and by his keeping his legs longer in the air, and lifting them both equally high, and being neither ſo quick nor violent as in the action of the trot. In the paſſage which is founded on the walk, the action of the horſe is the ſame as in the trot, with this difference, that he lifts his fore-feet a good deal higher than his hinder; that he makes a certain time or interval ſufficiently long between the motion of each leg; his action being much more together and ſhortened, more diſtinct and ſlow than the ordinary walk, and not ſo extended as in the trot, ſo that he is, as it were, kept together and ſupported upon himſelf. There is another ſort of paſſage, to which the trot likewiſe gives birth, and in which the action is ſo quick, ſo diligent, and ſo ſupported, that the horſe ſeems not to advance, but to work upon the ſame ſpot of ground. No horſe ſhould be put to paſſage till he has been well trotted out, is ſupple, and has acquired ſome knowledge of the *union*, which ſee. Berenger's Horſemanſhip, vol. ii. chap. 10.

To paſſage a horſe upon his own length, ſee LENGTH.

PASSAGE, *Paſſo*, Ital. in *Muſic*, as in literature, is a ſingle period, or ſentence, ſelected for praiſe, cenſure, or illuſtration. But in France, according to Rouſſeau, it is a flouriſh, or diviſion in gracing a particular bar, or trait of melody. But in Italy, ſingers are obliged to know how to invent paſſages extemporaneouſly upon any given notes; whereas in France, and, we fear, in England, young ſingers dare not hazard a ſingle paſſage that has not previouſly been written down and practiſed.

PASSAGE, *Birds of*, in *Ornithology*, are ſuch as only come to us at certain ſeaſons, and then diſappear again; being ſuppoſed to paſs the ſea to ſome other climate.

Among the birds of paſſage are the ſtork, ſwallow, nightingale, martin, woodcock, quail, hooded crow, cuckoo, wry-neck, ſeveral ſpecies of the pigeon and thruſh, ſnipe, curlew, ſeveral ſpecies of ſand-piper, long-legged plover, land-rail, ſeveral ſpecies of grebe, divers, terns, merganſers, many ſpecies of ducks, &c.

Mr. Pennant remarks, that every ſpecies of the genera of curlews, woodcocks, ſand-pipers, and plovers, that forſake us in the ſpring, retire to Sweden, Poland, Pruſſia, Norway, and Lapland, to breed; and as ſoon as the young can fly, they return to us again; becauſe the froſts which ſet in early in thoſe countries, deprive them of the means of ſubſiſtence; and the dryneſs and hardneſs of the ground, in general, during our ſummer, prevent them from penetrating the earth with their bills in ſearch of worms, which are the natural food of theſe birds. Of the numerous ſpecies of migrating fowl, there are ſcarcely any that may not be traced to Lapland, a country of lakes, rivers, ſwamps, and alps, covered with thick and gloomy foreſts, that afford ſhelter during ſummer to theſe fowls, which in winter diſperſe over the greateſt part of Europe. In thoſe northern regions, by reaſon of the thickneſs of the woods, the ground remains moiſt and penetrable by the woodcocks, and other ſlender-billed fowl; and for the web-footed birds, the waters afford larvæ with numbers of the gnat. The days are long, and the light nights are favourable to their collecting this food; to which we may add, that mankind are very ſparingly ſcattered over that vaſt northern waſte. Britiſh Zoology, vol. ii. Appendix. See MIGRATION.

Beſide the migratory birds, which live in different countries a whole winter, or a whole ſummer, there are ſome others which annually appear in particular places, at the time of the ripening of particular kinds of grain which their own country is deſtitute of; and theſe depart after a ſhort ſtay, and are no more ſeen till that time the following year. Of this kind are the rice-bird, and blue-wing of Carolina. Birds, like men, purſue their ſearches after food, or whatever elſe is neceſſary and agreeable, through diſtant climes; and, when they diſcover ſome new grain, or pleaſing food, they return and acquaint their community of the good fortune; and then, joining in numerous flights, make annual excurſions to ſolace themſelves on this exotic food.

Since the diſcovery of America, there have been introduced from Europe ſeveral ſorts of grain which were before unknown there, and which, not before ſome length of time, were found out, and coveted by birds of this migratory kind. Of this ſort there is a very beautiful ſpecies, which has very lately made its firſt appearance in Virginia; theſe arrive annually at the time that the wheat is ripe, or nearly ſo; and conſtantly, ſince they found it out, have appeared in great droves every year, at the ſeaſon of its ripening: the inhabitants call them, for this reaſon, *wheat-birds*. Phil. Tranſ. N° 483.

There are alſo fiſhes of paſſage, as herrings, mackarel, &c. See FISHERY.

PASSAGE, in *Geography*, a town of South America, in the government of Tucuman, on a river of the ſame name; 116 miles N. of St. Miguel de Tucuman.

PASSAGE *Canal*, an inlet in Prince William's ſound. N. lat. 60° 48′. E. long. 212° 15′.

PASSAGE *Fort*, a ſmall town of Jamaica, in the road between Port Royal and Spaniſh Town; 7 miles S.E. of the latter, and at the mouth of the river Cobre, where it has a fort, with ten or twelve guns. Its trade is briſk, and it contains about 400 houſes, moſt of them being houſes of entertainment.

PASSAGE *Iſland*, a ſmall iſland at the entrance of a channel from the North Pacific ocean, among the Philippine iſlands, about 20 miles E. from the iſland of Leyta. N. lat. 10° 44′. E. long. 125° 27′.—Alſo, a ſmall low iſland in the gulf of Georgia, at the entrance into Howe's ſound. N. lat. 49° 21′. E. long. 237° 3′.

PASSAGE *Iſlands*, two ſmall iſlands among the Virgin iſlands in the Weſt Indies, near the coaſt of Porto Rico.

PASSAGE, *Great*, one of the Virgin iſlands in the Weſt Indies; about ſeven miles long and two wide; 12 miles E. of Porto Rico.

PASSAGE, *Little*, one of the Virgin iſlands, near the former.

PASSAGES, *Los*, a ſea-port town of Spain, in Guipuſcoa, with a good harbour, ſheltered by mountains, with depth of water ſufficient for a 50-gun ſhip. This is one of the largeſt and ſafeſt harbours in Europe; 3 miles E. of St. Sebaſtian. N. lat. 43° 10′. W. long. 2°.

PASSAGE *Point*, a cape on the coaſt of Patagonia, in the ſtraits of Magellan. S. lat. 53° 15′. W. long 73° 40′.

PASSAGE *Rocks*, two rocks in Prince William's ſound, one *north*, about 2½ miles N.N.W. from the north point of the entrance into port Chalmers, Montague's iſland, and the other *ſouth*, half a mile W. from the ſame point.

PASSAGERS. See ALBIGENSES.

PASSAGIO, in the *Italian Muſic*. See PASSAGE.

PASSAGO, in the *Glaſs Trade*, the inſtrument with which the workman makes the bowl of the drinking-glaſſes, or other the like veſſels.

PASSAIK, in *Geography*, a river of America, which riſes in a large ſwamp, in Morris county, New Jerſey, and purſues its courſe from W.N.W. to E.S.E. until it unites with the Hackinſoe at the head of Newark bay, N. lat. 40° 43′. W. long. 74° 8′. The cataract, or Great Falls, in this river, is one of the principal natural curioſities in the ſtate. The river is about 40 yards wide, and moves with a gentle current till it approaches a deep cleft in a rock which croſſes the channel, and then falls above 70 feet perpendicularly, preſenting a moſt beautiful, though tremendous, ſcene. The new manufacturing town of Patterſon is erected on the Great Falls of this river, and its banks are adorned with many elegant country ſeats. It abounds with various kinds of fiſh. A bridge, 500 feet in length, croſſes this river on the poſt-road from Philadelphia to New York.

PASSAIS, a town of France, in the department of the Orne, and chief place of a canton, in the diſtrict of Domfront; 6 miles S.W. from Domfront. The place contains 2224, and the canton 14,556 inhabitants, on a territory of 170 kiliometres, in 9 communes.

PASSALORHYNCHITES, Passalorhynchitæ, in *Eccleſiaſtical Hiſtory*, a ſect of Montaniſts in the ſecond century, who made profeſſion of perpetual ſilence, and, the better to maintain it, kept the thumb continually upon the lips; founding their practice on that of the Pſalmiſt, *Set a guard, O Lord, on my mouth.*

St. Jerom mentions his having met with ſome of them in his time.

PASSAMAN, in *Geography*, a town on the W. coaſt of the iſland of Sumatra, near the equator.

PASSAMAQUODDIES, a tribe of Indians, who inhabited the vicinity of Paſſamaquoddy bay.

PASSAMAQUODDY, a town and river of America, near which is the diviſion line between the Britiſh province of New Brunſwick and the United States. The iſland of Campo Bello in the North Atlantic ocean, is at the middle or W. paſſage of the bay, in N. lat. 44° 50′, and W. long. 66° 46′. The diſtance from Croſs iſle, Machias, to W. Paſſamaquoddy head, is nine leagues N.E. by E.; and from the head over the bar to Allen's iſle N.N.W. two leagues. Three rivers fall into the bay; the largeſt of which is called by the Indians the Scoodich, but by De Mons and Champlaine, Etchemina. Its main ſource is near Penobſcot river, and the carrying place between the two rivers is only three miles.

PASSAMEZZO, from *paſſer, to walk*, and *mezzo*, the *middle*, in *Muſic*, is a ſlow dance, differing little from the action of walking. As a galliard conſiſts of five paces, or bars, in the firſt ſtrain, and is, therefore, called a cinque pace, the paſſamezzo, which is a diminutive of the galliard, has juſt half that number, and from that peculiarity takes its name.

PASSANGAN, in *Geography*, a town on the N. coaſt of the iſland of Sumatra. N. lat. 4° 45′. E. long. 97° 2′.

PASSANT, in *Heraldry*, a term applied to an animal in a ſhield, appearing to walk leiſurely; or, to the ordinary poſture of terreſtrial animals.

Thus we ſay, he bears gules two lions *paſſant*, in pale. For moſt beaſts, except lions, they frequently uſe the word *tripping* inſtead of *paſſant*.

PASSARA, in *Geography*, a town on the W. coaſt of the iſland of Borneo; 80 miles S.W. of Borneo.

PASSARADO, or Passaree, in a *Ship*, is a rope whereby all the ſheet-blocks of the main and fore-ſails are hauled down; the clew of the main-ſail to the cubbridge-head of the main-maſt, and the clew of the fore-ſail to the cat-head. This is to be done when the ſhip goes large; and they are alſo kept firm down, and hindered from flying up, by this paſſarado rope.

PASSARGA, in *Geography*, a river of Pruſſia, which runs into the Friſch Haff, N. lat. 54° 23′. E. long. 19° 42′.

PASSARGOS, Los, a ſmall iſland in the Grecian Archipelago, between the coaſt of Natolia and the iſland of Scio. N. lat. 38° 17′. E. long. 26° 14′.

PASSARO, a town of Sicily, in the valley of Noto; 30 miles S. of Syracuſe.

PASSARON, a town of the Morea; 18 miles S. of Argos.

PASSAROWITZ, a town of European Turkey, in Servia, near the river Morava; 33 miles E.S.E. of Belgrade.

PASSARUAN, Passarowan, *Paſſorouang*, or *Paſſourwang*, a town of the iſland of Java, and capital of a kingdom, ſituated on the N. coaſt; the chief trade of which conſiſts in cotton. The houſes are neatly built, and the country appears to be well cultivated. The produce of this ſettlement is rice, of which they export large quantities. The Dutch here are few; the Javaneſe are numerous, and their chief lives with conſiderable ſplendour. They have good roads, and poſts are eſtabliſhed along the coaſt; and it appears to be a buſy and well-regulated ſettlement. S. lat. 7° 36′. Stavorinus's Voyage, vol. ii.

PASSAU, a city of Germany, in the circle of Bavaria, and capital of a biſhopric and principality of the ſame name, ſituated on the Danube, where it receives the Inn and the Ilz. It conſiſts of three towns, *viz.* Paſſau properly ſo called, betwixt the Danube and the Inn, Innſtadt, and Ilzſtadt. The city, where it is ſurrounded by water, is without the walls, but towards the land ſide of Bavaria is fortified with ramparts and ditches. Paſſau is well ſituated for trade. It remained under the power of the Romans till it was taken by the Alemanni in the year 475. After its fall under the dominion of the Franks, it continued ſubject to the dukes of Bavaria. In 999, it was made ſubject to the biſhop by the emperor Otho III. In 1552, the religious peace, uſually denominated "The treaty of Paſſau," was concluded here. In 1802, part of the biſhopric beyond Iltz and the Inn, towards Auſtria, was given to the grand duke of Tuſcany; 82 miles E.N.E. of Munich. N. lat. 48° 34′. E. long. 13°.

The famous treaty of "pacification" with the Proteſtants was concluded at Paſſau, ſoon after the advantage gained by Maurice of Saxony againſt the emperor Charles in the year 1552: the emperor alſo promiſing to aſſemble, within ſix months, a diet, in which all the tumults and diſſenſions that had been occaſioned by a diverſity of ſentiments in religious matters ſhould be removed. (See Augsburg.) As this treaty is conſidered by the German Proteſtants as the baſis of their liberty, it may not be improper to inſert here ſome of its principal articles.

By the three firſt articles it was ſtipulated that Maurice and the confederates ſhould lay down their arms, and ſhould lend their troops to Ferdinand to defend Germany againſt the Turks, and that the landgrave of Heſſe ſhould be ſet at liberty. By the fourth, it was agreed that the rule of faith, called "Interim," ſhould be conſidered as null and void; that the contending parties ſhould enjoy the free and undiſturbed exerciſe of their religion, and a diet ſhould be aſſembled to determine amicably the preſent diſputes; and that this religious liberty ſhould continue always, if it ſhould be found impoſſible to come to an uniformity in doctrine and worſhip. It was alſo reſolved, that all thoſe who had ſuffered baniſhment, or any other calamity, on account of their having been concerned in the league or war of Smalcalde, ſhould be re-inſtated in their privileges, poſſeſſions, and employments; that the imperial chamber of Spire ſhall be open to the Proteſtants as well as to the Catholics; and that there ſhould be always a certain number of the Lutheran perſuaſion in that high court.

PASSAWAY, a town of Hindooſtan, in the circar of Jyenagur; 30 miles E. of Paraſaoli.

PASSE-BLEU, in *Ornithology*. See Tanagra *Cærulea*.

PASSE-HENDAELE, in *Geography*, a town of France, in the department of the Lys, and chief place of a canton, in the diſtrict of Ypres. The place contains 2664, and the canton 14,117 inhabitants, on a territory of 110 kiliometres, in 5 communes.

PASSEMANT, Claude Simeon, in *Biography*, an able French optician and mathematical inſtrument-maker, was born at Paris in the year 1702. He had little more than his induſtry to depend on, and for ſome time he wrote in an attorney's office: after this he entered himſelf as a clerk or ſhopman to a woollen-draper, and then carried on the buſineſs of a haberdaſher on his own account. Being married, he committed the care of his ſhop to his wife, and directed his own attention to the ſtudy of natural philoſophy, optics, and aſtronomy, which he had cultivated from his youth at leiſure hours. He devoted likewiſe much of his time to the conſtruction and improvement of mathematical inſtruments, for which he ſeems to have had a decided mechanical turn. In 1738, he publiſhed "A Treatiſe on the Conſtruction of Reflecting Teleſcopes." Some time after this, he publiſhed "The Deſcription and Uſe of Teleſcopes, Microſcopes, &c." of his own invention. He conſtructed an aſtronomical pendulum, crowned with a moving ſphere, which was made to repreſent the revolutions of the planets, in a manner that exactly correſponded with the aſtronomical tables. He preſented this machine to Lewis XV. and it was formerly to be ſeen in the royal apartments at Verſailles. He made a ſimilar inſtrument for the Turkiſh emperor, which ſhewed the riſing and ſetting of the ſun and moon. He furniſhed the king and other great men in France with ſets of inſtruments for making experiments in optics, and other branches of ſcience. He died ſuddenly in 1769, reſpected as well for his integrity and amiable character, as for his talents and acquirements.

PASSENHEIM, in *Geography*, a town of Pruſſia, in the province of Oberland; 70 miles S. of Konigſberg.

PASSE-PIED, a dance, though of the ſame meaſure as the minuet, except that it admits of no binding-notes, and begins with an odd quaver. Indeed it more reſembles the courant than the minuet.

PASSER, in *Geography*, a river of the Tyroleſe, which runs into the Adige, near Meran.

Passer, in *Ichthyology*. See Pleuronectes.

Passer *Aquaticus*, in *Ornithology*. See *Water* Sparrow.

Passer *Arundinaceus*, & *arundinaceus torquatus*, the reed ſparrow. See Emberiza *Schoeniclus*.

Passer *Aſper*, in *Ichthyology*. See Dab.

Passer *Britannicus*, a name given by Charleton to the ſoal-fiſh, and by ſome others to the turbot. See Pleuronectes.

Passer *Canadenſis*, or *Canarius*, in *Ornithology*. See Canary-*Bird*.

Passer *Domeſticus*. See Fringilla *Domeſtica*.

Passer *Faber*, a name given by Nieremberg to a bird, the genus of which is not certainly known; it being alſo called *turdus chiappæ*. It is remarkable for perforating the bark of the pines, and lodging its acorns there, which it afterwards occaſionally eats.

Passer *Fluviatilis*, in *Ichthyology*. See Flounder.

Passer *Indicus, macrourus alius* of Aldrovand, or the other long-tailed Indian ſparrow, in *Ornithology*, is a very beautiful bird, with a blue beak, and a black head; the body being moſtly of a fine ſcarlet. See Emberiza *Paradiſea*. See alſo Tanagra *Braſilia*.

Passer *Muſcatus*, a name by which ſome have called the *guainumbi*, or humming-bird. See Trochilus *Colubris*.

Passer *Niger*. See Fringilla *Noctis*.

Passer *Rubi*. See Motacilla *Modularis*.

Passer *Solitarius*, the ſolitary ſparrow. See Turdus *Solitarius*.

Passer *Stultus*, a name given by Nieremberg to the *noddy*, a ſpecies of the Sterna, ſo tame and fooliſh, that it will ſtand ſtill for any one to lay his hand upon it. See Sterna *Stolida*.

Passer *Troglodytes*, the name by which authors call the wren. See Motacilla *Troglodytes*.

PASSERAT, John, in *Biography*, an ancient French poet and man of letters, was born, in 1534, at Troyes, in Champagne. After ſtudying law at Bourges under the celebrated Cujas, he went to Paris, and taught the belles lettres in the colleges of the univerſity. In 1572 he ſucceeded Peter Ramus as profeſſor-royal of eloquence. His lectures were extremely well attended by perſons of rank and conſideration, and he was warmly patronized by Charles IX. and Henry III. The diſorders and conteſts occaſioned by the League obliged him to ſhut up his ſchool, till the entry of Henry IV. into Paris in 1594. Being at Epernay when that place was beſieged by the prince of Condé, who threatened to put the inhabitants to the ſword, he was deputed by them to intercede with the prince in their behalf, who pardoned them at his requeſt. He had the misfortune to loſe an eye by the ſtroke of a tennis-ball, and this accident aggravated the naturally ſevere and gloomy expreſſion of his countenance, but he was perfectly amiable in his temper, and free in his converſation. He was too much attached to his ſtudies, and often paſſed days together without a regular meal. Exceſs of application was thought to have excited paralytic affections, which put an end to his life in 1602, at the age of ſixty-eight. He is principally known by his Latin and French verſes. The Latin are chiefly diſtinguiſhed by their purity and facility, and by the elegant turn which he gives to common thoughts. As a French poet his metamorphoſis of a man into a bird is particularly admired, and ſerved, it is ſaid, as a model to La Fontaine in his tales. Paſſerat is ſtill regarded by ſome critics as one of the moſt agreeable of the French poets. He was author of many pieces, of which may be mentioned "Commentaries on Catullus, Tibullus, and Propertius," and a "Tranſlation of the Bibliotheca of Apollodorus." Moreri.

PASSERES, in *Ornithology*, the ſixth order of birds according to the Linnæan ſyſtem, are diſtinguiſhed by a conical and pointed bill; the noſtrils are oval, pervious, and naked; the legs are formed for hopping; the toes are ſlender, and divided; the bodies of thoſe that feed on grain are pure, but of thoſe that feed on inſects impure; the neſt is formed with much art. They live chiefly in trees and hedges, are monogamous, and feed the young by thruſting the food down their throats. This order includes all the ſinging birds; the males are the ſongſters. They are divided into four ſections, as follow:

The genera in ſection A have thick bills, and are

Colius,
Emberiza,
Fringilla,
Loxia,
Phytotoma.

The genera in ſection B have the upper mandible ſomewhat hooked at the point; theſe are

Caprimulgus,
Pipra,
Hirundo.

The genera in C have the upper mandible notched near the end, as in the

Ampelis,
Muſcicapa,
Tanagra,
Turdus.

The genera in D have the bill ſtraight, ſimple, and tapering, as in the

Alauda,
Columba,
Motacilla,
Parus,
Sturnus.

PASSERG, in *Geography*, a town of Pruſſia, in the province of Natangen, in the Friſch Haff; 22 miles S.W. of Brandenburg.

PASSERI, Giambatista, in *Biography*, a celebrated antiquarian, was born at Farneſe in 1694. He was deſtined to the profeſſion of the law, but his inclination led him to the ſtudy of antiquities, which he purſued with aſſiduity during a four years' reſidence at Rome. Returning thence to Todi, he collected the monuments of antiquity in that place and its vicinity. In 1726, he turned his attention to Etruſcan antiquities, and collected a great number of lamps, and other things, which he arranged in claſſes. In 1738, having loſt his wife, he entered into the eccleſiaſtical order, and obtained the office of vicar-general of Peſaro. This he exerciſed many years with zeal and fidelity. He was killed by a fall from his carriage in the year 1780, as he was returning from his country houſe. He was author of a great number of works, among which are the following: "Lucernæ fictiles Muſſæi Paſſerii," three volumes, being a deſcription of the earthen lamps in his collection: "Picturæ Etruſcorum in Vaſculis, in unum collectæ, Diſſertationibus illuſtratæ," in three volumes: "Diſſertations on the ancient Monuments in the Muſæum Clementinum." When he died, the firſt volume of an extenſive work of his was printing at Rome, entitled, "Theſaurus Gemmarum Selectiſſimarum."

PASSERINA, in *Botany*, from *paſſer*, a ſparrow, a name which has been applied to ſome plants, on account of the reſemblance of their leaves to the tongue of a ſmall bird. Such at leaſt is its application with reſpect to *Lyſimachia Linum-ſtellatum*, *Linum ſtrictum*, and *Stellera Paſſerina*. But Linnæus, who has choſen this appellation for the genus that now bears it, cites Plukenet for ſaying it is ſo called becauſe the fruit repreſents the head of a little bird with its beak; ſee Linn. Hort. Cliff. 146. The reſemblance is not very ſtriking, but the name is preferable to that given by Cluſius to the ſame genus, *Sanamunda*, ſuppoſed to be derived from *ſano*, to heal, and *munda*, clean; though he adopted it from the Moors of Grenada, who were accuſtomed to uſe ſome of this tribe as a purge. Linn. Gen. 193. Schreb. 261. Willd. Sp. Pl. v. 2. 429. Mart. Mill. Dict. v. 3. Ait. Hort. Kew. ed. 2. v. 2. 414. Juſſ. 77. Lamarck Illuſtr. t. 291. Claſs and order, *Octandria Monogynia*. Nat. Ord. *Vepreculæ*, Linn. *Thymelææ*, Juſſ.

Gen. Ch. *Cal.* Perianth of one leaf, withering, externally rude, internally coloured; tube cylindrical, ſlender, tumid below the middle; limb ſpreading, in four deep, concave, ovate, obtuſe ſegments. *Cor.* none. *Stam.* Filaments eight, briſtle-ſhaped, the length of the limb, inſerted into the top of the tube; anthers nearly ovate, erect. *Piſt.* Germen ovate, within the tube of the calyx; ſtyle thread-ſhaped, ſpringing from the ſide of the ſummit of the germen, as long as the tube; ſtigma capitate, rough all over with briſtly hairs. *Peric.* leathery, ovate, of one cell. *Seed* ſolitary, ovate, obliquely pointed at each end.

Eſſ. Ch. Calyx coloured, four-cleft, withering. Corolla none. Stamens prominent. Style lateral. Seed ſolitary, coated.

Obſ. The analogy of *Daphne* renders it indiſpenſable to conſider this flower likewiſe as having a coloured calyx, not a corolla, eſpecially as others of the ſame natural order have *petals*, or *nectaries*, beſides; ſee COROLLA and DAPHNE. Linnæus has obſerved that, in *P. capitata*, there are eight interior abortive ſtamens; and in *uniflora*, the rudiments of eight ſupernumerary anthers, in the bottom of the flower. Theſe inſtances leſſen the value of the reputed petals, nectaries, or glands, which diſtinguiſh other genera from this and *Daphne*. Accordingly, of the eight *Paſſerinæ* in Linn. Sp. Pl. ed. 2, *ſericea*, *dodecandra* and *lævigata* are now removed from hence; though recent diſcoveries have, on the other hand, enlarged the genus to ſixteen ſpecies. How far any of the new ones may be liable to exception in the generic character, we have no infallible means of determining, but we ſhall briefly enumerate the whole. All, except *hirſuta*, *orientalis*, and *caneſcens*, are natives of the Cape of Good Hope; five are cultivated in Britain.

1. P. *filiformis*. Filiform Sparrow-wort. Linn. Sp. Pl. 513. Ait. Hort. Kew. v. 1. (P. foliis linearibus; Linn. Hort. Cliff. 246. t. 11.)—Leaves linear, convex, imbricated in four rows. Branches downy.—This is often ſeen in green-houſes, flowering in ſummer. The *ſtem* is ſhrubby, repeatedly branched; the younger *branches* downy, covered with innumerable ſmooth narrow *leaves*, about half an inch long. *Flowers* ſolitary, ſmall, yellowiſh, from the boſoms of many leaves together towards the tops of the branches, ſuch leaves having at their baſe, on each ſide, a broad, membranous, rounded, furrowed dilatation.—The ſynonym of Breynius, ſtill retained by Willdenow, belongs to *Gnidia ſimplex*, under which he repeats it. Linnæus in Hort. Cliff. has ſeveral faulty ſynonyms beſides, as he there confounds not only various African, but even European, plants.

2. P. *hirſuta*. Shaggy Sparrow-wort. Linn. Sp. Pl. 513. Ait. n. 2. Sm. Tour. ed. 2. v. 2. 105. Prodr. Fl. Græc. Sibth. v. 1. 262. Fl. Græc. t. 360, unpubliſhed. (Sanamunda tertia; Cluſ. Hiſt. v. 1. 89. Ger. em. 1596. Breyn. Cent. 1. t. 19. Seſamoides minus; Dalech. Hiſt. 1670.)—Leaves ovate, fleſhy; convex and ſmooth externally; concave and woolly on the upper ſide. Stem and flowers woolly.—Native of heathy places, eſpecially near the ſea, in the ſouth of France, Spain, Italy, Greece, and the Levant, flowering from November to March.—More buſhy and ſpreading than the former, with totally different *leaves*. *Flowers* in little tufts at the ends of ſhort lateral ſhoots; white and woolly externally; lemon-coloured within, powerfully and delightfully fragrant. Nothing can be more elegant or deſirable than this ſhrub in its wild ſtate; in green-houſes it generally makes a poor figure.

3. P. *ericoides*. Heath-like Sparrow-wort. Linn. Mant. 236.—Leaves oblong, obtuſe, poliſhed, bluntly keeled; with a woolly furrow above. Tube of the calyx globoſe and hairy; limb ſmooth. From the Cape.—This has much the aſpect of an *Erica*, and yet is cloſely allied to both the foregoing, as if intermediate between them, yet perfectly diſtinct. The *branches* are downy or woolly when young. *Leaves* not a quarter of an inch long, of a ſhort, oblong, priſmatic ſhape; green and poliſhed, except a narrow hairy furrow along their upper or inner ſurface. *Flowers* axillary, ſeſſile, the accompanying leaves being dilated and ovate. The globoſe hairy tube of the *flower* is filled by the germen, and finally forced off by the ripe *fruit*, which appears to be pulpy, and if ſo, the plant becomes perhaps more properly a *Daphne*. The *ſeed* is black and ſhining.

4. P. *nervoſa*. Ribbed Sparrow-wort. Thunb. Prodr. 75. Willd. n. 4.—"Leaves lanceolate, three-ribbed, ſmooth. Flowers capitate."—Of this and the following we have ſeen no ſpecimen.

5. P. *cephalophora*. Great-headed Sparrow-wort. Thunb. ibid. Willd. n. 5.—"Leaves priſmatic, in four rows. Heads of flowers woolly." *Thunb.*

6. P. *capitata*. Smaller-headed Sparrow-wort. Linn. Sp. Pl. 513. Ait. n. 3. (Thymelæa foliis linearibus alternis, floribus ex uno petiolo copioſis; Burm. Afric. 133. t. 48 f. 3.)—Leaves linear-awlſhaped, ſmooth on both ſides. Heads of flowers downy, on downy, club-ſhaped, terminal ſtalks.—Sent from the Cape in 1789, by Mr. F. Maſſon. It flowers at Kew from June to September, being kept, like all the reſt, in the green-houſe. Burmann deſcribes this as of very lofty growth, with red or purpliſh *branches*, two feet long, which are repeatedly ſubdivided; the younger

ſhoots only ſlightly hairy. *Leaves* ſcattered, linear, acute, keeled, ſmooth; convex above; rather more than half an inch long. *Flowers* white, about ten or more in each denſe, hairy terminal tuft, whoſe ſtalk is thickened upwards, downy, crowned with a hairy ring or border beneath the flowers. Burmann by miſtake uſes the word *petiolo* for *pedunculo* in his definition above.

7. P. *orientalis*. Oriental Sparrow-wort. Willd. n. 7. (P. foliis lanceolatis; Gronov. Orient. 48. Sanamunda prima; Cluſ. Hiſt. v. 1. 88. Rauwolf. Raiſ. 281.)—Leaves lanceolate, ſomewhat fleſhy, blunt, ſlightly hairy. Flowers axillary.—Native of Spain and the Levant, in open ſunny ſpots, flowering in March and April. A buſhy *ſhrub*, about two feet high, with a dark-coloured bark. *Leaves* compared by Cluſius to thoſe of *Cneorum tricoccum*, but ſmaller, ſhorter, and fleſhy, ſomewhat hairy, ranged in a regular manner along the branches. *Flowers* among the leaves, oblong, reſembling thoſe of the Olive, but yellow. *Fruit* like that of *Thymelæa* (*Daphne Gnidium*), but blackiſh. This is all we can gather from Cluſius, whoſe ſynonym was originally cited by Linnæus under *Paſſerina ciliata*, but afterwards ſtruck out, in his own copy of Sp. Pl. Willdenow has eſtabliſhed the preſent ſpecies, on the authority of the authors quoted; but if Cluſius be right, the *fruit* ſhould make it a *Daphne*. We have a ſpecimen gathered by the Abbè Durand in Barbary, which anſwers well to the deſcription and figure of Cluſius except that the *flowers* are terminal, in little heads on the ſhort lateral branches, and by no means as he repreſents them.

8. P. *ciliata*. Fringed Sparrow-wort. Linn. Sp. Pl. 514. Willd. n. 8. Thunb. Prodr. 75. (Thymelæa foliis oblongo-acutis, ad oras fimbriatis, floribus ex foliorum alis ſpicatis; Burm. Afric. 129. t. 47. f. 2.)—Leaves oppoſite, lanceolate, acute, many-ribbed, fringed. Flowers axillary; their tube capillary, twice as long as the leaves.—Native of the Cape of Good Hope, not of Europe. The hiſtory of this ſpecies is extremely confuſed, as the late Mr. Dryander has ſhewn, in Tr. of Linn. Soc. v. 2. 234, that excellent botaniſt and critic having been able to prove rather what it was not, than what it was. The plant deſcribed in *Hort. Cliff.* is merely *Struthiola virgata*, with which it ſeems three others are confounded in the Cliffortian collection. The Herbarium of Linnæus has no ſpecimen. We can, therefore, only depend on Burmann's ſynonym, which Linnæus uniformly cited, and which he has marked in his copy of Burmann's book. Of this the young *branches* are ſquare and purpliſh. We cannot learn why Willdenow defines the *ſtem* as villous. The *leaves* are ſeſſile, oppoſite, croſſing each other in pairs, ovato-lanceolate, acute, entire, many-ribbed, half an inch, or more, in length, ſmooth, except a denſe ſilky marginal fringe. *Flowers* ſolitary, with a ſlender tube, about twice the length of the leaf. Burmann's figure has all the appearance of a *Gnidium*. We know nothing of the colour of the *flowers*, for what Willdenow has on that ſubject is taken from Bergius, whoſe *P. ciliata* is evidently a different thing. What the Spaniſh botaniſts ſend under this name is either *P. orientalis*, or *Daphne villoſa*. Thus we muſt ſtill leave the matter in uncertainty, till the genus of Burmann's plant be aſcertained.

9. P. *uniflora*. One-flowered Sparrow-wort. Linn. Sp. Pl. 514. Ait. n. 4. (Thymelæa ramoſa, linearibus foliis anguſtis, flore ſolitario; Burm. Afric. 131. t. 48. f. 1.)—Leaves oppoſite, triangular-awl-ſhaped, ſmooth and even. Flowers terminal, ſolitary; their ſegments acute. From the Cape. Miller cultivated it in 1759. This is a humble, buſhy, ſmooth *ſhrub*, whoſe ſlender *branches* are clothed with oppoſite awl-ſhaped *leaves*, croſſing each other in pairs, and keeled at the back. *Flowers* ſolitary at the top of each branch, erect, pale purple; their *tube* hairy, as long as the leaves; limb of the ſame length, in four ovate, acute, ſpreading ſegments, hairy at the back. Burmann's fig. 2. is a doubtful variety. See the next ſpecies.

10. P. *grandiflora*. Great-flowered Sparrow-wort. Linn. Suppl. 226. Ait. n. 5? Curt. Mag. t. 292? (P. linoides; Thunb. Prod. 75? Thymelæa foliis imbricatis oblongis, floribus ſericeis, ramoſa; Brum. Afric. 123. t. 46. f. 1.)—Leaves oppoſite, elliptical, ſmooth; concave above; convex and ſomewhat ribbed beneath. Flowers terminal, ſolitary; their ſegments obtuſe.—Such are the characters of the original ſpecimen of this plant, gathered at the Cape by Sparrmann. It ſeems to be of much loftier growth than the laſt, with thicker *branches*, downy when young. *Leaves* ſhort and elliptical; very concave above; and no leſs convex at the under ſide, which preſents itſelf to the ſpectator, and which is ſmooth and ſhining, furniſhed with an obſcure midrib, but by no means keeled: in a dry ſtate there is ſome appearance of lateral ribs at the baſe, and many corrugations all over the ſurface, but theſe latter ſeem the effect of drying. *Flowers* terminal, ſolitary, twice the ſize of the laſt, apparently pale red, very ſilky externally, and downy within; their ſegments broadly elliptical and obtuſe. *Stamens* and *ſtyle* riſing above the tube, but ſhorter than the limb. By this deſcription it will appear that the plant of the Botanical Magazine anſwers but imperfectly to ours. Its *leaves* are much narrower and longer, *flowers* white, ſmaller, with acute ſegments. We are rather inclined to think this latter may be what is repreſented in Burmann's t. 48. f. 2, which Linnæus, and the editors of Hort. Kew. have cited as *P. uniflora;* and poſſibly both may be the real *linoides* of Thunberg; but this we have no materials to determine. This author has nothing under the name of *grandiflora* in his Prodromus, nor any ſingle-flowered ſpecies, except *uniflora* and *linoides*. Burmann's t. 46. f. 1. is evidently our *grandiflora;* his f. 2. may be that of the Bot. Mag. See ſp. 17, at the end of the genus.

11. P. *caneſcens*. Hoary Sparrow-wort. "Schouſboe in Act. Hafn." Willd. n. 11.—"Leaves oblong, imbricated in four rows, clothed with ſoft wool. Flowers terminal, woolly."—Native of Morocco. A *ſhrub* with numerous ſhort *branches*, ſmall, imbricated, very woolly *leaves*, and cylindrical *flowers*. *Willd.*

12. P. *ſpicata*. Spiked Sparrow-wort. Linn. Suppl. 226. Willd. n. 12. Thunb. Prodr. 75. Wendl. Obſ. (in Roem. Archiv. v. 1?) 19. t. 2. f. 19. *Willd.*—"Leaves ovate, villous. Flowers lateral, ſolitary."—Gathered by Thunberg, at the Cape. The flowering *branches* are ſaid by Linnæus to reſemble a leafy ſpike. We have no ſpecimen.

13. P. *laxa*. Slender-branched Sparrow-wort. Linn. Suppl. 226. Willd. n. 13. Thunb. Prodr. 75? Wendl. Obſ. 20. t. 2. f. 20. *Willd.*—Leaves ſcattered, lanceolate, keeled, ſmooth. Branches hairy, divaricated. Flowers capitate, terminal, briſtly.—Gathered by Sparrmann at the Cape. If the younger Linnæus has not deſcribed from the collection of Thunberg, whom he quotes, a different plant from the marked ſpecimen in his herbarium, given to his father by Sparrmann, nothing can be worſe than his deſcription. The *branches* indeed are ſlender, and looſely ſpreading, clothed when young with upright hairs. But the *leaves* are of a narrow elliptic-lanceolate form, not ovate, nor are they hairy, as Thunberg deſcribes them, except when young. Neverthelеſs, the alluſion in the Suppl. to *P. ericoides*, convinces us that the ſpecimen in the herbarium is correct. The *flowers* grow ſeveral together, in terminal leafy heads, and are ſlender,

clothed

clothed externally with long, erect, ſilky hairs, the ſegments of the limb ſcarcely half the length of the tube.

14. P. *ſtricta*. Rigid Sparrow-wort. Thunb. Prodr. 75. Willd. n. 14.—"Leaves ovate, hairy. Flowers capitate. Branches rigid." *Thunb.*—Totally unknown to us.

15. P. *anthylloides*. Hairy-headed Sparrow-wort. Linn. Suppl. 225. Thunb. Prodr. 76. Willd. n. 15. (Thymelæa foliis imbricatis latioribus ſubrotundis, ac ſubtùs incanis; Burm. Afric. 126. t. 46. f. 3.)—Leaves ſcattered, ovate, hairy. Flowers capitate, terminal, externally briſtly.—Gathered by Thunberg, at the Cape. A very handſome ſpecies, well deſcribed, though not very well figured, by Burmann, whoſe ſynonym is unnoticed by Linnæus and his followers. The *branches* are ſtout, erect, repeatedly ſubdivided in a faſciculate or determinate manner, hairy and moſt leafy while young. *Leaves* ſcattered, imbricated, about three-fourths of an inch long, elliptic-ovate, nearly flat, ribbed, hairy beneath, eſpecially when young. *Flowers* in large terminal heads, encompaſſed with numerous large hairy leaves; their outſide covered with long, denſe, erect, white, ſilvery hairs; the inſide ſmooth, yellow when freſh, black when dry. Burmann, who ſaw them in the latter ſtate only, ſuppoſed them to be purple. *Fruit* ovate, of a ſhining brown, clothed with upright briſtles. *Seed* minutely dotted.

16. P. *pentandra*. Pentandrous Sparrow-wort. Thunb. Prodr. 76. Willd. n. 16.—"Leaves ovate, hairy. Spikes ovate, terminal." *Thunb.*—Known only by this definition of Thunberg. If the *flowers* have preciſely five *ſtamens*, it cannot but excite ſome doubts as to the genus.

Linnæus admitted into *Paſſerina*, in the Supplementum, three diandrous ſpecies, which formed the genus *Bankſia* of Forſter. Theſe are now, with many others, eſtabliſhed as a ſeparate genus, by the name of *Pimelæa*; ſee that article. Meanwhile the name of *Bankſia* has been applied to a fine genus of the *Proteaceous* order, with which it remains.

Having under *P. grandiflora*, ſp. 10, ſuggeſted ſome doubts reſpecting the *linoides* of Thunberg, we ſhall here venture to propoſe that, with what appear to be its ſynonyms, as a ſupplementary ſpecies, for future conſideration.

17. P. *linoides*. Flax-like Sparrow-wort. Thunb. Prodr. 75. (P. grandiflora; Curt. Mag. t. 292. Ait. n. 5. Thymelæa foliis imbricatis anguſtioribus, floribus ſericeis, ſpicata; Burm. Afric. 125. t. 46. f. 2. T. ſcaphoides, monomotapenſis, ſive foliolis glabris triquetris cavis cymbæformibus, floribus ſolitariis amplis ſummo caule villoſis; Pluk. Mant. 189. t. 445. f. 8.)—Leaves oppoſite, elliptic-lanceolate, ſmooth, concave above; convex, even and three-ribbed beneath. Flowers terminal, ſolitary; their ſegments acute.—Native of the Cape, from whence it was ſent by Mr. Maſſon in 1789. If we are right in this ſpecies, it differs from *P. uniflora* in being a much taller *ſhrub*, with elliptical (though narrow) concave *leaves*, not awl-ſhaped keeled ones, and the *flowers* are white, not purpliſh or blue. From *grandiflora*, to which it is moſt allied, it differs in having much narrower *leaves*, even, not rugoſe, at the back, and *flowers* but half as large, whoſe ſegments are ovate and acute, not obtuſe. Plukenet is inaccurately quoted by Burmann, which the confuſed plan of his work renders it difficult to avoid.

This ſpecies is ſaid by Mr. Curtis to be a hardy green-houſe plant, flowering in May and June, and increaſed without difficulty by cuttings. It is ſtill, if we miſtake not, cultivated by Meſſrs. Lee and Kennedy, at Hammerſmith. S.

PASSERINA, in *Gardening*, contains plants of the ſhrubby, exotic, evergreen kind, of which the ſpecies cultivated are, the filiform ſparrow-wort (P. filiformis); the ſhaggy ſparrow-wort (P. hirſuta); the headed ſparrow-wort (P. capitata); the ciliated ſparrow-wort (P. ciliata); and the one-flowered ſparrow-wort (P. uniflora).

Method of Culture.—All the ſorts may be increaſed by cuttings planted in a bed of loamy earth, during the ſummer months, and cloſely covered with a bell or hand-glaſs to exclude the air, ſhading them from the ſun, and refreſhing them now and then with water. When well rooted they may be planted out, each into a ſmall pot filled with loamy earth; placing them in the ſhade till they have taken new root; then be removed into a ſheltered ſituation, to remain till the beginning of autumn, when they muſt be placed in the green-houſe, and treated as the myrtles. They may likewiſe be increaſed by layers.

The ſecond ſort may alſo be raiſed by ſowing the ſeeds in autumn, ſoon after they are ripe, in ſmall pots filled with light earth, plunging them into an old bark-bed under a common frame in winter: the plants riſe in the ſpring, and muſt be treated like the cuttings. The ſeedling plants grow the moſt erect, and make the handſomeſt appearance.

This ſort is capable of living abroad in common winters, in a dry ſoil and warm ſituation; but in hard froſts the plants are frequently deſtroyed: one or two ſhould therefore be kept in pots, and ſheltered during that ſeaſon.

They afford variety among other potted green-houſe plants.

PASSERON ISLANDS, in *Geography*, a cluſter of ſmall iſlands in the Indian ſea, near the coaſt of Africa. S. lat. 11° 10′.

PASSEROTTI, BARTOLOMEO, of Bologna, in *Biography*, was a pupil of Zuccari, and a very ingenious painter, one of whoſe works, (a picture of Tityus,) was miſtaken by the connoiſſeurs of Bologna for the painting of Michael Angelo, and whoſe portraits were thought by Guido to have nearly approached thoſe of Titian. He was a ſkilful draftſman, and aided in forming the Carracci, particularly Agoſtino; who made his lines in his penned drawings the guide of his graver. He compoſed a book on anatomy and ſymmetry: but was not always guided by his own directions. The debauchery of true taſte, begun by the freedom of his maſter, he aided in its progreſs; and allowed his better talents to bend to facility of execution, and looſeneſs of manner.

PASSE-VERT, in *Ornithology*. See TANAGRA *Cayana*.

PASSIDAGPOUR, in *Geography*, a town of Hindooſtan, in Oude; 24 miles N. of Manickpour.

PASSIFLORA, in *Botany*, a name altered by Linnæus, from the *Flos Paſſionis* of preceding authors. This was applied to the beautiful genus in queſtion, known univerſally at preſent by the appellation of Paſſion Flowers, becauſe the inſtruments of Chriſt's paſſion were thought to be repreſented in the parts of fructification. The five ſtamens were compared to his five wounds; the three ſtyles, more aptly, to the nails by which he was fixed to the croſs; the column, which elevates the germen, to the croſs itſelf, or to the pillar to which he was bound; and the rays of the nectary to his crown of thorns. There are cuts to be found in ſome old books, apparently drawn from deſcription, like the hog in armour upon our ſigns to repreſent the rhinoceros, in which the flower is made up of the very things themſelves. Linn. Gen. 466. Amoen. Acad. v. 1. 211. Schreb. 199. Willd. Sp. Pl. v. 3. 606. Ait. Hort. Kew. ed. 1. v. 3. 306. Mart. Mill. Dict. v. 3. Cavan. Diſſ. 442. Swartz. Ind. Occ. v. 2. 1133. Juſſ. 397. Lamarck Dict. v. 3. 32. Illuſtr. t. 732. (Granadilla; Tourn. t. 123, 124. Gærtn. t. 60. Murucuia; Tourn. t. 125. Juſſ. 398. Tacſonia; Juſſ. 398.)—Claſs and order, *Gynandria Pentandria*, Linn. *Monadelphia Pentandria*, Cavan. Willd. *Pentandria Trigynia*, Schreb. which laſt we prefer. Nat. Ord. *Cucurbitaceæ*, Linn. Juſſ.

Gen. Ch. *Cal.* Perianth of one leaf, in five deep, oblong, equal ſegments, much reſembling the petals, but pointed below the top; its baſe concave or tubular. *Cor.* Petals five, oblong, flat, obtuſe, uſually the ſize and ſhape of the calyx, and alternate with its ſegments; ſometimes wanting. Nectary a manifold radiating crown, rarely ſimple, within the baſe of the petals; the outer rows longeſt; the inner of more or leſs complex, ſeparate or combined, rays or membranes. *Stam.* Filaments five, awl-ſhaped, ſpreading, inſerted at the baſe of the germen, upon the column which elevates it; anthers incumbent, pendulous, verſatile, oblong, depreſſed, obtuſe. *Piſt.* Germen roundiſh, elevated upon the top of a ſtraight cylindrical column, generally ſhorter than the petals; ſtyles three, ſpreading, ſwelling upwards; ſtigmas capitate, broad. *Peric.* Berry fleſhy, nearly ovate, ſtalked, of one cell. *Seeds* numerous, ovate, with a pulpy tunic. *Receptacles* of the ſeeds three, attached lengthwiſe to the inſide of the pericarp.

Eſſ. Ch. Calyx in five deep coloured ſegments. Petals five, inſerted into the calyx. Nectary a complex radiating crown. Berry ſtalked. Seeds with a pulpy tunic.

Obſ. In the *Murucuia* of Tournefort, of which two or three ſpecies are now known, the nectary is a conical abrupt membrane, not ſplit into rays. *P. ſuberoſa*, *minima*, and ſome allied to them, have no petals. We gladly, at the ſuggeſtion of Willdenow, reſume the Linnæan ideas of the calyx and corolla of this genus, which ſome new-diſcovered ſpecies, the baſe of whoſe calyx is elongated into a cylindrical tube, had formerly induced us, like Cavanilles, to give up. Theſe make the genus *Tacſonia* of Juſſieu, *Tacſo* of the Peruvians; a name no leſs exceptionable than the genus. Willdenow errs nevertheleſs greatly, in ſtill terming the bracteas an involucrum.

This is one of the moſt natural genera that can poſſibly be. Its *root* is perennial. *Stem* climbing to a great extent, branched; more or leſs ſhrubby below. *Leaves* alternate, either undivided or lobed, ſcarcely ever compound, ſtalked, with glands, for the moſt part, upon their *ſtalks*, and accompanied by a pair of *ſtipulas*, as well as by ſolitary, ſimple, ſpiral *tendrils*. *Flowers* on axillary undivided ſtalks, ſolitary or in pairs. *Bracteas* very various in form, uſually three, a little remote from the flower, and deciduous; in the long-tubed ſpecies often combined into a three-cleft tube, and permanent. Hence when the *petals* and *calyx*, both together, came to be conſidered as a monopetalous *corolla*, in ten ſegments, the *bracteas* were taken for a *calyx*. See Plant. Ic. ex Herb. Linn. faſc. 1. t. 24, 25.

The ſpecies of this genus are numerous. Linnæus in his diſſertation, *de Paſſiflorâ*, publiſhed in 1745, and reprinted in the firſt vol. of his *Amœnitates*, deſcribes 22, with imperfect indications of 18 more. The leaves of thoſe 22, on which the ſpecific differences chiefly depend, are there very neatly engraved. Twenty-ſix ſpecies are given in Sp. Pl. ed. 2, and 28 only in the 14th edition of Syſt. Veg. Lamarck in his Dictionary, v. 3, (*Grenadille*,) has 35. Cavanilles in his tenth diſſertation deſcribes 44, of which 31 are there figured. Willdenow in his Sp. Pl. has 46. We add five to the liſt, from the fifth volume of Cavanilles' Icones, and four new ones.

The two laſt-mentioned authors refer the genus to *Monadelphia*, and even Schreber has added a note, in his ſecond vol. 826, that the filaments are combined at their baſe. This union appears to us ſo ſlight, and indeed ſo often wanting, that we much prefer continuing *Paſſiflora* in *Pentandria*, where Schreber firſt placed it. The Linnæan idea, of its being gynandrous, is totally exploded; for there is no inſertion of the filaments upon, or above, the germen; the organs of fructification are merely elevated, all together, on a columnar receptacle.

It is remarkable that every deſcribed ſpecies is excluſively of South American or Weſt Indian origin, except two found in Virginia and Florida, one in the remote counties of New Caledonia and Norfolk iſland, and one in Cochinchina; ſee n. 2.

The whole are diſpoſed in four artificial ſections, by the forms of their leaves. Being ſuch general favourites, we muſt briefly notice every ſpecies, eſpecially as Willdenow is, in ſome points, very imperfect. Since we follow his arrangement, it is needleſs to cite him throughout, and we ſhall confine ourſelves in the ſynonyms to what is abſolutely eſſential, or to what he has omitted.

Section 1. *Leaves undivided.* Thirteen ſpecies.

1. P. *ſerratifolia*. Notch-leaved Paſſion-flower. Linn. Sp. Pl. 1355. Jacq. Hort. Vind. v. 1. t. 10. Curt. Mag. t. 651.—Leaves ovate, finely ſerrated, downy beneath.—Native of Surinam. A ſtove plant in England, flowering copiouſly all ſummer long. Houſton introduced it to Chelſea garden in 1731. The *branches* are very long and ſlender. *Leaves* green on both ſides, ſmooth above, very ſoft beneath. *Flowers* peculiarly delicate, diſtinguiſhed by the very long capillary curling rays of their *nectary*, which are purple at the baſe, pale blue upwards. The ſcent of the *flower* is aromatic, but to us unpleaſant, partaking of rhubarb-root. Curtis commends it.

2. P. *pallida*. Pale Paſſion-flower. Linn. Sp. Pl. 1355. (Clematis indica alia, flore minore pallido; Plum. Amer. t. 89.)—Leaves ovate, entire. Footſtalks with two glands. Petals none. Fruit elliptical. Gathered in Hiſpaniola by Plumier, by whoſe figure and ſhort deſcription only have we any knowledge of this ſpecies. He repreſents the *flowers* as ſcarcely above an inch broad, and deſtitute of *petals*, ſo that it cannot be, as he thinks, the *Murucuia-miri* of Piſo 248, which is deſcribed with very evident red ones. In other reſpects the figures are not diſſimilar. Plumier's has no *bracteas*, which may be an accidental omiſſion. The *fruit* is the ſize and ſhape of an olive. Piſo's cut expreſſes nothing as to the *bracteas* or *fruit*, but he ſays the latter is pear-ſhaped. His plant is greatly commended as a deobſtruent, even ſuperior in virtues to Sarſaparilla. Loureiro gives *P. pallida* as a native of Cochinchina; how correctly we know not.

3. P. *adulterina*. Oval-leaved Tubular Paſſion-flower. Linn. Suppl. 408. Sm. Plant. Ic. t. 24.—Leaves elliptical, revolute, ſomewhat toothed; woolly at the back. Tube of the calyx thrice as long as the limb. Bracteas diſtinct. Sent by Mutis to Linnæus from New Granada. A very curious ſpecies, the tube of whoſe *calyx* is three inches long and exactly cylindrical. *Petals* purple. *Nectary* of very ſhort rays. *Bracteas* three, diſtinct, ovate-oblong, cloſe to the flower. Young *branches* woolly, as well as the *footſtalks*, and backs of the *leaves*. *Stipulas* ſerrated. *Flowers* pendulous. *Fruit* ovate, ſpotted.

4. P. *cuprea*. Copper-coloured Paſſion-flower. Linn. Sp. Pl. 1355. Jacq. Ic. Rar. t. 606.—Leaves ovate, entire, three-ribbed, obtuſe. Footſtalks without glands. Bracteas minute, deciduous. Fruit elliptical.—Native of the Bahama iſlands, from whence the ſeeds were brought by Cateſby to England, in 1724. It is a tender ſtove plant, ſcarcely, if at all, to be ſeen here at preſent. The three-ribbed ovate *leaves*, glaucous at the back, with ſeveral dots between the ribs, and the almoſt linear *petals*, and ſegments of the *calyx*, both

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both of a dull red on the upper ſide, mark the ſpecies. The glands of the *footſtalks* are perhaps entirely wanting, but not the *bracteas*, though the latter are minute, and fall off early, as Jacquin's plate, and even that of Dillenius, expreſſes.

5. P. *tiliæfolia*. Linden-leaved Paſſion-flower. Linn. Sp. Pl. 1355. Cavan. Diſſ. t. 285.—Leaves heart-ſhaped, entire. Footſtalks without glands. Bracteas ovate, ſhorter than the calyx. Native of the neighbourhood of Lima, where it is cultivated in gardens, but ſeems never to have been brought to Europe. Cavanilles's plate ſeems to be fabricated from Feuillée's, at leaſt it does not appear that the former had ſeen a ſpecimen, any more than Linnæus. The broad heart-ſhaped *leaves*, reticulated with copious veins at the back, diſtinguiſh this from all the foregoing. For the want of glands on their ſtalks we muſt rely on Feuillée's figure. The *rays* are crimſon, divided by a white line. *Fruit* globular, two inches and a half in diameter, variegated with crimſon and yellow, full of ſweet watery pulp.

6. P. *maliformis*. Apple-fruited Paſſion-flower. Linn. Sp. Pl. 1355. Jacq. Hort. Schoenbr. t. 180. Andr. Repoſ. t. 207.—Leaves ovate, pointed, entire. Footſtalks with two glands. Bracteas ovate, downy, longer than the calyx. Native of the Weſt Indies, and known in Jamaica by the name of Sweet Calabaſh. Our ſpecimens in flower came from the Hon. Mrs. Barrington's ſtove at Mongewell, in 1795, where the fruit was alſo ripened, which ſeems to be much like the laſt. The *leaves* however are narrower, ovate, very ſlightly cordate, four inches long. *Bracteas* large, pale, ſoft and downy, extending beyond the flower. *Petals* lanceolate, much narrower than the ſegments of the *calyx*, pale fleſh-coloured. *Rays* variegated with red and white in their lower part, with purple and white towards the ends.

7. P. *quadrangularis*. Square-ſtalked Paſſion-flower. Linn. Sp. Pl. 1356. Jacq. Amer. t. 143. Sowerby, a ſingle plate.—Leaves ovate, with numerous tranſverſe nerves, entire. Flower-ſtalk triangular. Stipulas ovate. Stem with four membranous angles.—Native of the Weſt Indies. It has long been in our gardens, but to flower and fruit in perfection, requires a whole ſpacious ſtove to itſelf, along whoſe horizontal windows it muſt be trained, being cut down every year to the main trunk, which ſoon acquires the ſize of a ſmall cherry-tree. Thus we have ſeen it at lord Harewood's in Yorkſhire, laden with huge *flowers*, magnificently variegated with violet-purple and crimſon, and with abundance of green oval *fruit*, the ſize of a large melon. The cavity however is very ſmall in proportion, filled with ſweet pulp, moſt eſteemed perhaps for its rarity. The *ſtem* has four very ſharp, thin, prominent angles, or wings. *Leaves* near a foot long, broad-ovate, entire, ſmooth, with four or ſix cup-like glands, full of honey, on their footſtalks; ten or twelve tranſverſe ribs ſpring from the main one at each ſide. The *ſtipulas* are ovate, broad, and entire. The triangular *flower-ſtalk* is well indicated by Mr. Sowerby, in Tr. of Linn. Soc. v. 2. 21. t. 3, as the moſt certain diſtinction of this from the next.

8. P. *alata*. Wing-ſtalked Paſſion-flower. Ait. Hort. Kew. ed. 1. v. 3. 306. Curt. Mag. t. 66.—Leaves ovate, with few tranſverſe nerves, entire. Flower-ſtalk cylindrical. Stipulas lanceolate. Stem with four membranous angles.—Native of the Weſt Indies, from whence it is ſaid to have been introduced at Kew in 1772. This is ſmaller in every part than the laſt, generally with four, glands only on the *footſtalks*; not more than five or ſix curved tranſverſe ribs, on each ſide of the principal one; lanceolate *ſtipulas*, which are now and then ſlightly ſerrated; and much ſmaller *bracteas*. The *flowers* are very agreeably and powerfully fragrant; the upper ſides of the *petals* and *calyx* of a peculiar deep ſcarlet red, the *rays* erect, as long as the *petals*, variegated with purple, white and crimſon, incurved at the points. No *fruit* has ever been produced in England. The plant is propagated by cuttings, and is a great ornament to a ſtove. We have a ſpecimen gathered by Commerſon in the iſle of Bourbon, to which country this ſpecies was probably brought originally from the Weſt Indies. We muſt obſerve that the *flower-ſtalks*, cylindrical when freſh, become triangular in drying.

9. P. *laurifolia*.. Laurel-leaved Paſſion-flower. Linn. Sp. Pl. 1356. Jacq. Hort. Vind. v. 2. 76. t. 162.—Leaves elliptical, with a ſmall point, entire, veiny, ſmooth. Footſtalks with two glands at their ſummit. Bracteas elliptical, concave, toothed, as long as the calyx.—Native of Surinam and Martinico. Known in the Weſt Indies by the name of Water Lemon, its yellow oval fruit being extremely grateful for its ſweetneſs and fragrance. The *leaves* are oval, coriaceous, ſmooth and ſhining, reticulated with ſmall veins. *Stipulas* linear-lanceolate, toothed. *Flowers* remarkably handſome, though leſs vivid in colour than the laſt; their *petals* and *calyx* reflexed, pale, dotted with red; their *rays* erect, thick, richly ſpeckled with blue and white. This is eaſily cultivated in a ſtove, and has been known in England ever ſince 1690, when the firſt earl of Portland introduced it. The two doubtful *Paſſifloræ*, Pl. Surinam. n. 152 and 74, Linn. Am. Acad. v. 8. 262, appear to belong to this.

10. P. *coccinea*. Scarlet Paſſion-flower. Aubl. Guian. 828. t. 324.—Leaves ovate, ſomewhat heart-ſhaped, ſharply ſerrated, nearly ſmooth. Footſtalks with four or ſix glands. Bracteas elliptical, concave, obtuſe, as long as the calyx. Obſerved by Aubiet in Guiana, flowering in Auguſt, when alſo he gathered the *fruit*, which he deſcribes as divided into three cells, full of a pleaſant eatable pulp. The ſtrong ſharp ſerratures of the *leaves* diſtinguiſh this from all the reſt of the preſent ſection. Cavanilles, who ſaw ſpecimens in Juſſieu's collection, ſays they are downy beneath when young; and he alſo repreſents the large inflated *bracteas* as ſerrated throughout; Aublet figures them entire. The *flowers* are of a brilliant red, with orange rays.

11. P. *mucronata*. Pointed Paſſion-flower. Lamarck Dict. v. 3. 33. Cavan. Diſſ. t. 282.—Leaves heart-ſhaped, obtuſe, reticulated, ſmooth, entire. Footſtalks with two glands. Stipulas and bracteas broad-ovate, pointed, entire, flat. Stem cylindrical. Gathered by Commerſon at Rio Janeiro. The texture of the *leaves* is like *laurifolia*, but their form is ovate, heart-ſhaped at the baſe. *Stipulas* and *bracteas* remarkably pointed; the latter are flat, and hardly above half the length of the *calyx*. The *petals* are narrow, and, as far as we can judge by the dried flower, pale. The young *leaves* ſeem elegantly ſpeckled.

12. P. *glanduloſa*. Glandular Paſſion-flower. Cavan. Diſſ. 453. t. 281.—Leaves ovate, acute, reticulated, ſmooth, entire, footſtalks with two glands. Bracteas much ſhorter than the tube of the calyx, with two glands at their baſe. Nectary extremely ſhort.—Gathered by Mr. Stoupy in Cayenne. *Cavanilles*. This appears to be one of the *Tacſoniæ* of Juſſieu, having a tubular *calyx*, though not of any great length; and a very ſhort fringe to the *nectary*, as in our third ſpecies. The *leaves* however are ſmooth, of the nature of *P. laurifolia* and *mucronata*. *Bracteas* very ſmall; uſually awl-ſhaped; ſometimes oblong; always furniſhed with a pair of glands at their baſe. *Fruit* the ſize and ſhape of a hen's egg.

13. P. *multiflora*. Many-flowered Small Paſſion-flower.

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Linn. Sp. Pl. 1356. Cavan. Diſſ. t. 272.—Leaves ovate-oblong, entire, downy on both ſides. Flower-ſtalks aggregate, hairy. Petals none.—Native of the Weſt Indies. Our ſpecimen is from Santa Cruz. This is much ſmaller, in all its parts, than any of the foregoing, and clothed all over, even the outſide of the *calyx*, with ſoft pubeſcence. Several ſmall greeniſh *flowers*, without *petals*, grow together from the boſoms of the leaves. Plumier ſays they are very fragrant.

See n. 29. *P. anguſtifolia*, as apparently belonging to this ſection.

Section 2. *Leaves two-lobed.* Ten ſpecies.

14. P. *perfoliata*. Stem-claſping Paſſion-flower.—Linn. Sp. Pl. 1356. Jacq. Hort. Schoenbr. t. 182. Andr. Repoſ. t. 547.—Leaves ſmooth, with two oblong, obtuſe, ſpreading lobes, dotted beneath; their baſe heart-ſhaped, claſping the ſtem. Calyx bell-ſhaped; its ſegments awl-ſhaped, much narrower than the petals.—Native of dry buſhy places, near the ſea, in the ſouth part of Jamaica. It flowered at Meſſrs. Lee and Kennedy's in 1796, and ſince in the Comteſſe de Vandes' fine collection. The *leaves* conſiſt of two oblong, almoſt linear, obtuſe, divaricated, entire lobes, connected with a heart-ſhaped baſe, with ſome traces of an intermediate lobe; altogether varying greatly in breadth, and, though ſupported by ſhort *footſtalks*, often claſping the ſtem; they are ſmooth on both ſides, reticulated with veins; glaucous, and furniſhed with a variable row of glandular dots, beneath. *Stipulas* ſmall, awl-ſhaped. *Flowers* on long ſtalks, with minute, capillary, remote, deciduous *bracteas*. *Calyx* with a bell-ſhaped tube, cloſed by the plaited *nectary*, and with awl-ſhaped crimſon ſegments. *Petals* of the ſame colour, elliptical, an inch long, rather exceeding the calyx. Willdenow well remarks that the *flowers* are open from their very firſt budding.

P. normalis is ſurely but a narrow-leaved variety of this; ſee n. 16.

15. P. *rubra*. Red-fruited Paſſion-flower. Linn. Sp. Pl. 1356. Jacq. Ic. Rar. t. 186.—Leaves downy, heart-ſhaped, with two acute ſpreading lobes. Flower-ſtalks hairy, without bracteas. Stem round.—Native of the Weſt Indies and of Mexico; not uncommon in our ſtoves, where it flowers in the ſpring, and ſometimes ripens its ſmall, reddiſh, ovate *fruit*. The whole plant is more or leſs clothed with ſoft pubeſcence. *Leaves* rather deeply lobed, entire. *Stipulas* linear. *Flowers* pale fleſh-coloured, horizontal. *Germen* briſtly. *Fruit* oval, red, with ſix angles.

16. P. *normalis*. Compaſs-leaved Paſſion-flower. Linn. Sp. Pl. 1357.—Leaves ſmooth, with two linear, obtuſe, rectangular lobes, and a ſmall pointed intermediate one; their baſe emarginate.—Native of Jamaica. Linnæus had it from Browne. This ſeems to us merely a variety of *perfoliata*, with narrow linear *leaves*. The ſynonym of Hernandez does not belong to it, though a part of his figure, with the longeſt *leaf*, is like our plant. See *P. Contrayerva*, n. 23.

17. P. *lunata*. Creſcent-leaved Paſſion-flower. Sm. Ic. Pict. t. 1. (P. biflora; Cavan. Diſſ. t. 288.)—Leaves ſmooth, heart-ſhaped, with two obtuſe ſpreading lobes, dotted beneath. Flowers in pairs. Rays club-ſhaped, compreſſed, obtuſe.—Native of the Weſt Indies. Long known in our gardens, but miſtaken for the *punctata*, which even Linnæus confounded with it in his *Mant.* 492, and *Syſt. Veg.*—The lobes are ſo ſhallow, broad and ſpreading, that the whole *leaf* nearly forms a creſcent. *Flowers* in pairs, drooping, about the ſize of a half crown, ſmelling like honey. *Petals* white. Rays of the nectary yellow, remarkably quadrangular. *Bracteas* diſtant, ſcattered and ſetaceous.

18. P. *Murucuja*. Tubular-crowned Paſſion-flower. Linn. Sp. Pl. 1357. Cavan. Diſſ. t. 287.—Leaves ſmooth, ſomewhat wedge-ſhaped, with two obtuſe ſpreading lobes, dotted beneath. Nectary tubular, abrupt, undivided.—Native of the Weſt Indies. We have never ſeen it alive. The *leaves* are ſhorter than in the laſt, and not heart-ſhaped at the baſe. *Flowers* deep red, diſtinguiſhed by the undivided crown of their nectary. *Bracteas* like the laſt. The *column* of the *germen* is remarkably long, and the aſpect of the whole *flower* is much like that of *perfoliata*, whoſe nectary indeed appears likewiſe tubular, the rays being all brought together round the column, but they are not combined.

19. P. *Veſpertilio*. Bat-winged Paſſion-flower. Linn. Sp. Pl. 1357. Granadilla bicornis, &c.; Dill. Elth. t. 137.) —Leaves wedge-ſhaped, ſmooth, with two, rather pointed, ſpreading lobes, and two glands at the baſe. Rays capillary, twiſted, longer than the petals.—Native of Surinam and the Weſt Indies. Sherard cultivated it at Eltham in 1732, having received it from Amſterdam. The *leaves* appear to vary much in ſhape, and in the dots more or leſs ſcattered over their under ſurface; indeed we are inclined to doubt whether ſome Surinam ſpecimens, in the Linnæan herbarium, may not be more than a variety. Yet their *flower* agrees with the true *P. Veſpertilio*, whoſe rays are remarkably long and ſlender, variouſly bent and twiſted. The *calyx* is horizontal and ſhallow, totally unlike that of *perfoliata* and *Murucuja*, and moſt agreeing with *rubra* and *lunata*, the whole *flower* being about the ſize and ſhape of *rubra*. The *berry* on one of the Surinam ſpecimens, N° 76. of the Pl. Surinamenſes, Linn. Am. Acad. v. 8. 262, is globular, the ſize of a large gooſeberry; its ſeeds tranſverſely furrowed.

20. P. *clypeata*. Peltate Bat Paſſion-flower.—Leaves ſmooth, peltate, five-ribbed, with two rounded, pointed, widely-ſpreading lobes.—Of this we have an incomplete ſpecimen in the herbarium of the younger Linnæus, marked as from the Weſt Indies, and a ſingle leaf, ſent by Mutis from New Granada, and called in his letter "*Paſſifloræ folium magnum.*" This laſt expands ſix inches; the former are ſmaller and younger. The *ſtem* is ſlender, angular. *Footſtalks* an inch or more in length, with two cup-like glands near the baſe, and in one inſtance two at the top. *Leaves* truly peltate, the ſtalk being inſerted above a quarter of an inch from the baſe. Five ſtrong radiating ribs ſpring from its inſertion; with two much ſmaller, directed towards the baſe. Both ſides are ſmooth, reticulated with innumerable veins; lobes very broad, rounded, with ſhort points; in the leaf from Mutis only there is a ſhallow, minutely pointed, intermediate lobe; but that character is ſometimes found to be variable in this tribe. A few large glandular dots are ſcattered towards the margins of the lobes. The *ſtipulas* are minute and awl-ſhaped. No traces of *flowers* are to be ſeen. This ſeems a moſt diſtinct ſpecies, though mentioned hitherto by no author that we have met with. Its habit comes very near *hederacea* of Cavanilles, ſee n. 33, but if there be any reliance on the outline of the *leaves*, they muſt be different.

21. P. *oblongata*. Oblong-leaved Paſſion-flower. Willd. n. 20. Swartz. Ind. Occ. v. 2. 1135.—"Leaves oblong; dotted beneath; rounded at the baſe; with two erect, lunate, very ſhort terminal lobes, and a minute intermediate briſtle."—Gathered by Swartz, on ſhrubby hills in Jamaica. The *ſtem* is rough and rigid, climbing by its tendrils to a great height. *Leaves* ſtalked, two or three inches long, entire, three-ribbed, veiny, thin, ſmooth; paler beneath, with a double row of remote dots. *Footſtalks* without glands. *Stipulas* linear-awlſhaped, rigid. *Flowers* ſolitary, rather

large; of their ſtructure nothing is mentioned. Our knowledge of this ſpecies is derived entirely from Swartz's work.

22. P. *capſularis*. Capſular Paſſion-flower. Linn. Sp. Pl. 1357. (Granadilla fructu rubente, folio bicorni; Plum. Ic. 129. t. 138. Clematis indica, flore clavato, &c.; Plum. Amer. 68, the firſt ſpecies, with a triangular ſtem.)—Leaves ſmooth, ſomewhat heart-ſhaped, with two acute ſlightly ſpreading lobes. Flower-ſtalks without bracteas. Stem triangular.—Found by Plumier in Hiſpaniola only. The late Hon. Mrs. Barrington received a plant from Jamaica, which flowered in Oct. 1793, at Meſſrs. Lee and Kennedy's, and anſwers well to this ſpecies, which Linnæus never ſaw, nor has any ſucceeding author been able to verify. It is in many points allied to *P. rubra*, n. 15, along with which Plumier deſcribes it; but is diſtinguiſhed by the triangular *branches*; the ſmoothneſs of the *leaves*, which in our ſpecimen are ſcarcely cordate at the baſe. This laſt character, and the *flowers* being in pairs, not ſolitary, are the only circumſtances in which our Jamaica plant does not correctly agree with Plumier's figure and deſcription. The *fruit* is ſaid to be longer, and more pointed, than that of *rubra*, apparently with leſs pulp. The *rays* are ſhorter than the *petals*, ſomewhat club-ſhaped. *Calyx* ſhallow and broad. *Germen* ſmooth. There are two glands at the baſe of the *leaf*, at leaſt in our ſpecimen.—In the herbarium of the younger Linnæus are ſpecimens, without *flowers*, gathered by Smeathman in the Weſt Indies, which agree very nearly with what we have juſt deſcribed, except that the *leaves* have much narrower, more deeply ſeparated, lobes, elegantly variegated, with a white central ſtripe on the upper ſide. We procured a ſimilar leaf in 1791, from the ſtove of Mrs. Barrington, who had the plant from Jamaica. This may be a diſtinct and very curious ſpecies, which the *flowers*, when known, may ſerve to diſtinguiſh hereafter.

23. P. *Contrayerva*. Horſe-ſhoe Paſſion-flower. (Coanenepilli ſeu Contrayerva; Hernand. Mex. 301.)—Leaves ſmooth, without glands, ſomewhat heart-ſhaped, with two obtuſe, oblong, pointleſs, ſlightly ſpreading lobes. Footſtalks without glands or ſtipulas. Stem angular. Calyx ſpreading.—This appears to us a very intereſting ſpecies, hitherto totally miſunderſtood. We have unmarked ſpecimens in the two Linnæan herbariums, anſwering preciſely to the figure and deſcription of Hernandez, whoſe ſynonym was certainly very ill applied by Linnæus to *normalis*; ſee n. 16. Hernandez ſays his plant is found in various parts of the country of Mexico, and the root is famous for its medicinal virtues, being ſweetiſh, with ſome pungency and fragrance, and conſidered as a powerful counter-poiſon, deobſtruent, cordial, &c.; three ounces of the bruiſed root being a doſe. Hence the appellation of *Contrayerva*, which it poſſeſſes in common with *Dorſtenia*, and ſome other reputed counter-poiſons. Hernandez well deſcribes the *leaves* as ſhaped like a creſcent, or a horſe-ſhoe. They are about an inch long, his figure being ſcarcely half the natural ſize. He repreſents three dots, like nails, on their diſk, which he ſays are yellow, but which our ſpecimens do not ſhew. The *ſtems* are ſlender, angular, twining, and climbing by tendrils. We have no *flowers*. He deſcribes them as ſhaped like a carnation, but much ſmaller, and of many colours; the *berries* globular, dark cheſnut-coloured. His figure well expreſſes one of the flattiſh, ſpreading, or ſhallow-flowered kinds, with thick horizontal *rays*, and a moderately elevated *column*. *Root* as thick as the little finger, long and twiſted.

Section 3. *Leaves three-lobed.* Twenty-ſeven ſpecies.

24. P. *rotundifolia*. Round-leaved Paſſion-flower. Linn. Sp. Pl. 1357. Cavan. Diſſ. t. 290. Willd. n. 22.—Leaves roundiſh, with three very ſhallow equal lobes; dotted beneath and at the baſe. Footſtalks without glands. Calyx flat. Nectary with ſpreading rays.—Native of South America and the Weſt Indies; ſent to Kew in 1786, by Baron Hake, but we have never heard of its flowering in any garden. The *leaves* are about two inches in length and breadth, quite ſmooth on both ſides in our ſpecimen, as is alſo the ripe *fruit*, though authors attribute ſome downineſs to both. The *flowers* we have not ſeen. Cavanilles and Plumier repreſent them of the ſize and general form of *rubra* and *capſularis*, with thickiſh rays.

25. P. *orbiculata*. Orbicular Tubular-crowned Paſſion-flower. Cavan. Diſſ. 456. t. 286. Willd. n. 23.—Leaves roundiſh, with three very ſhallow obtuſe lobes; dotted beneath, but not at the baſe. Footſtalks without glands. Petals none. Nectary tubular, abrupt, undivided.—Native of Hiſpaniola. Given by Thouin to the younger Linnæus. The *leaves* of this rare ſpecies much reſemble the laſt, but the lobes are very obtuſe, the middle one broadeſt; in a young ſtate the under ſide is downy, and always very much reticulated with prominent veins. *Stipulas* and *bracteas* awl-ſhaped. *Tendrils* ſhort. *Flowers* in pairs, crimſon, the ſize of *Murucuja*, n. 18, and with the ſame undivided *nectary*, but no *petals*. The baſe of the *calyx* is globoſe; when young downy, like the *flower-ſtalks*. *Column* very long and ſlender, extending far beyond the *calyx*.

26. P. *punctata*. Dotted Paſſion-flower. Linn. Sp. Pl. 1358. Cavan. Diſſ. t. 269. (Granadilla folio tricuſpidi, obtuſo et oculato; Feuill. Peruv. 718. t. 11.)—Leaves roundiſh, ſlightly heart-ſhaped, with three ſhallow obtuſe lobes, and many rows of dots at the back, but not at the baſe. Footſtalks without glands. Calyx flat. Rays ſpreading half the length of the petals.—Gathered by Feuillée in a garden at Malambo, a ſuburb on the north of Lima. He never met with this plant elſewhere. Cavanilles ſaw it in flower at Paris. We have never ſeen a ſpecimen, nor did Linnæus; his deſcription in the *Mant.* and *Syſt. Veg.* copied by Willdenow, being taken from our *lunata*, which is the *punctata* of Ait. Hort. Kew. ed. 1. (See *Sm. Ic. Pict. t.* 1.) The *leaves* are broader and ſhorter than in the two laſt deſcribed, and more copiouſly dotted at the back. *Flowers* ſolitary, with a flattiſh expanded *calyx*, whitiſh ovate *petals*, and violet *rays*, tipped with bright yellow, which are much ſhorter than the *petals*, and ſomewhat club-ſhaped. *Fruit* rather oval, with a ſweet pulp.

27. P. *lutea*. Small Yellow Paſſion-flower. Linn. Sp. Pl. 1358. Jacq. Ic. Rar. t. 607. Michaux Boreal-Amer. v. 2 37.—Leaves heart-ſhaped, three-lobed, obtuſe, ſmooth. Footſtalks downy, without glands. Flowers in pairs. Petals half the breadth of the calyx.—Native of North America, from Virginia to Florida, as well as of Jamaica. It has long been in our gardens, but is little valued, the *flowers* being ſmall and pale. The *leaves* ſomewhat reſemble, in ſhape and ſize, thoſe of *Anemone Hepatica*. They are ſmooth, glaucous beneath, without dots or glands. *Footſtalks* and *flower-ſtalks* hairy, without glands, or *bracteas*. *Flowers* horizontal, flattiſh, with narrow pale-yellow *petals*, and ſpreading *rays* of the ſame length and colour.

28. P. *pannoſa*. Cloth-leaved Paſſion-flower.—Leaves heart-ſhaped, unequally three-lobed, bluntiſh, downy on both ſides, as well as the ſtalks, tendrils, and branches. Petals none. Germen briſtly.—Native of the Weſt Indies. We obtained a ſpecimen from Kew garden, in November, 1791, but have never elſewhere ſeen or heard of this ſpecies, which from its ſordid habit, and minute, greeniſh, inconſpicuous *flowers*, is likely to have generally eſcaped notice.

The form and ſize of the *leaves* are like *rubra*, n. 15, and ſome of them have actually but two lobes, as in that; but moſt have a broad central lobe, as long as the others. Every part is pubeſcent like *rubra*, and the *germen* briſtly, but the *flowers* are otherwiſe totally unlike that ſpecies, ſcarcely a quarter ſo large, deſtitute of *petals*, and with a very ſmall *nectary;* though their ſtalks bear conſpicuous finely three-cleft *bracteas*, which *rubra* wants. However deficient in ſplendour, this plant is worthy the attention of a curious botaniſt, on account of its various reſemblances and affinities. See *fœtida* and *holoſericea* hereafter.

29. P. *anguſtifolia*. Narrow-leaved Paſſion-flower. Willd. n. 26. Swartz Ind. Occ. v. 2. 1133. (P. heterophylla; Ait. n. 13. Jacq. Hort. Schoenbr. v. 2. 28. t. 181. P. longifolia; Cavan. Diſſ. t. 270.)—Leaves ſmooth; the lower ones three-lobed; the reſt undivided, lanceolate, elongated, pointed. Footſtalks with two glands. Petals none.—Native of thickets in Jamaica; ſaid to have been brought to England about the year 1773. It flowers in the ſtove moſt part of the ſummer. Thoſe who ſhould obſerve the upper *leaves* only, which are quite undivided, long, ovato-lanceolate, and taper-pointed, would refer this ſpecies to the firſt ſection; but as more or leſs of the lower *leaves* are furniſhed with one or two lateral lobes, it obtains a place here, among ſpecies to which it is moſt naturally allied. Some indeed have thought it is a variety of the next. The *footſtalks* bear a pair of minute, globular, ſtalked glands, near the leaf. *Stipulas* briſtle-ſhaped. *Flowers* in pairs, ſmall, about half an inch wide, yellowiſh, on ſlender ſtalks without *bracteas*. *Calyx* ſpreading or recurved, ſlightly concave at the baſe. *Petals* none. *Rays* erect, recurved, yellow, rather ſhorter than the *calyx*, purple at the baſe. *Berry* roundiſh, deep violet, ſweet, the ſize of a black currant.

30. P. *minima*. Dwarf Paſſion-flower. Linn. Sp. Pl. 1359. Jacq. Hort. Vind. v. 1. t. 20. Cavan. Diſſ. t. 266.—Leaves deeply three-lobed, entire, rather downy; the middle lobe longeſt. Footſtalks with two glands. Petals none.—Native of Curaſſao; not uncommon in ſtoves, flowering in July. Every part of the herbage, in all our ſpecimens, is finely downy, but not at all hoary. *Leaves* rather paler at the back, but not glaucous; the ſide lobes are the ſhorteſt; all of an ovate, or rounded ſhape, ſometimes more oblong, and in that caſe more deeply ſeparated. The *glands*, as well as the *flowers*, nearly accord with the laſt. The *calyx* however is downy at the back, and the *ſtipulas* are downy, and rather broader. *P. hirſuta*, n. 38, ſeems but a hairy variety of this.

31. P. *ſuberoſa*. Cork-barked Paſſion-flower. Linn. Sp. Pl. 1358. Jacq. Hort. Vind. v. 2. 77. t. 163. Sm. Exot. Bot. t. 28.—Leaves three-lobed, entire, ſmooth; the lateral lobes very ſhort. Footſtalks with two glands. Petals none. Fruit ovate. Stem with corky angles.—Native of the Weſt Indies; eaſily cultivated in a ſtove, where it bears greeniſh *flowers*, and ovate black *fruit*, both twice the ſize of the two laſt ſpecies, throughout the ſummer and autumn. The *leaves* are of a dark ſhining green above, paler beneath, of a broad ovate figure, with two ſmall, acute, lateral lobes. *Rays* of a much ſhorter proportion than the laſt, recurved at the points. *Germen* ſpeckled with white. The bark of the old *ſtems* is white, and very corky; ſomething of which indeed is obſervable in *anguſtifolia* and *minima*.

32. P. *peltata*. Peltate Spreading-lobed Paſſion-flower. Cavan. Diſſ. 447. t. 274. Willd. n. 29. (Clematis indica, folio anguſto trifido, fructu olivæformi; Plum. Amer. 70. t. 85.—Leaves peltate, ſmooth, three-ribbed, with three deep, equal, oblong, ſpreading lobes. Footſtalks with two glands. Flowers ſolitary, without petals.—Found in hedges in the Antilles, according to Plumier; few other botaniſts have ſeen it. The peltate inſertion of the *footſtalks*, and the large, deeply three-lobed *leaves*, mark this ſpecies. Its *flowers* are twice the ſize of *P. ſuberoſa*, with longer and ſtraighter rays. *Fruit* much the ſame.

33. P. *hederacea*. Peltate Ivy Paſſion-flower. Cavan. Diſſ. 448. Willd. n. 30. (Clematis indica, folio hederaceo, major, fructu olivæformi; Plum. Amer. 70. t. 84.)—Leaves peltate, ovate, ſmooth, five-ribbed, three-lobed. Footſtalks with two glands. Flowers ſolitary, without petals.—From the ſame country as the laſt, where Plumier only appears to have ſeen it. The *leaves* are peltate and five-ribbed exactly as in our *clypeata*, n. 20, but of a very different outline, rounded at the baſe, and terminating in three rather ſpreading but not deep lobes. Their ſize and appearance, except having but three lobes, is like our broadeſt variety of *Hedera helix*, called Iriſh Ivy. *Flowers* like the laſt.

34. P. *viridiflora*. Tubular Green Paſſion-flower. Cavan. Ic. v. 5. 15. t. 424.—Leaves peltate, ſmooth, with three deep obovate lobes. Tube of the calyx as long as its ſegments. Petals and bracteas wanting.—Gathered by Louis Née, near Acapulco, flowering in February. The *leaves* have ſeven radiating ribs, and three deep lobes, of which the middle one eſpecially is greatly contracted at the baſe; each two or three inches long. The *footſtalks* have two ſeſſile glands towards their origin. *Stipulas* lanceolate. *Bracteas* and *petals* wanting. *Calyx* green; its tube an inch long; ſegments ſpreading, linear-oblong, of about the ſame length. *Rays* ſhort, combined by an entire baſe. *Column* very ſlender. A curious ſpecies, known only from the work of Cavanilles. We have however a Weſt Indian ſpecimen from the late Mr. Smeathman, which anſwers to it nearly in every reſpect, except being hairy all over.

35. P. *reflexa*. Reflexed Paſſion-flower. (P. reflexiflora; Cavan. Ic. v. 5. 15. t. 425.)—Leaves peltate, ſmooth, with three deep, ſpreading, obtuſe lobes; their ſinuſes and ſtalks glandular. Tube of the calyx as long as its ſegments. Bracteas ovate, veiny.—Gathered by Louis Née near Panama. About the ſize of the laſt. The *leaves* are ſomewhat haſtate, entire, five-ribbed, with ſix ſtalked glands on their *footſtalks*, and as many ſeſſile ones in each ſinus, between the lobes. *Stipulas* large, half-ovate, wavy. *Bracteas* large, veiny. Tube of the *calyx* an inch long, the thickneſs of a gooſe-quill, its ſegments, as well as the *petals*, oblong, of the ſame length, reflexed, ſcarlet. *Nectary* a double fringe, of minute upright rays. *Column* very ſlender.

36. P. *glauca*. Glaucous-leaved Paſſion-flower. Ait. n. 11. Willd. n. 31. (P. ſtipulata; Aubl. Guian. t. 325. Balſamina altera, indica, &c.; Ambroſ. Phyt. 91.)—Leaves ſlightly peltate, heart-ſhaped, ſmooth, with three broad, ſpreading lobes; glaucous beneath. Footſtalks glandular. Baſe of the calyx hemiſpherical. Bracteas minute.—Native of Cayenne, Introduced by Meſſrs. Lee and Kennedy in 1779. It flowers in the ſtove in Auguſt and September, and is very ornamental as well as fragrant. The *flowers* ſomewhat reſemble thoſe of *P. ſerratifolia*, and are remarkable for the innumerable denſe tufted filaments of their *nectary*, the outermoſt nearly equal to the *petals*, the reſt gradually ſhorter and more erect. Every part of the plant is ſomewhat glaucous, and very ſmooth. *Leaves* divided about half way down. *Stipulas* large, half heart-ſhaped. *Bracteas* a quarter of an inch long, at ſome diſtance from the convex glaucous baſe of the calyx. Nobody before us has noticed the old figure of Ambroſinus,

though it cannot be miſtaken, and is the only one with flowers.

37. P. *holoſericea*. Velvet-leaved Paſſion-flower. Linn. Sp. Pl. 1359. Cavan. Diſſ. t. 291. (Granadilla folio haſtato holoſericeo, &c.; Mart. Decad. t. 51.)—Leaves ovate, three-lobed, downy on both ſurfaces, with a recurved tooth on each ſide at the baſe.—Native of Vera Cruz, from whence it was originally ſent by Houſtoun. The *leaves* are remarkable for their exquiſite velvet-like ſoftneſs, and for the two recurved teeth at their baſe; their ſide-lobes are ſmall. *Flowers* flat, one inch and a half broad. *Petals* white, often minutely dotted with red, as well as the ſegments of the *calyx*, which they reſemble in ſize and ſhape. *Rays* ſpreading, ſtraight, parti-coloured with red and yellow.

38. P. *hirſuta*. Hairy Paſſion-flower. Linn. Sp. Pl. 1359. Ait. n. 16. Cavan. Diſſ. 443. (Clematis indica, flore minimo pallido, foliis hirſutis; Plum. Amer. 74. t. 88. f. A.)—Leaves hairy, with three oblong entire lobes, the middlemoſt longeſt; the lower leaves ſmooth on the upper ſide. Footſtalks with two glands. *Solander in Ait. Hort. Kew.*—Native of the Weſt Indies. Sent to Kew in 1778, where it is ſaid to flower in the ſtove in September. This is a doubtful ſpecies. What the younger Linnæus collected for it in England, if we miſtake not, is certainly only a hairy ſpecimen of *minima*, n. 30, and has no *petals*. Plukenet's t. 212. f. 1. and the figure in Hermann's Paradiſus, p. 176, appear to belong to ſome ſpecies unknown to us, with jagged *leaves*, and *flowers* with *petals*. Linnæus, having no ſpecimen, evidently adopted the ſpecies from Plumier, whoſe plant we believe to be no other than *minima*, and whoſe ſolitary *leaf* is copied in Am. Acad. f. 16.

39. P. *fœtida*. Stinking Paſſion-flower. Linn. Sp. Pl. 1359. "Giſeke Ic. t. 20." Willd. n. 34. Cavan. Diſſ. t. 289.—Leaves hairy, heart-ſhaped, ſomewhat three-lobed. Bracteas repeatedly pinnatifid, in capillary glandular ſegments, like the ſtipulas.—Native of the Weſt Indies; not rare in our ſtoves, where it bloſſoms in ſummer, and ripens *fruit*, which reſembles a gooſeberry in ſize, and ſomewhat in flavour. The whole *plant* is hairy, viſcid, and fœtid, of a pale green. *Flowers* whitiſh, diſtinguiſhed from all the foregoing, by large finely divided *bracteas*, encompaſſing them in the bud, as well as the *fruit*, like the *involucrum* of *Nigella damaſcena*. The *root* is ſaid to be annual or biennial, but we doubt whether it be ſo in a ſtate of nature.

40. P. *ciliata*. Fringe-leaved Paſſion-flower. Ait. n. 18. Willd. n. 35. Curt. Mag. t. 288.—Leaves ſmooth, with three wavy, ſomewhat ſerrated, fringed lobes; the middlemoſt longeſt. Bracteas repeatedly pinnatifid, in capillary ſegments, like the ſtipulas.—Mrs. Norman, a lady long celebrated for the cultivation of botanical rarities, received this plant from Jamaica in 1783, or earlier. Linnæus knew it not. The *bracteas* reſemble the laſt, but are not ſo much divided. *Petals* and *calyx* pink. *Rays* ſpreading, variegated with purple and white. The *leaves* are coriaceous, veiny, quite ſmooth except their margin. It is not impoſſible that Hermann's t. 176 may be a diminiſhed and very imperfect repreſentation of this; ſee n. 38.

41. P. *ſerrulata*. Finely-ſerrated Paſſion-flower. Jacq. Obſ. faſc. 2. 26. t. 46. f. 2. Willd. n. 36.—Leaves three-lobed, very minutely ſerrated; the middle lobe longeſt. Footſtalks with two glands. Bracteas diſtinct, entire.—Gathered by Jacquin at Carthagena. He compares it with *incarnata*, n. 44, from which he ſays it is very certainly diſtinguiſhed by the *leaves* not being cut away cloſe to the ſide ribs at the baſe, and by the minuteneſs of their ſerratures. The *flowers* are variegated with purple and white, delightfully fragrant, two inches and a half wide.

42. P. *aurantia*. Norfolk-iſland Paſſion-flower. Forſt. Prodr. 62. Willd. n. 37. Andr. Repoſ. t. 295.—Leaves ſmooth, dotted beneath, with three ſpreading bluntiſh lobes; rounded at the baſe. Calyx ſomewhat tubular, longer than the petals. Nectary tubular, abrupt, lobed, ſurrounded with upright rays.—Native of New Caledonia and of Norfolk Iſland. It flowers copiouſly in a ſtove in ſummer, requiring a light dry ſoil. The *leaves* are ſometimes ſlightly five-lobed. *Flowers* orange, the tube of their *nectary* green, longer than the purple upright rays which ſurround it. This is akin to n. 24 and 25. of our liſt, near which Willdenow ought to have placed it. The *nectary* is very peculiar, being, like the whole flower, ſhaped much as in *P. Mucuruja*, n. 18, but nevertheleſs accompanied with rays; its orifice moreover is lobed or jagged.

43. P. *cuneifolia*. Wedge-leaved Paſſion-flower. Cavan. Diſſ. 460. t. 292. Willd. n. 38.—Leaves deeply three-lobed, ſerrated, acute; three-ribbed, with two glands, at the baſe. Bracteas diſtinct, elliptical, entire. Calyx flat. Rays not half ſo long as the petals.—Native of America. Seen by Cavanilles in Thouin's herbarium. We have it not. The ſpecific characters diſtinguiſh it from the next, which it greatly reſembles.

44. P. *incarnata*. Fleſh-coloured Paſſion-flower, Maracoc, or May-cock. Linn. Sp. Pl. 1360. Sm. Inſects of Georgia, t. 12. Jacq. Ic. Rar. t. 187. (Clematis trifolia, ſive flos paſſionis; Ger. em. 1592.)—Leaves deeply three-lobed, ſerrated, acute; three-ribbed, with two glands, at the baſe. Bracteas diſtinct, lanceolate, with glandular teeth. Calyx flat. Rays as long as the petals.—Native of North America. One of the firſt ſpecies introduced to the knowledge of European botaniſts, and cultivated here in the days of Gerarde and Parkinſon, though now ſeldom met with, as it will ſcarcely ever ſurvive the Engliſh winter, or rather ſpring. It however merits a place in the conſervatory. The *leaves* are very deeply three-lobed, three-ribbed, ſerrated, finely downy on both ſides; paler beneath. *Flowers* rather large, fleſh-coloured or pale purple, the long ſlender ſpreading rays elegantly ſpeckled with crimſon and white. Jacquin's figure is too blue.

45. P. *ſanguinea*. Blood-coloured Paſſion-flower.—Leaves deeply three-lobed, ſerrated, acute, without glands. Bracteas diſtinct, lanceolate, with glandular teeth. Calyx downy, its tube half as long as the ſegments. Rays half the length of the petals. Stamens linear, flat.—Gathered by Smeathman in the Weſt Indies. A very fine ſpecies, of which we can find no deſcription nor figure. The *branches*, and all the *ſtalks*, are downy; *tendrils* ſmooth. *Footſtalks*, and baſe of the *leaves*, deſtitute of glands; ſerratures rather coarſe; upper ſurface ſmooth; lower downy, with prominent ribs and veins. The *ſtipulas* ſeem fallen. *Flowers* near three inches broad; as far as can be judged from the dried ſpecimen, they appear of a rich deep red. Tube of the *calyx* above half an inch, or twice its diameter, in length, clothed with fine ruſty down; limb horizontal, its ſegments linear-lanceolate, with the awl-ſhaped tips longer than uſual; *petals* rather ſmaller than the *calyx*, but of the ſame ſhape and colour. *Rays* reddiſh, ſlender, much curled in a dry ſtate, but apparently half the length of the petals, the inner row erect about the *column*, which is tall and ſlender. *Filaments* remarkably broad and flat, ſomewhat combined at the baſe, with large *anthers*. *Germen* finely downy.

46. P. *peduncularis*. Long-ſtalked Paſſion-flower. Cavan. Ic. v. 5. 15. t. 426.—Leaves with three rounded ſerrated lobes. Bracteas combined, tubular, downy. Calyx downy,

its tube nearly equal to the ſegments. Rays very minute. Stem ſquare.—Gathered by Louis Née, in ſeveral places in Peru, flowering in March. The ſquare *ſtem*, which is ſlightly downy, and the *bracteas* united into an ovate, obtuſe, ſlightly notched, and three-cleft tube, full half as long as the tube of the *calyx*, are characteriſtic of this ſpecies, which is one of Juſſieu's genus *Taſconia*, like the four following. The *leaves* of this are rather broader than long, their lobes broad and rounded, equally ſerrated; glaucous, and in ſome degree downy, at the back. *Footſtalks* with four ſeſſile glands. *Stipulas* ſquariſh, toothed. *Flower-ſtalks* near four inches long, being twice the length of the leaves. *Flowers* roſe-coloured, large and handſome, externally downy; their *petals* elliptical, an inch long, a little ſhorter than the *calyx*. *Nectary* crowned with minute teeth rather than rays, as in *adulterina*, n. 3. *Filaments* flattened. *Fruit* globoſe, rather downy, one inch and a half in diameter.

47. P. *trifoliata*. Three-leaved Paſſion-flower. Cavan. Ic. v. 5. 16. t. 427.—Leaves ternate, elliptical, downy, entire. Bracteas diſtinct, toothed. Tube of the calyx as long as the ſegments, tumid at the baſe. Rays very minute.—Native of Peru and Chili, where it was found by Louis Née, flowering in March and April.—Remarkable for its truly ternate *leaves*. The *ſtipulas* are half heart-ſhaped, with briſtly ſerratures. *Footſtalks* downy, without glands. *Bracteas* large, ovate, downy, with broad, blunt, tooth-like ſerratures, half an inch below the calyx. *Flowers* roſe-coloured, large and handſome, like the laſt, but with a longer *calyx-tube*, whoſe baſe is inflated and umbilicated.

48. P. *pennipes*. Wing-footed Paſſion-flower. (P. pinnatiſtipula; Cavan. Ic. v. 5. 16. t. 428.)—Leaves three-lobed, ſerrated, acute; woolly beneath. Bracteas diſtinct, ſerrated. Tube of the calyx as long as the ſegments. Rays half as long as the petals. Stipulas deeply pinnatifid.—Found by Louis Née in various parts of Chili, from whence alſo we have a ſpecimen, gathered by Mr. Menzies. The *leaves* are three-cleft more than half way, reticulated, ſerrated, two or three inches long; very ſmooth, and bright green, above; their backs, like the *branches* and *ſtalks*, clothed with denſe, white, woolly pubeſcence. *Stipulas* finely and deeply pinnatifid, ſmooth. *Bracteas* ovate, ſharply ſerrated, deciduous, rather downy externally only. *Flowers* much larger than in the laſt, of a pale roſe-colour, very finely downy externally, as is alſo the *germen*. *Rays* capillary, ſpreading on the petals, and full half as long. *Column* remarkably angular, ſmooth. With great reluctance we have been obliged to alter the uncouth name given by our lamented correſpondent Cavanilles, but have retained his idea. The ſingularly divided *ſtipulas* are like a pair of wings to the *footſtalk*.

49. P. *tomentoſa*. Downy Long-tubed Paſſion-flower. Cavan. Diſſ. 450. t. 275, 276. Willd. n. 40.—Leaves three-lobed, ſerrated; downy on both ſides. Bracteas combined, tubular. Tube of the calyx thrice as long as the ſegments.—Gathered long ago, by Joſeph de Juſſieu, in Peru. His ſpecimens were ſeen in his celebrated nephew's herbarium at Paris, by Lamarck and Cavanilles, from whoſe publications only our knowledge concerning this magnificent plant is derived. The reſpective proportions of the *flower*, and its minute *rays*, agree with our third ſpecies; but the whole *flower* appears to be larger, and the *bracteas* are combined into a ſharply three-cleft downy tube. The *leaves* have three broad, moderately deep, lobes, and, like the reſt of the plant, are clothed with fine ſhort down. The *footſtalks* bear numerous ſtalked glands. The *ſtipulas* are half-ovate, pointed, and downy. The *flower* expands three inches, and is ſaid to be roſe-coloured; its tube is five inches long, whether ſmooth, or downy as in the next, is not mentioned; *nectary* a row of very ſmall, roundiſh, ſlightly ſtalked glands, or obtuſe rays, crowning the tube. *Fruit* ovate-oblong, ſoft, full of yellow eatable pulp. The Peruvians know this plant by the name of *Tacſo*.

50. P. *mixta*. Smooth-leaved Long-tubed Paſſion-flower. Linn. Suppl. 408. Sm. Plant. Ic. t. 25. Willd. n. 41. (P. longiflora; Lamarck, n. 28. P. Tacſo; Cavan. Diſſ. 451. t. 277.)—Leaves with three or five lobes, ſerrated, acute; ſmooth on both ſides. Bracteas combined, tubular. Tube of the calyx thrice as long as the ſegments.—Sent by Mutis from New Granada to Linnæus, along with drawings, in Indian ink, of this and our third ſpecies. The preſent differs from the laſt in having ſmooth, more deeply lobed *leaves*, whoſe ſide-lobes are occaſionally ſlightly divided; but that ſuch a circumſtance is accidental, may be preſumed, not only from the coincidence of every other part, but becauſe there are always five ribs, more or leſs apparent; ſee the plates quoted. The *footſtalks* bear about ſix glands, and are rather downy; the *flower-ſtalks*, tubular *bracteas*, and eſpecially the outſide of the *calyx*, are finely and denſely pubeſcent. *Flowers* roſe-coloured or purpliſh, a little ſmaller than thoſe of *P. tomentoſa*, with much the ſame ſort of *nectary*. *Fruit* obovate, with a ſlight longitudinal furrow.—Linnæus roundly aſſerts that this ſpecies is produced between *incarnata* and *adulterina*, for which there is no authority, except the affinity of its fructification to the latter, and ſome reſemblance in the ſhape of its leaves to the former. Nothing could be greater acquiſitions to our conſervatories than theſe tubular Paſſion-flowers, whoſe ſeeds the Spaniards ſurely might obtain with great eaſe, and which would probably prove almoſt hardy in our climate, like the elegant *Fuchſia*, *Cobæa*, and other late diſcoveries, from the ſame country.

Section 4.—*Leaves with many ſegments.* Five ſpecies.

51. P. *cærulea*. Common Blue Paſſion-flower. Linn. Sp. Pl. 1360. Willd. n. 42. Cavan. Diſſ. 461. t. 295. Mill. Illuſtr. t. 74. Curt. Mag. t. 28.—Leaves deeply palmate, in five entire ſmooth ſegments.—Native of Braſil. This ſpecies, though not brought to Europe till long after the *incarnata*, has now, from its much greater hardneſs, and facility of culture, taken place of that, and is generally diſperſed throughout the more temperate parts of Europe. In Italy, Spain, Portugal, and the Levant, it combines with the Jaſmine, more eſpecially, to form luxuriant bowers; and in thoſe countries bears abundance of orange-coloured *fruit*, as well as fragrant and beautiful *flowers*. With us it only bloſſoms in the open air; requiring protection for its roots and ſtems againſt hard froſts. Loureiro ſpeaks of *P. cærulea* as wild about Canton in China, and there is a narrow-leaved rather tender variety, known in our ſtoves, reported to have come from that country, or the Eaſt Indies. But we are inclined to ſuſpect both may originally have gone thither from Europe or the Braſils.—The whole plant is ſmooth, of a rather glaucous hue, and the entire edges of the *leaves* diſtinguiſh it from all the reſt of this ſection. *Stipulas* half-heart-ſhaped, wavy. *Bracteas* ovate, concave, entire, ſcarcely half ſo long as the full-grown bud. *Calyx* ſpreading and nearly flat, its ſegments elliptic-oblong, like the *petals*, and of the ſame white, or pale greeniſh, hue. *Rays* ſpreading widely, ſhorter than the *petals*, purple at the baſe, white in the middle, blue at the end. Each *flower* laſts only one day, but there is a copious ſucceſſion.

52. P. *filamentoſa*. Long-rayed Blue Paſſion-flower. Cavan. Diſſ. 461. t. 294. Willd. n. 43.—Leaves palmate,

in five acute ſerrated ſegments. Footſtalks with two ſeſſile glands. Bracteas diſtinct, ſerrated. Rays longer than the corolla.—Native of America. Cavanilles deſcribed it from the garden of the late Duke del Infantado, to whoſe family he was preceptor. We had, at the firſt view of his figure, for we have ſeen no ſpecimen, a ſuſpicion that this might be a variety of ſome three-lobed ſpecies. The glands of the *footſtalks* agree with thoſe of *ſerrulata*, n. 41, but the ſhape of the *leaves*, and their coarſer ſerratures, as well as the ſerrated *bracteas*, materially differ. From *incarnata*, n. 44, and *cuneifolia*, n. 43, the only ſpecies beſides with which it can be compared, it is diſtinguiſhed by the *leaves* not being cut away cloſe to the ribs at the baſe, as well as by the ſituation of the glands on their ſtalks, and the preſence of other glands in the ſinuſes. The *ſtipulas* moreover are half-pinnatifid, not awl-ſhaped and entire; and the *bracteas* differ in ſize from *incarnata*, and in their ſerratures from *cuneifolia*. The *leaves* we underſtand to be ſmooth; their ſide-lobes much ſmaller than the others. *Flower* coloured ſomewhat like the *cærulea;* furniſhed with five rows of *rays*, of which the outermoſt extend beyond the *calyx* and *petals*. *Fruit* globoſe, with white viſcid pulp.

53. P. *ſerrata*. Many-lobed Serrated Paſſion-flower. Linn. Syſt. ed. 10. v. 2. 1248. Syſt. Veg. ed. 14. 823. Willd. n. 44. Cavan. Diſſ. 449. t. 296. (P. ſerrato-digitata; Linn. Sp. Pl. ed. 1. 960. P. digitata; ed. 2. 1360. Clematis indica polyphylla major, flore clavato, fructu colocynthidis; Plum. Amer. 62. t. 79.)—Leaves palmate, in five or ſeven very deep ſerrated ſegments. Footſtalks with ſeveral glands. Bracteas combined, entire.—Gathered by Plumier in Martinico, in one place only, near St. Mary's river. Cavanilles ſaw a ſpecimen in Juſſieu's collection, and there is one without flowers, in that of the younger Linnæus; but this very magnificent ſpecies is unknown in our gardens. The *flowers* equal even thoſe of *quadrangularis*, n. 7, in magnitude and ſplendour, and the broad many-lobed *leaves*, whoſe under ſide is ſomewhat downy, are much more handſome. Plumier ſays the *ſhoots* are as large, hard, and knotty as thoſe of a vine, ſpreading widely over the trees and buſhes, which they decorate with verdant foliage. The *flower-bud*, inveſted with its large, ovate, pale, purple-veined *bracteas*, combined at their baſe, and entire at their margin, is as big as a hen's egg. The *calyx* has a broad funnel-ſhaped baſe; its ſegments are of a violet colour, like the *petals*, but much broader, each about one inch and a half long. *Rays* about the ſame length, very numerous, thick, and ſomewhat angular, in a double row, the outermoſt ſhorteſt, each ray whitiſh at the point, violet in the middle, paler from thence to the baſe, with five violet bands. The tube of the *calyx* is internally lined with ſhort, red-headed, glandular rays. *Fruit* as big as an orange, with a thick coat. Plumier did not meet with it ripe, but it ſeems much like that of the *quadrangularis* in colour and ſtructure. The *flowers* are fragrant.—The ſynonyms diſplay remarkable changes in the ſpecific name, made by Linnæus himſelf. We ſhould have preferred *digitata*, not only as given in his moſt claſſical work, but as the moſt expreſſive, had it been ſtrictly correct; the *leaves* however are not truly digitate, but merely divided in a fingered manner, and not more ſo than in *cærulea*. n. 51. The young ones have ſometimes but three lobes, though five or ſeven ribs. The *ſtipulas* are ſmall, half-pinnatifid, as in *filamentoſa*, n. 52.

54. P. *pedata*. Curled Paſſion-flower. Linn. Sp. Pl. 1360. Ait. n. 21. Cavan. Diſſ. 462. (Clematis indica alia polyphylla, flore criſpato; Plum. Amer. 66. t. 81.)—Leaves pedate, of ſeven ſerrated acute leaflets. Bracteas diſtinct, ſerrated. Rays twiſted.—Found by Plumier, by the road ſide near Miragoan in Hiſpaniola, and no where elſe. The *ſhoots* are ſomewhat angular. *Leaves* remarkable for being pedate, as in *Helleborus niger*, conſiſting of ſeven, almoſt entirely diſtinct, elliptic-lanceolate, acute, ſingle-ribbed, ſharply ſerrated *leaflets*, of a fine ſhining-green, the central one three or four inches long. *Footſtalks* rather long, with a pair of glands in the middle. *Stipulas* not repreſented. *Flowers* ſurpaſſing all the reſt, according to Plumier, in ſize, fragrance, and brilliancy of colours. *Bracteas* large, ovate, acute, concave, very ſharply jagged and ſerrated at the edge. *Calyx* pale green, dotted on the inſide with red. *Petals* blue. *Rays* in one principal row, ſpreading, longer than the petals, deep red, with two or three white bands, their extremities of a fine violet, tapering, zigzag, and twiſted. *Column*, *ſtamens* and *ſtyles* white, ſpeckled with red. *Stigmas* divided. *Fruit* globoſe, like a ſmall gourd, the ſize of a moderate apple, ſpeckled with ſhades of green.—Mr. Maſſon is recorded as having ſent this noble plant to Kew in 1781, from the Weſt Indies, but there is no account of its flowering, and we fear it is now loſt.

55. *P. heterophylla*. Various-leaved Paſſion-flower. Lamarck, n. 32. Willd. n. 46. Cavan. Diſſ. 462. (Granadilla heterophylla, flore albo; Plum. Ic. 129. t. 139. f. 1.)—Leaves pedate, of five, nearly entire, abrupt leaflets; the lower ones linear, ternate or ſimple. Rays ſtraight.—Gathered by Plumier, near a rivulet in the ſouth part of Hiſpaniola, flowering and fruiting in September. *Lamarck.* This is the moſt remarkable of all, for the difference between the lower *leaves*, which are long, very narrow, undivided, and entire, either ſimple or ternate, and the upper ones, which are pedate, of five broad, ſhort, abrupt, entire, ſometimes ſlightly lobed *leaflets*, an inch or two long. *Flowers* yellowiſh-white, ſcarcely above an inch wide, their *calyx* horizontal and flat, twice as long as the *rays*, the *petals* being of an intermediate length between both. *Fruit* oval, rather bigger than an olive, deep violet, full of violet juice. Nothing is known of the *bracteas*. – This ſingular ſpecies approaches in foliage to the laſt, in *flower* to *lunata*, n. 17, and in fruit to *ſuberoſa* and its allies. No other botaniſt than Plumier ſeems to have met with it, nor is it known in the European collections.

The ſcientific botaniſt who contemplates the above view of this intereſting genus, will perceive that it has many claims to be conſidered as a natural order, requiring ſubdiviſion into ſeveral genera. This taſk will at firſt appear eaſy, as nothing can be more ſtriking than the difference of ſtructure in the *nectaries* of ſeveral ſpecies, nor are the tubular *calyxes* of others leſs remarkable. On a further inſpection, however, more and more difficulties will ariſe. The *calyx* is tubular in various ſpecies, otherwiſe very unlike, and flat in others, no leſs diſſimilar among themſelves. The minuteneſs of the rays in ſome of the *Tacſoniæ* of Juſſieu, loſes its importance when we conſider the ſeveral new ſpecies in the fifth volume of Cavanilles' Icones. The *bracteas*, which Cavanilles reckons a *calyx*, and on the abſence or preſence of which, as well as their union or ſeparation, he forms his ſubdiviſions of the genus, are of all things moſt improper, even for that purpoſe, and lead to a leſs natural arrangement than the *leaves* themſelves, which laſt we have followed, from neceſſity rather than choice, after the example of Linnæus, Lamarck, and Willdenow. The want of *petals* collects ſeveral ſpecies into a moſt natural aſſemblage, but others, as *orbiculata* and *peltata*, for inſtance, totally overſet the authority of that character. A minute and regular inveſtigation of all their *nectaries*, ſuch as Mr. Sowerby has beſtowed upon ſix ſpecies, in the ſecond volume of the Tranſactions of the Linnæan Society, might throw conſiderable light upon the ſubject, but is not to be undertaken without a great variety of ſpecimens, either freſh, or preſerved in ſpirits. It is much to be regretted that theſe fine plants have received ſo little attention from our periodical authors, to whoſe pages many of them, eaſily to be procured, would prove a great acceſſion. S.

Passiflora, in *Gardening*, contains plants of the herbaceous and ſhrubby flowering kinds, of which the ſpecies cultivated are: the common or blue paſſion-flower (P. cærulea); the roſe-coloured paſſion-flower (P. incarnata); the yellow paſſion-flower (P. lutea); the notch-leaved paſſion-flower (P. ſerratifolia); the apple-fruited paſſion-flower (P. maliformis); the ſquare-ſtalked paſſion-flower (P. quadrangularis); the wing-ſtalked paſſion-flower (P. alata); the laurel-leaved paſſion-flower, or water lemon (P. laurifolia); the many-flowered paſſion-flower (P. multiflora); the red-fruited paſſion-flower (P. rubra); the moon-ſhaped-leaved paſſion-flower (P. murucuja); the bat-winged paſſion-flower (P. veſpertilio); the round-leaved paſſion-flower (P. rotundifolia); the ciliated paſſion-flower (P. ciliata); the cork-barked paſſion-flower (P. ſuberoſa); the ſilky-leaved paſſion-flower (P. holoſericea); the glaucous-leaved paſſion-flower (P. glauca); and the dwarf-leaved paſſion-flower (P. minima).

Of the firſt ſort there is a variety with much narrower lobes, divided almoſt to the bottom; the flowers come later in the ſummer; the petals are narrower, and of a purer white colour.

It is obſerved, that if the ſeventh ſort does not equal the firſt in elegance, it exceeds it in magnificence, in brilliancy of colour, and in fragrance, the flowers being highly odoriferous.

Method of Culture.—In all the ſorts it is either by ſeeds, layers, or cuttings, according to the kinds.

The firſt or hardy ſort is capable of being raiſed either by ſeeds, layers, or cuttings; the ſeed ſhould be ſown in the early ſpring, as March, in large pots, half an inch deep, either plunging them in a warm border, and as the weather becomes warm moving them to the ſhade; or in a hot-bed, which will forward the germination of the ſeed more fully, and the plants will riſe ſooner; which ſhould afterwards be hardened gradually to the open air till the autumn, and then placed under a garden frame for the winter, to have ſhelter from froſts, and in the ſpring planted out in pots, or ſome in the nurſery; and in a year or two they may be tranſplanted where they are to remain, againſt ſome warm ſouth wall.

The layers ſhould be laid down from ſome of the branches in the common way in the ſpring, when they will readily emit roots, and make proper plants by autumn; when, or rather in the ſpring following, they ſhould be taken off and tranſplanted either into pots in nurſery rows, or where they are to remain.

The cuttings ſhould be made in February or March, from the ſtrong young ſhoots, in length from about eight to ten or twelve inches, planting them in any bed or border of common earth, giving frequent watering in dry weather, and when ſunny and hot, if in a ſituation expoſed to them, a moderate ſhade of mats will be of much advantage. They will emit roots at bottom, and ſhoots at top, and become good plants by autumn, allowing them the occaſional ſhelter of mats, &c. during the winter's froſt; and in the ſpring let them be planted out. If a quantity of theſe cuttings be planted cloſe, and covered down with hand-glaſſes, it will forward their rooting; obſerving, however, when they begin to ſhoot at top, to remove the glaſſes, in order to admit freſh air.

The ſecond and third, or green-houſe kinds, may be increaſed by ſeed, layers, and parting the roots; the ſeed, obtained from America, ſhould be ſown in pots in March or April, plunging them in a hot-bed to raiſe the plants, which afterwards inure to the open air in ſummer, giving them the ſhelter of a green-houſe or frame in winter; and in the ſpring following plant ſome out in pots, placing them among the green-houſe plants; and others may be planted in the full ground, under a warm fence, to take their chance.

The layers ſhould be made in the ſummer from young ſhoots, which will readily grow, and become good plants for potting off in autumn. The parting the roots ſhould be done in ſpring, before they begin to ſhoot. The ſecond ſort multiplies exceedingly by its creeping roots; which ſhould be divided into ſlips, and planted in a bed of rich earth till autumn, when ſome ſhould be tranſplanted into pots for occaſional ſhelter in winter.

All the more tender ſtove kinds are capable of being increaſed by ſeeds, layers, and cuttings; the ſeeds are procured chiefly from abroad; and ſhould be ſown in ſpring in pots, plunging them in a hot-bed, or in a ſtove bark-bed; the plants ſoon appear, which, when three inches high, ſhould be pricked out in ſeparate ſmall pots, giving water, and re-plunging them in the hot-bed, occaſionally ſhading them till rooted; as they advance in growth, they ſhould be ſhifted into larger pots, and be retained conſtantly in the ſtove.

The layers ſhould be made from the young branches in the ſpring or beginning of ſummer, which will readily grow, and be fit to pot off ſeparately in autumn.

The cuttings ſhould be made in the ſpring or ſummer, from the young ſhoots, planting them in pots, plunging them in the bark-bed, and giving water frequently; when moſt of them will take root, and be fit to pot off ſingly in autumn.

In reſpect to their general culture; as in ſevere winters, in the firſt ſort, the branches, if not duly protected, are ſometimes killed, it is adviſable at ſuch times, whilſt the plants are young in particular, to give them the ſhelter of mats during the inclement ſeaſon, and protect their roots with dry litter laid over the ground; carefully uncovering their branches as ſoon as the froſt breaks; this covering, however, is only neceſſary in very ſevere froſts.

The green-houſe ſorts ſhould generally be potted, to move to ſhelter in winter, either in a green-houſe, or deep garden-frame; ſome plants of each ſort may alſo be planted in the full ground, in a warm border, to take their chance; covering the ground over their roots in ſevere weather; and in the different orders of planting, placing ſtakes for the ſupport of their climbing growth in the ſummer. And all the ſtove kinds muſt conſtantly be kept in pots, placed in the ſtove, and for the moſt part plunged in the bark-bed; placing ſtrong ſtakes for the purpoſe of training the branches to, and managing them as other ſtove plants of a ſimilar growth. See Stove-*Plants*.

The firſt ſort is highly ornamental in the open ground, when trained againſt ſouthern walls, &c.; and thoſe of the green-houſe, and ſtove kinds, among other plants in theſe collections.

PASSIGNANO, in *Geography*, a town of Italy, in the Perugiano, on the N. ſide of the lake; 22 miles N.W. of Perugia.

PASSING-Notes, in *Muſic*. This is a ſubject ſo well treated by Dr. Pepuſch, in his Treatiſe on Harmony, that we ſhall do little more than tranſcribe his rules.

After giving inſtructions for preparing and relieving regular diſcords, he ſays, we will now ſhew how diſcords may be uſed without being prepared, particularly by ſuppoſitions; but then they are no longer to be called diſcords, but *paſſing* or *tranſient notes*.

In diminutions or diviſions, all the notes that are not to be found in the chord upon which the paſſage is built, are called *paſſing notes*. Paſſing notes muſt be uſed in a regular aſcent or deſcent, not by leaps, or wide intervals. See in *Muſic Plates* examples of paſſing notes ſelected from Pepuſch.

PASSING-*Places*, are wider places than the ordinary breadth of ſome canals, for boats to lie in, while others paſs, and to turn in, &c.

PASSING-*Tickets*, or *Permits*, are notes or checks which the toll-clerks on ſome canals give to the boatmen, ſpecifying the lading which they are found to have on board.

PASSION, PASSIO, πάθος, or πάθημα, is applied to the different motions and agitations of the ſoul, according to the different objects that preſent themſelves to the ſenſes. In propriety, all thoſe motions, whereby the ſoul is carried towards any thing; as love, ambition, revenge, &c. are rather actions than paſſions.

Thoſe motions, by which the ſoul finds itſelf interrupted in its actions, as grief, &c. are the only real paſſions.

We find various modifications and impreſſions of pleaſure and pain inſeparably annexed by an eſtabliſhed law of nature, to the ſeveral judgments we form concerning good and evil: theſe judgments, with their reſpective modifications of pleaſure or pain annexed, according to the various appearances and relations of the object conſidered, either as good or evil, preſent or abſent, certain or uncertain, probable or improbable, poſſible or impoſſible, and affecting the machine in a certain manner peculiar to ſuch modifications, make what we call the paſſions.

How, or by what means, this mutual action and communication between ſoul and body are effected, we are, in a great meaſure, ignorant: we have but very obſcure and faint notions of any thing prior, or more ſimple, to reſolve it into, except the immediate will and agency of the firſt cauſe itſelf.

Malebranche defines the paſſions to be all thoſe emotions naturally ariſing in the ſoul, on occaſion of extraordinary motions of the animal ſpirits, and the blood: in oppoſition to thoſe motions of the ſoul, which are common to us with pure intelligences, and which he calls *natural inclinations*.

Though the paſſions be inſeparable from inclinations; and though a man be only capable of ſenſible love or hatred, becauſe he is capable of ſpiritual ones; yet does it appear juſt in that author to diſtinguiſh between them? Paſſions are much ſtronger and warmer than inclinations; their objects alſo are different, and ſo are their cauſes: in truth, paſſions and inclinations differ juſt as much as ſenſe and imagination.

In effect, the paſſions of the ſoul are the impreſſions of the author of nature, which incline us to our bodies, and all things that may be of uſe to their preſervation: natural inclinations are the impreſſions of the Author of nature, which determine us primarily to love him, as our ſupreme good.

An ingenious writer has accurately diſtinguiſhed between our affections and our paſſions: the former, which we apply indiſcriminately to all reaſonable beings, may moſt properly ſignify the deſires and inclinations, founded in the reaſonable nature itſelf and eſſential to it; ſuch as ſelf-love, benevolence, and the love of truth. Theſe, when aided and ſtrengthened by additional, inſtinctive determinations, are, properly, paſſions. Thoſe tendencies within us, that are merely arbitrary and inſtinctive, ſuch as hunger and thirſt, and the deſires between the ſexes, we commonly call appetites or paſſions, indifferently, but ſeldom or never affections. Price's Rev. of Morals, p. 125, &c. For the difference between appetites and paſſions, ſee APPETITE.

Paſſion, ſays another excellent writer, is a kind of medium between a ſimple affection of the mind, and the appetites and ſenſations of the body. Paſſion is an affection of the mind, which diſtinguiſhes it from the appetites of the body, hunger and thirſt, and from bodily ſenſations; and it is attended with a peculiar and extraordinary emotion of the animal ſpirits, by which it is diſtinguiſhed from pure affection, and from the ſeveral ſenſations; in all which, though there be ſome motion of the blood and ſpirits, yet that motion is natural and regular; whereas in the agitation, occaſioned by the paſſions, the ſpirits are moved after a more vehement and tumultuous manner. Grove's Syſtem of Moral Philoſophy, vol. i. chap. 7.

Dr. Cogan, who merits a place among other approved authors on this ſubject, obſerves, in his "Philoſophical Treatiſe of the Paſſions," that one or other of the three terms, paſſion, emotion, affection, is always employed to expreſs the ſenſible effects which objects, or ideas concerning them, have upon the mind; but theſe terms are ſo frequently employed in a vague and indeterminate manner, that ſome difficulty attends the attempt to reſtore them to their preciſe and diſcriminating ſignification. Accordingly the word *paſſion* is rendered ſubject to ſeveral peculiarities in the application of it. Sometimes it is uſed, in a generic ſenſe, as expreſſive of every impreſſion made upon the mind, whether they be weaker or ſtronger. In one inſtance the word is emphatically employed to expreſs "ſuffering," as "our Saviour's paſſion;" in another it indicates "anger" excluſively. Sometimes the term "paſſion," and alſo its adverb "paſſionately," expreſs a very ſtrong predilection for any purſuit, or object of taſte; a kind of enthuſiaſtic fondneſs for any thing. In a ſenſe ſimilar to this the word is alſo applied to every propenſity, which operates ſtrongly and permanently upon the mind; as the *ſelfiſh* paſſions, the *generous* paſſions. Yet when we mean to particularize any of theſe, a different phraſeology is uſed. The word "paſſion" is appropriated to the *evil* propenſities which are uniformly operative. Thus, we do not ſay the "affection" of pride, or of avarice, but the "paſſion." The term "affection," on the other hand, is appropriated to the *virtuous* propenſities; as the *ſocial, friendly, parental, filial* affections, &c.; though, philoſophically conſidered, the relation they bear to the ſtate and workings of the mind is perfectly analogous. This latitude of expreſſion is not confined to the language of the vulgar, but it is obvious even among philoſophers, who are not agreed in their ideas of the terms they employ. The controverſy between the ancient Peripatetics and the Stoics, with regard to the paſſions, was probably owing to their affixing different meanings to the word. The one ſect maintained, that the paſſions are good, and uſeful parts of the conſtitution, while they are held under the government of reaſon. The other ſect, conceiving that nothing is to be called paſſion, which does not, in ſome degree, becloud and darken the underſtanding, conſidered all paſſion as hoſtile to reaſon, and therefore maintained, that, in the wiſe man, paſſion ſhould have no exiſtence, but be utterly exterminated. One ſect conſidered paſſion only as the cauſe of thoſe bad effects which it often produces. And the other conſidered it as fitted by nature to produce good effects, while it is under ſubjection to reaſon; but both allowed, that no dictate of paſſion ought to be followed in oppoſition to reaſon. Their difference therefore was verbal more than real, and was owing to their giving different meanings to the ſame word. The preciſe meaning of this word ſeems not to be more clearly aſcertained among modern philoſophers. Mr. Hume gives the name of "paſſion" to every principle of action in the human mind; and conſequently maintains, that every man is and ought to be led by his paſſions, and that the uſe of reaſon ought to be ſubſervient to the paſſions.

Dr. Hutcheſon, conſidering all the principles of action as ſo many determinations or motions of the will, divides them into the calm and the turbulent. The turbulent, he ſays, are our appetites and our paſſions. Of the paſſions, as well as of the calm determinations, he ſays, that ſome are benevolent, others are ſelfiſh; that anger, envy, indignation, and ſome others, may be either ſelfiſh or benevolent, according as they ariſe from ſome oppoſition to our own intereſts, or to thoſe of our friends, or perſons beloved or eſteemed. It appears, therefore, that this excellent author gives the name of paſſions, not to every principle of action, but to ſome; and to thoſe only when they are turbulent and vehement, not when they are calm and deliberate. This view of the ſubject coincides with Cicero's tranſlation of the Greek word παϑος, which he renders by *perturbatio*. It is evident, ſays Dr. Reid, that this meaning of the word "paſſion" accords much better with its common uſe in language, than that which Mr. Hume gives it.

When he ſays, that men ought to be governed by their paſſions only, and that the uſe of reaſon is to be ſubſervient to the paſſions, this, at firſt hearing, appears a ſhocking paradox, repugnant to good morals and to common ſenſe; but, like moſt other paradoxes, when explained according to his meaning, it is nothing but an abuſe of words. For if we give the name of "paſſion" to every principle of action, in every degree, and give the name of "reaſon" only to the power of diſcovering the fitneſs of means to ends, it will be true, that the uſe of reaſon is to be ſubſervient to the paſſions.

Dr. Reid, adverting to the uſe of words in common language, means by the word "paſſion," not every principle of action diſtinct from thoſe deſires and affections which he had previouſly explained (ſee the terms DESIRE and AFFECTION), but ſuch a degree of vehemence in them, or in any of them, as is apt to produce thoſe effects upon the body or upon the mind of which we have already taken ſome notice, and which will be further conſidered in the ſequel of this article.

According to the ſtatement of Dr. Cogan, the primary idea annexed to the word "paſſion" is that of *paſſiveneſs*, or being impulſively acted upon. In this ſenſe the term properly ſignifies the ſenſible effect, the feeling to which the mind is become ſubjected, when an object of importance ſuddenly and imperiouſly demands its attention; and as ſeveral of our paſſions are of a diſagreeable and powerful nature, and as this paſſive or helpleſs ſtate is ſo frequently connected with *ſuffering*, the tranſition from one ſignification to the other is not only natural but unavoidable; and a paſſion will often be conſidered as ſynonimous with ſuffering. Upon the whole, the mind is equally paſſive in every effect ſuddenly and unexpectedly produced upon it, whether its influence be of a pleaſant, or unpleaſant nature. Accordingly this writer obſerves, that the term "paſſion" may, with ſtrict propriety, be uſed, and uſed excluſively, to repreſent the *firſt feeling*, the *percuſſion* as it were, of which the mind is conſcious from ſome impulſive cauſe, by which it is wholly acted upon without any efforts of its own, either to ſolicit or eſcape the impreſſion. For the difference between paſſion and emotion, ſee EMOTION; and between paſſion, emotion, and affection, ſee AFFECTION.

Writers on this ſubject have differed very much in their arrangement or claſſification of the paſſions. The ordinary diſtribution is into paſſions of the *concupiſcible appetite*, which are pleaſure and pain, deſire and averſion, love and hatred; and thoſe of the *iraſcible appetite*, which are anger, courage, fear, hope, and deſpair. See the authors on the ſubject of the paſſions; Des Cartes, who conſiders them phyſically; Coeffeteau, who gives us the tableau, or picture of the paſſions; La Chambre, the characters of the paſſions; Senault, the uſes of the paſſions; and Hutcheſon, Watts, and others, who conſider them in a moral and religious view.

Some authors have placed the paſſions in contraſt to each other, as hope and fear, joy and ſorrow: ſome have conſidered them, as they are perſonal, relative, ſocial: ſome, according to their influence at different periods of life: others, according as they relate to paſt, preſent, or future time; as ſorrow refers principally to things paſt, joy and anger to preſent occurrences, hope and fear to future events. The academicians advanced that the principal paſſions were fear, hope, joy, and grief. Thus Virgil:

> "Hinc metuunt, cupiunt, gaudentque, dolentque."

They included averſion and deſpair under the fourth; and hope, fortitude, and anger, under deſire. But this arrangement is in ſome reſpects too general, and in others defective.

Dr. Hartley has arranged the paſſions under five grateful and five ungrateful ones. The former are love, deſire, hope, joy, and pleaſing recollection: the latter are hatred, averſion, fear, grief, diſpleaſing recollection. To this claſſification it has been objected, that all theſe cannot be conſidered as cardinal paſſions; nor do the diſtinctions themſelves appear ſufficiently accurate; hope is certainly a ſpecies of deſire; pleaſing recollection is a modification of love; averſion is only a particular manner of teſtifying hatred; and diſpleaſing recollections are ſometimes the renewal of grief, ſometimes of anger.

Dr. Watts has diſtinguiſhed the paſſions into two claſſes, *viz. primitive* and *derivative*. The primitive paſſions he ſubdivides into two ranks: 1. Admiration, love, and hatred. 2. The diverſe kinds of love and hatred, as eſteem, contempt, benevolence, malevolence, complacency, diſplacency. The derivative paſſions are deſire, averſion, hope, fear, gratitude, anger, &c. Thus, if an object be rare or uncommon, either in its kind or qualities, it excites our admiration or wonder: if ſuch an object is preſented to us in a ſudden and unexpected manner, the paſſion is called ſurpriſe; and when our wonder riſes to a high degree, it is called aſtoniſhment. Moreover, admiration, according to the different character of its object, is denominated eſteem or contempt; though ſome writers make eſteem and contempt to be particular ſpecies of love and hatred. Eſteem is the admiration of an object, on account of its excellence, contempt, for its inſignificance or worthleſſneſs; whence proceed veneration, and ſlight or ſcorn.

If we look on any object as good, or in any reſpect agreeable to us, it may engage our love; but if it be evil or diſagreeable, it excites our hatred, or an endeavour of the ſoul to diſunite itſelf from the apprehended evil. When the evil is preſent, it produces grief, and a deſire of its removal; this deſire of eſcaping an evil may be conſidered as ſolitary, without deſiring it may befall another perſon, in which caſe it is called averſion; but when accompanied with ſuch a deſire, it is denominated malevolence. The ancient philoſophers meant much the ſame by their επιθυμια και θυμος, the concupiſcible and the iraſcible part.

To this arrangement, it has been objected, that admiration has not an equal title to be conſidered as a primitive paſſion with love and hatred. Beſides, a ſubdiviſion of the primitive into two ranks creates a ſuſpicion, if it do not fully indicate, that they cannot all be equally primitive; and the inſtances given under the ſecond rank may juſtly be conſidered as different modifications of the two grand principles, and not as primitives of a diſtinct character. Moreover, this plan makes no diſtinction between the paſſions and affections, which the nature of the ſubject not only admits, but requires.

Mr. Grove, adopting in part the arrangement of Dr. Watts, reduces all the paſſions to the three heads of admiration, love, and hatred, which he ſtyles accordingly the primitive paſſions: the others he denominates mixed paſſions, of which ſome have admiration blended with them, and others are compounded only of the paſſions which fall under love and hatred. Thoſe paſſions, in which admiration is a principal ingredient, are ambition, glory (made up of joy, ſelf-love, and eſteem), ſhame (compounded of ſorrow, ſelf-love, and contempt), emulation, horror, and conſternation. The other paſſions, compounded of love and hatred, may be diſtributed into ſuch as more immediately regard ourſelves, and ſuch as have others for their objects: of thoſe which concern ourſelves, the principal are the following, *viz.* fluctuation, conſiſting of deſire and grief; reſolution, hope, fear; ſecurity, which is hope advanced beyond the fear of a diſappointment; deſpair, which is fear without any mixture of hope; jealouſy, and diſguſt. Of thoſe which expreſs our diſpoſitions towards others, the chief are the following, *viz.* irriſion, or that mirth which is excited in us by the ſight of another's abſurdities or misfortunes; commiſeration, which is a compound of love and ſorrow; congratulation, or that joy which our love to another makes us receive from the gifts of nature or Providence beſtowed upon him; envy, anger, gratitude, and that which the Latins call *deſiderium*, or fondneſs for the memory of perſons and things that have been greatly beloved by us, ſpringing from the reflection on a paſt good, which we deſpair of enjoying again.

Dr. Cheyne conſiders the paſſions as either ſpiritual or animal. *Spiritual* paſſions he defines to be thoſe ſentiments produced in the ſoul by external objects, either ſpiritual ones, immediately; or material ones, by the mediation of the organs of the body.

Animal paſſions he defines to be thoſe effects produced by ſpirits, or bodies, immediately on the body.

Hence, as outward objects may be conſidered either as goods or evils, the moſt natural diviſion of the paſſions, whether ſpiritual or natural, as they regard thoſe objects, is into *pleaſurable* and *painful.*

And, in this ſenſe, all paſſions may be reduced to love and hatred; of which joy and ſorrow, hope and fear, are only ſo many modifications or complexions, according to the various appearances, poſitions, &c. of the object.

In effect, all the paſſions may not only be reduced to two, *viz.* love and hatred, but, perhaps, to one, love; and even that may be all reſolved into ſelf-love; and this into a principle of ſelf-preſervation, or neceſſary invincible deſire of pleaſure and happineſs. The reſt are only rivulets from this ſource, or ſpecial applications of this principle to particular occaſions.

Thus, the deſire of any thing, under the appearance of its goodneſs, ſuitableneſs, or neceſſity to our happineſs, conſtitutes the paſſion of love; the deſire of eſchewing or avoiding any thing apprehended to be miſchievous, hurtful, or deſtructive, conſtitutes hatred or averſion; the deſire of a good, which appears at the ſame time probable, and in our power, conſtitutes hope; but, if the good appear improbable, difficult, or impoſſible, it conſtitutes fear or deſpair; the unexpected gratification of deſire is joy; the deſire of happineſs to another under pain, or ſuffering, is compaſſion; and the deſire of another's puniſhment, is revenge or malice, &c.

The ſingle deſire of happineſs, then, is the ſpring or motive of all our paſſions, as thoſe are of all our actions. Some wiſe and reaſonable motive, or end of action, ſays Dr. Morgan, is certainly neceſſary to all wiſe and reaſonable action: to act without a motive, would be the ſame thing as not to act at all, that is, ſuch an action could anſwer no farther or better end than not acting; and conſequently the action, as well as the agent, would be ſo far inſignificant and uſeleſs. He, who ſhould have no object at all of his love or averſion, hope or fear, joy or grief, muſt be ſimply and purely indifferent to all action; and, conſequently, he muſt either be in a ſtate of perfect reſt and inaction, or in a ſtate equivalent thereto; wherein the action of ſuch a being could be of no more ſignificancy than the uncertain fluctuation of an atom, or the quivering of a feather in the air.

But we can by no means approve the opinion of thoſe, who will allow no ultimate object of deſire, or motive to action, beſides private good. It is juſtly obſerved by a writer already cited, that this opinion ſprung from not carefully diſtinguiſhing between deſire, and the pleaſure implied in the gratification of it. The latter is ſubſequent to the former, and founded in it; that is, an object ſuch as fame, knowledge, or the welfare of a friend, is deſired, not becauſe we foreſee, that, when obtained, it will give us pleaſure, but *vice verſâ;* the obtaining it gives us pleaſure, becauſe we previouſly deſired it, or had an affection carrying us immediately to it, and reſting in it. And if there were no ſuch affections, the foundations of private enjoyments and happineſs would be deſtroyed. Of our ſeveral paſſions and appetites, ſome are ſubordinate to ſelf-love, and given with a view to the preſervation and welfare of individuals: others are ſubordinate to benevolence, and given in order to ſecure and promote the happineſs of the ſpecies; and both the one and the other are eſſentially diſtinct parts of our intelligent frame. Price's Rev. p. 127, &c.

Dr. Cogan, in the Treatiſe already cited, having expreſſed his diſſatisfaction with any of the arrangements of the paſſions which he has had occaſion to conſider, propoſes another claſſification, which he conceives to be leſs liable to objections. Of this he has given an ample detail, in which our limits will not allow us to follow him. We ſhall, however, give as conciſe, and at the ſame time as ſatisfactory, an account of it as poſſible. He begins with ſtating, that it is eſſential to the nature of every ſenſitive and intelligent being to be gratified with, or delight in, "well-being." This well-being is an eſſential good, and its oppoſite an eſſential evil. Whatever is productive of this deſirable ſtate, we eſteem as *good;* and we characteriſe as *evil,* whatever is inimical to it. Under the impreſſion of this ſentiment, we indulge a *predilection* for the one, and feel an *abhorrence* of the other. Upon that which we deem to be a good, or conducive to happineſs, we look with a *pleaſant* ſenſation: we deem it deſirable, and it inſpires the affection of "love." Whatever occaſions or threatens a privation of happineſs, or inflicts poſitive miſery, we view with diſpleaſure, and regard as injurious, or as an abſolute evil; and it inſpires the affection of "hatred." "Love" and "hatred" are entitled to the denomination of *primary* or *cardinal* affections.

"Love" may be conſidered either as a principle or as an affection. As a principle, it may be defined "an invariable preference of good; an univerſal and permanent attachment to well-being or happineſs." When this principle is directed to any particular good, it becomes an *affection;* and whenever this love is more violent in its effects upon the ſyſtem, it is even deemed a *paſſion*. When the affection of love immediately relates to *ourſelves* perſonally, it is called "ſelf-love." When our love or deſire of good goes forth to others, it is termed "good-will," or "benevolence." When love extends to the whole human race, it is termed "philanthropy." And when the love of benevolence embraces all beings capable of enjoying any portion of good, it becomes *univerſal* benevolence. When the diſpoſitions ſpringing from this ſource are acting principally towards every thing capable of enjoyment, they are called the *benevolent affections:* and as theſe become, in thoſe who indulge them, operative rules of conduct, or principles of action, we ſpeak of the *benevolent principle*.

"Hatred" expreſſes the diſpoſition we entertain concerning, or the manner in which we are affected by, the contemplation of whatever we ſuppoſe to be *evil*. Hatred of miſery, and its cauſes, is a natural and neceſſary conſequence of our ſolicitude to poſſeſs good. Perſonal hatred, or malevolence towards an individual, commences with ſome circumſtance, quality, or diſpoſition, which is diſpleaſing to us, or with ſome ſpecies of injury committed or intended. Theſe are its profeſſed objects. But notwithſtanding the exceſſes and exaggerations of hatred and malevolence, yet they cannot poſſibly be ſo extenſive in their operations as the principle of love; becauſe the affection of hatred has for its objects only particular and partial evils, while the principle of love may embrace the univerſe.

With the affections of love and hatred are intimately connected thoſe of deſire and averſion. As love and hatred may be reſolved into that one principle, "the love of well-being;" the affections of deſire and averſion may be reſolved into "deſire." After theſe preliminary remarks, and others on thoſe introductory emotions which produce *ſurpriſe*, *wonder*, and *aſtoniſhment*, the author proceeds to develope his plan of the arrangement of the paſſions.

CLASS I. comprehends the paſſions and affections which owe their origin to the principle of "ſelf-love."

This claſs includes two diſtinct orders, *viz.* that in which "love," and the "idea of good," that is, ſomething either beneficial or pleaſant, are more immediately preſent to the will; and that in which "hatred," and the "idea of evil," are moſt impreſſive. The *firſt order* compriſes two kinds; the one relating to good in *poſſeſſion*, the other to that in *expectation*. The firſt kind inſpires *joy*, *gladneſs*, which is an inferior degree of joy, *chearfulneſs*, or an emotion of ſtill gentler influence, *mirth*, or a higher degree of chearfulneſs, *contentment*, *ſatisfaction*, and *complacency*. The latter affection of complacency has its counterfeit; and falſe conceptions of our own talents, acquirements, and conduct, may inſpire *pride*, *vanity*, *haughtineſs*, and *arrogance*. The ſecond diviſion under this order comprehends *deſire* and *hope*. A *wiſh* is an inactive deſire. As the above paſſions and affections are inſpired by the contemplation of good, they are moſt of them of a *pleaſant* nature.

The *ſecond order* comprehends thoſe paſſions and affections operating upon the principle of "ſelf-love," in which the idea of *evil* is preſent to the mind. Of theſe there are three kinds, the *firſt* relates to actual loſſes and diſappointments: the *ſecond* to evils of which we are apprehenſive: and the *third*, to the conduct which ſeems to deſerve reprehenſion. Theſe inſpire the paſſions of *ſorrow*, *fear*, and *anger*, with their different modifications and combinations. *Sorrow* ſometimes aſſumes the appearance of *diſcontent* and *diſſatisfaction*. *Impatience* is a mixture of ſorrow and anger: *repining* is ſorrow united with a degree of reſentment againſt ſome ſuperior agent, where the mind cannot burſt forth into ſtrong expreſſions of anger; and *ſympathetic* ſorrow is that which we participate with others, in conſequence of our ſocial connections, or the general benevolence of our nature. (See SYMPATHY.) Of the virtuous affections inſpired by ſorrow, which are perſonal, the moſt conſpicuous are *patience*, *reſignation*, and *humility*. *Fear* is a painful ſenſation produced by the immediate *apprehenſion* of ſome impending evil. The modifications of this paſſion are *conſternation*, *abject* fear, and *terror*. The affections, that is, the more permanent impreſſions of fear, unaccompanied with external ſigns to characteriſe emotions, are *dread*, *deſpair*, *remorſe*, *cowardice*, *puſillanimity*, *timidity*, *doubt*, *irreſolution*, *ſhame*, *modeſty*. The affections and diſpoſitions oppoſed to fear, are *fortitude*, which expreſſes that firmneſs of mind that reſiſts dangers and ſufferings; *courage*, which is active fortitude; and *intrepidity*, expreſſing a courage perfectly undaunted, or a ſuperiority to the very ſenſation of fear. The third ſtrong effect produced by the immediate perception of evil, is *anger*. Anger, in the exceſs of its violence, is termed *rage; wrath* is violent and permanent anger, and as ſuch it may be denominated an affection: *reſentment* is a leſſer degree of wrath; *indignation* is reſentment againſt a conduct that appears peculiarly unworthy. Although anger, and its principal ramifications, are generally directed againſt the conduct of others, they are ſometimes directed againſt ourſelves, when our conduct has been either negligent or criminal. In *repentance*, *contrition*, and *remorſe*, ſelf-reproach, and even *indignation*, are largely intermixed with the affection of ſorrow. *Vexation*, *chagrin*, and *impatience*, do not relate to perſons ſo much as to particular circumſtances of a teazing nature. *Peeviſhneſs* may be conſidered as a lighter degree of anger perpetually recurring to irritable perſons from trifling cauſes. Fortitude, courage, and intrepidity, which have been referred to *fear*, might, without impropriety, have been placed under the paſſion of *anger*.

CLASS II. comprehends the paſſions and affections derived from the "ſocial principle." The ſocial principle extends its regards to the ſtate, the conduct, and the character of others. No one general term is adapted to all thoſe paſſions and affections which belong to this principle. Dr. Hartley, however, has comprehended them all under the name and character of "ſympathy;" which he divides into four claſſes; rejoicing at another's happineſs; grieving at his miſery: grieving at his happineſs; and rejoicing at his miſery. But the word ſympathy, whether we advert to its genuine import or common uſage, is ill adapted to the two laſt diviſions. The uſual idea of ſympathy is that of ſuffering with another, which is the moſt oppoſite poſſible to grieving at his happineſs, or rejoicing at his miſery. Theſe two oppoſite diſpoſitions are uſually expreſſed by the oppoſite terms *benevolence* and *malevolence*. The firſt referring to kindly diſpoſitions towards its objects, and the other to the reverſe: yet theſe terms are not wholly unexceptionable, as they do not always convey ideas perfectly correſpondent with the various differences compriſed under theſe general heads. Inſtead of malevolence, Dr. Cogan ſubſtitutes *diſplacency* as a generic term.

The ſecond claſs is divided into two orders. The *firſt order* includes paſſions and affections excited by benevolence, in which *good* is the predominant idea. Of theſe there are the following kinds. 1. Thoſe which reſpect benevolent *deſires* and *diſpoſitions*. Of thoſe which reſpect *diſtreſs*, the principal are *compaſſion, mercy*, which is the moſt exalted branch of compaſſion, *commiſeration, condolence, pity, generoſity, liberality, charity*, and *condeſcenſion*. Another important branch of benevolence conſiſts in partaking of the good fortune of others; in the participation of their joy, upon the acceſſion of good or liberation from evil. The immediate expreſſions of our joy are denominated "congratulations." 2. The affections derived from *good opinion*. Of theſe the moſt conſpicuous are *gratitude, admiration, eſteem, reſpect, veneration, awe*, and *reverence*. As ſelf-complacency has its counterfeit in pride and vanity, the conplacential affections are liable to abuſe, and give riſe to the following imperfections, *viz. fondneſs* and *partiality*.

The *ſecond order* compriſes paſſions and affections excited by *diſplacency*, in which *evil* is the predominant idea. Of this order there are two kinds. 1. The diſplacency which is indicated by *malevolent deſires and diſpoſitions*. The firſt ſpecies of malevolence is a branch of the general principle of hatred. To this kind belong *malignancy* or *malignity, malice, envy, rancour, cruelty, cenſoriouſneſs, prejudice, ingratitude*, and *apathy*. The ſecond ſpecies of malevolence relates to thoſe occaſional and more tranſient fits of ill-will, which are excited by particular provocations, and which are not totally regugnant to the benevolent affections. Theſe are indicated by anger, and its various modifications. Such are *rage, revenge, wrath, reſentment, ſuſpicion*, and *jealouſy*. 2. The diſplacency, which is indicated by *unfavourable opinions* of conduct and diſpoſition; and this gives riſe to the following emotions and affections, *viz. horror, indignation, contempt, diſdain*, and *irriſion*.

The natural or occaſional cauſe of all the paſſions, Malebranche makes to be the motion of the animal ſpirits, which are diffuſed through the body, to produce and preſerve a diſpoſition therein ſuitable to the object perceived; to the end that the body and mind may mutually aſſiſt each other on this occaſion, it being the order of the Creator, that our wills be followed by motions of the body proper to execute them; and that the motions of the body, mechanically excited in us by the view of external objects, be accompanied with a paſſion of the ſoul, which inclines to will or nill what appears ſerviceable or noxious to the body.

It is a continual impreſſion of the will of the Creator, that unites us thus intimately to a piece of matter, and occaſions this reciprocation of motions and ſenſations; were this impreſſion of the Creator's will ſuſpended a moment, we ſhould be delivered from all dependence, all paſſions, &c. For what people uſually imagine of a neceſſary connection between the motions of the ſpirits and blood, and the emotions of the ſoul, is wholly inconceivable.

Certain little parts of the bile, ſay they, move with ſome violence among the fibres of the brain; therefore, the ſoul muſt neceſſarily be agitated by ſome paſſion, and this paſſion muſt be anger rather than love. What relation can we conceive between the faults of an enemy, a paſſion of contempt or hatred, and a bodily motion of the parts of the blood ſtriking againſt certain parts of the brain? How can the union or alliance of two things ſo different as ſpirit or matter be effected, but ſolely by the omnipotent will of the Author of nature?

Dr. Cogan obſerves, that the eſſential and characteriſtic difference between a paſſion and an affection depends upon the ſuper-addition of ſurpriſe to the natural effect produced by the real or ſuppoſed quality of an object, and that this emotion, conjoined with the ſpecific nature of its *exciting* cauſe, is virtually the *efficient* cauſe of a paſſion; the percuſſion of ſurpriſe rendering the affection viſible by characteriſtic ſigns, correſpondent with its ſpecific nature. This obſervation is exemplified in the paſſions of joy and anger.

There has been much controverſy about the ſeat of the paſſions; whether it be in the ſpiritual, or in the animated material part of man. Some philoſophers place the paſſions ſolely in the corporeal ſyſtem; among theſe was the celebrated Deſcartes: but when we conſider, ſays Mr. Grove, that paſſion ſignifies a ſenſation of the ſoul, it muſt be lodged there, and not in any part of the body. As this ſenſation is joined with a tumult or agitation of the ſpirits, the paſſion muſt go along with the ſpirits moved. Thoſe in admiration, which ſeems to be a more ſpeculative paſſion, on being employed chiefly about the novelty or grandeur of objects, are in the brain, the great inſtrument or condition rather of thought and contemplation. In other paſſions, which, reſpecting the good or evil of objects, proceed from a principle of ſelf-preſervation, the ſpirits agitated are in the heart, the fountain of life, and fitteſt reſidence of thoſe motions of the animal ſpirits, which are intended for the benefit and preſervation of life.

Others again aſcribe ſome of the affections to the animal principle, and ſome to the rational. Dr. Reid doubts whether the principle of eſteem, as well as that of gratitude, ought to be reckoned in the order of animal principles, or if they ought not rather to be placed in a higher order. He has, however, finally placed the eſteem of the wiſe and good in the order of animal principles, though the ſame affection is ſometimes placed by this philoſopher under the animal, and ſometimes under the rational principle. Speaking of reſentment he obſerves, that ſudden or inſtinctive reſentment is an animal principle, common to us with brute animals; but that reſentment, which ſome authors call deliberate, muſt fall under the claſs of rational principles. He alſo excludes parental affections from the rational principle, becauſe it is not grounded on an opinion of merit in the object. (See his Eſſays on the Active Powers of Man, eſſ. iii. chap. 4.) This embarraſſment of Dr. Reid ſeems to ariſe from the expectation that the rational principle muſt always act rationally; which leads him to infer that whenever the paſſions and affections do not receive the ſanction of reaſon, they are to be aſſigned over to the animal principle. But this hypotheſis would tempt us to doubt of the very exiſtence of the rational principle, in numbers of our ſpecies; it leads us to conclude that the two natures, deemed ſo diametrically oppoſite to each other, poſſeſs powers ſo perfectly ſimilar, that it is difficult for the keeneſt diſcernment to diſtinguiſh between their operations; and it compels us to infer, that whenever ſome of our affections become conformable to reaſon, they have changed their ſeat from the animal to the rational principle.

Philoſophers and divines, who diſtinguiſh man into the three conſtituent parts of body, ſoul, and ſpirit, which, notwithſtanding the intimacy of their union, they ſuppoſe to be different in their natures, aſcribe the appetites to the body, the paſſions and affections to the ſoul, and to the ſpirit thoſe intellectual powers which ſeem remote from paſſions or emotions of any kind. But if the affections pertain to the ſoul excluſively, that alone is capable of *enjoying*: the ſpirit is deprived of every motive for ſpeculation; and ſince it ſometimes happens that ſpeculations of the moſt abſtruſe kind excite pleaſing ſenſations, the ſpirit muſt certainly *perceive*, though it has no faculties to *lament* its hard lot, as often as it is conſcious, that theſe delightful ſenſations, which are its own work, are transferred to the ſoul. After all, it muſt be admitted, that every paſſion, emotion, and affection, proceeds from certain impreſſions or ideas excited concerning the nature, or ſtate, or quality, or agency of the exciting cauſe. Theſe ideas have undoubtedly their ſeat in that part of man which we diſtinguiſh by the appellation of *mind*. The exciting cauſe, therefore, changes the ſtate of the mind reſpecting the particular object. From total indifference it becomes ſome way or other *intereſted*. This impreſſion, if it be poſſeſſed of a certain degree of ſtrength, produces a correſpondent change upon the body. Univerſal obſervation, and univerſal phraſeology, which is doubtleſs founded upon this obſervation, unite to evince that a very perceptible influence of every ſtrong emotion is directed towards the *heart*. The heart experiences various kinds of ſenſation, pleaſant or unpleaſant, over which it has no controul; and from thence the influence of agitated ſpirits ſeems to be diffuſed over the body. This ſtate of mind is ſtyled an *affection*, and it appears to be totally mental; but ſtronger influences produce ſuch changes, that the inward diſpoſition becomes obvious to the ſpectator, through the medium of the corporeal frame. It is now called an *emotion*, and this may increaſe in ſtrength, until the whole ſyſtem becomes agitated and convulſed. From this ſtatement it appears inconteſtible, that the affections and paſſions have their origin in the mind, while emotions are corporeal indications of what paſſes within, according to the conjecture of Mr. Grove above mentioned.

It is a point, about which the divines and philoſophers can never agree, whether this relation and connection of thoughts of the mind, and motions of the body, be the gift of nature, or the puniſhment of the firſt ſin; and whether the paſſions be the inſtitution of nature, or its corruption. Indeed, conſidering the good and wiſe purpoſes the paſſions ſerve, with regard to knowledge, virtue, and happineſs, and their abſolute neceſſity, it is ſurpriſing it ſhould ever be doubted that they are eſſential to human nature.

This union or relation is found in all men, but in different degrees, and of different extent, according to the different temperaments, conditions, ages, ſexes, occaſions, objects, &c.

In every paſſion there may ſeven things be diſtinguiſhed: the firſt, the judgment the mind makes of an object, or the view of the relation which the object bears to us. The ſecond, a new determination of the will towards that object, ſuppoſing it to appear as good or evil. The third, the peculiar ſenſation of modification, which accompanies them; as the ſenſation of love, hatred, deſire, or joy, which ſenſations are always different in the different paſſions, and are, at it were, the characteriſtics of them. The fourth, a new determination of the courſe of the blood and ſpirits towards the ſeveral parts of the body: before the ſight of the object of the paſſion, the animal ſpirits were pretty equally diffuſed throughout the body; but the preſence of the new object diſturbs the whole economy; and the greateſt part of the ſpirits is ſent into the muſcles of the arms, legs, face, &c. The fifth is, the ſenſible emotion of the ſoul, which finds itſelf ſhaken by this ſudden overflowing of ſpirits. The ſixth is, the different ſenſations of love, hatred, &c. cauſed, not by the intellectual view of good or evil, but by the different ſhakes or movements the animal ſpirits occaſion in the brain. The laſt is, a certain ſenſation of joy, or an inward ſatisfaction, which detains the ſoul in its paſſions, and atteſts its being in the ſtate it ought to be in with regard to that object.

The influence of the affections and paſſions has been the ſubject of copious diſcuſſion; and it may be conſidered in three different points of view; as, to the *phyſical*, or medical influence of the paſſions, (for which ſee the next article,) their *metaphyſical*, or influence upon the train of our ideas, correſpondent language, &c. and their *moral*, or influence upon character and happineſs.

The influence of the paſſions on thoughts and language is a matter of univerſal experience and obſervation. When any ſubject preſents itſelf to the mind, with ſufficient force to excite a paſſion, or very ſtrong affections, all the powers of the imagination become immediately active, the whole ſoul is engaged upon its object, and the whole train of ideas is turned into a channel correſpondent with the view we entertain of them. This ſtate of mind not only manifeſts itſelf by geſtures, looks, and tones correſpondent with the nature of the paſſion, but it has a characteriſtic influence upon the language and expreſſions employed to *give vent* to the paſſion, as it is emphatically termed. Upon the firſt impulſe, the thoughts are tumultuous and confuſed; but as the *paſſion* approaches ſomewhat nearer to an *affection*, the mind recovers in ſome degree its power over itſelf; though ſtill, as it continues to feel ſtrongly, it is eager to do juſtice to its feelings, by the ſtrength, pertinency, and impetuoſity of its language. Impetuoſity equally deſpiſes preciſion or detail. It eagerly ſeizes upon tropes and figures the moſt conciſe, and the moſt ſuited to its new conceptions. When paſſions and emotions give place to more permanent affections, language becomes leſs vehement and more diffuſe. Nature has accommodated the mode of utterance to the character of the paſſion; thus it has rendered joy loud and vociferous, producing ſtrong exclamations mixed with triumphant laughter. Sorrow communicates a plaintiveneſs to the voice, beſt adapted to wailings and lamentations. Anger is loud and turbulent; the voice riſes with the paſſion in order to ſtrike terror and ſilence oppoſition. Fear is oppreſſed and breathleſs, or ſcreams aloud for help. Love is ſoft, ſoothing, inſinuating, and gentle; ſometimes aſſuming the plaintiveneſs of ſorrow, ſometimes the vivacity of hope, and the tranſports of joy.

The nature of the paſſions and affections indulged, and of the objects by which they are excited, and the degree of influence and permanency which they are allowed to exert upon us, conſtitute the moral characters of men; pointing out their innocence, their excellencies, or their defects. By character is generally underſtood the kind of reputation acquired by the prevalent diſpoſition or temper, which ſuggeſts almoſt every motive, and takes the lead in almoſt every action; and *moral* character refers to that prevalent temper which relates to moral obligation, reſpecting either ourſelves or others. The cardinal affections of love and hatred, in themſelves, poſſeſs neither merit nor demerit. It is neither a duty, nor a poſſibility to diveſt ourſelves of them. The paſſions, emotions, and affections which are immediately conſequent upon theſe, or may be deemed ſimple modifications of them, are alſo inſeparable from our nature, and are both unavoidable and innocent: ſuch as joy, ſatisfaction, contentment, hope, deſire, fear, ſorrow, anger, reſentment, &c. Virtue, however, directs, reſtrains, and controuls their influence.

There is another diſtinction of the paſſions and affections, as they relate to the moral character, indicating a ſcale of comparative merit and demerit. Some are innocent ſimply, as hope, joy, moderate grief. Some are laudable, as contentment, ſatisfaction, complacency. Others are deemed peculiarly noble: thus the virtue of benevolence is much more dignified than any of the affections that originate and terminate in *ſelf*. And in the different branches of this virtue there are alſo degrees of excellence. But ſentiments of this kind are familiar and obvious to the reader, and it is needleſs to enlarge. Upon the whole it appears, that character depends upon the prevalent uſe or abuſe of certain propenſities or affections of our natures. Thoſe who ſelect and cultivate the moſt beneficial, are the *beſt* of characters; thoſe who are habituated to the moſt injurious, are the *worſt*.

With regard to the influence of the paſſions and affections on happineſs, we may obſerve, that although the deſire of good is in reality the cauſe of every paſſion, emotion, and affection, yet the immediate effects of each on our ſenſations are correſpondent to its own ſpecific nature. The influence of ſome is productive of temporary well-being; while others are comfortleſs, irkſome, or productive of a great degree of wretchedneſs. Love, placed upon a deſerving object, and recompenſed with a reciprocal affection, joy, ecſtacy, complacency, ſatisfaction, contentment, lively hope, are decidedly ſources of perſonal enjoyment. The ſocial affections of benevolence, ſympathy, compaſſion, and mercy, are alſo other ingredients of happineſs, from a leſs ſelfiſh and more refined ſource than the preceding. Every ſpecies of benevolence poſſeſſes the quality our great dramatic poet has aſcribed to a merciful diſpoſition.

> “ The quality of mercy's not reſtrain'd:
> It droppeth as the gentle rain from heaven
> Upon the land beneath. It is twice bleſſed;
> It bleſſes him that *gives*, and him that *takes*.”

Emotions and affections of another claſs are of the unquiet and irritating claſs: as the whole family of anger. The emotions and affections of fear, dread, horror, deſpair, are of the moſt horrid and tremendous claſs. Exceſſive jealouſy, envy, remorſe, deſpair, ſhame, ariſing from the detection of guilt, are miſery unmixed. Surpriſe, wonder, aſtoniſhment, principally receive their complexion from the ſubjects that inſpire them: and they are introductory to happineſs or miſery according to the nature of the cauſe that excites them. For a farther detail, ſee Cogan's Treatiſe already cited.

PASSIONS, in a *Medical View*, conſtitute one of the ſix *non-naturals*, as they have been called, and are of great importance, whether conſidered as a cauſe of diſeaſe, or as exerting a remedial influence when certain diſeaſes exiſt.

The theoretical diſcuſſions of the metaphyſicians about the eſſential diſtinctions of the mind and the body, have confuſed, rather than elucidated, the ſubject, and have led to erroneous views of the operations of the animal economy. All that we *can* know upon the ſubject, from experience, is, that the living body preſents two ſeries of phenomena, one of which comprehends the functions of thought, ſenſation, volition, and various emotions, which we refer to the mind, and call *mental* power, and the other includes the more mechanical or chemical functions, which reſemble the operations produced by inorganized machines, ſuch as digeſtion, reſpiration, the circulation of the blood, and the ſecretions from it, which we deem more ſtrictly *corporeal* functions. Nevertheleſs we have no actual knowledge of theſe functions, of either claſs, except in conjunction, and in that organized form, which conſtitutes the living body. If the ſubject be viewed in this light, independently of ſpeculative opinions, it is at once obvious, that theſe two claſſes of functions conſtitute but one whole, and that they are, as far as the phyſician is concerned, inſeparably connected, and mutually dependent upon each other. How extenſive this reciprocal influence is, and how powerfully the corporeal functions are modified by thoſe which are called mental, we have taken pains to demonſtrate, at great length, in a preceding article. (See IMAGINATION, *Influence of, on the Corporeal Frame.*) In common language, we are apt to ſeparate the intellectual faculties from the paſſions and emotions, and, in compliance with that cuſtom, we aſcribed to the imagination ſimply, the numerous phenomena detailed in the article referred to. But, in truth, the paſſions were more or leſs concerned in the production of theſe phenomena; ſince the imaginary powers of the agents (as in the caſe of animal magnetiſm, &c.) neceſſarily excited the hopes and fears and anxieties of the perſons on whom they operated. Having detailed many proofs, in the article juſt referred to, of the effects of theſe emotions, when excited by imaginary agents, upon the corporeal frame; we have now to point out the influence of theſe emotions, when excited by real and common cauſes.

The paſſions have been commonly conſidered by phyſicians as of two kinds, in reſpect to their influence on the ſtate of the body, namely, as *exciting* and *depreſſing* its vital powers, and conſequently as producing analogous effects on the functions, to thoſe which ariſe from the operation of *ſtimulant* and *ſedative* agents of a material nature. Among the *exciting* paſſions, are anger, terror, joy, cheerfulneſs, hope, deſire, love, admiration, and the emotions of taſte; the *depreſſing* paſſions are grief, fear, ſhame, and anxiety.

It is matter of obſervation, that the agency of theſe exciting and depreſſing emotions in the animal economy, follows the ſame laws, as that of the material ſtimulants and ſedatives juſt alluded to. The moderate excitement of the former contributes to the free and perfect performance of all the functions, and therefore to the ſupport of the general health; and debility equally enſues from the immoderate influence of the exciting, and from the direct operation of the depreſſing cauſes, which uniformity of effect affords an additional proof of the identity of the living ſyſtem. The operation of the paſſions and emotions, both as a cauſe of health and diſeaſe, and alſo as a remedy in many morbid conditions, is illuſtrated by the obſervations of many phyſiologiſts and pathologiſts, and by numerous caſes, which have been recorded, as may be ſeen by conſulting the comprehenſive and indefatigable Haller. Elementa Phyſiologiæ, tom. v. lib. xvii. p. 580 et ſeq.

The *exciting paſſions* have been obſerved to produce the following effects in the corporeal frame. *Cheerfulneſs* and moderate *joy* are found to give vigour to the circulation, and to increaſe the action of the heart and arteries, and conſequently to ſupport the vital functions connected with it; they render the reſpiration eaſy and free, increaſe the heat and perſpiration, and aſſiſt the operations of digeſtion and of ſecretion in the various organs of the body; whence the healthy condition of the ſyſtem is univerſally promoted. Nevertheleſs, when the excitement of joy has been exceſſive and ſudden, it has ſometimes brought on an acute fever, not unfrequently it has occaſioned ſyncope or fainting, and in a few inſtances even ſudden death. Examples of death thus produced, from an unexpected reſtoration from impriſonment, from the return of a beloved ſon, who was ſuppoſed to have been dead, or from extraordinary and unlooked for acceſſion of wealth, have been recorded. (See Thoreſby, Nat. Hiſt. of Leeds, p. 625. Robinſon on the Spleen, p. 91. Nichols, de Anim. Med. p. 16.) It were ſuperfluous to repeat the various hypotheſes, which different writers have framed to account for theſe phenomena; as they are altogether gratuitous, or merely ſtatements of the fact, with a change of words. Haller conſidered the affection as a kind of apoplexy, occaſioned by the increaſed action of the veſſels of the brain; but Dr. Cullen appears to have been nearer to the truth, in deeming it the mere reſult of over-excitement of the nervous ſyſtem; which is generalizing it to that univerſal law of the animal economy, by which extreme exhauſtion invariably follows exceſſive ſtimulation. See Excitability.

The paſſion of *love*, being a pleaſurable emotion, produces effects ſimilar to thoſe of joy. It excites the powers of the mind, as well as thoſe of the body, cauſes a glow of heat, and an acceleration of the pulſe; and, when it is vehement, it excites palpitation of the heart, and a ſenſe of burning heat, through the circulation. The acceleration of the pulſe, however, is moſtly accompanied with ſome irregularity, occaſioned perhaps by fear and apprehenſion of the want of ſucceſs. The love of Antiochus for his ſtep-mother Stratonica, is recorded to have been diſcovered from the pulſe.

The *ardent deſire* accompanying *ambition*, or other ſtrong paſſions, eſpecially if attended with a proſpect of ſucceſs, produces nearly ſimilar effects. So powerful its excitement has been, in ſome inſtances, as to have even cured paralytic affections, and rouſed the body to exertions, far above thoſe to which the ſtrength ſeemed adequate, and has even protracted death. Muley Moluc, emperor of Morocco, who was wearing away under an incurable diſeaſe, when the Portugueſe invaded his territories, did not expect to live out the day when his laſt deciſive battle took place. Before the battle begun, he was carried along the ranks in an open litter, to encourage his troops; but finding afterwards the battle to go againſt him, though very near his laſt agonies, he threw himſelf out of his litter, rallied his army, and led them on to the charge, which ended in a complete victory to his party. He had no ſooner brought his men to the engagement, than finding himſelf utterly ſpent, he was again replaced in his litter, where, laying his finger on his mouth, to enjoin ſecrecy to his officers, who ſtood around him, he died a few moments after in that poſture. See Spectator, No. 349.

Anger is another actively ſtimulant paſſion. It rouſes the powers of the body and mind, and impels them into action, accelerates the pulſe, and produces redneſs and heat of the ſkin. Theſe exertions are often ſo violent as to exhauſt the vigour of the nervous ſyſtem, as appears from the tremor of the limbs, and the faltering voice with which they are accompanied. When this paſſion has been ſtill more vehement, various diſeaſes have ſometimes been the reſult, ſuch as ecchymoſes, hemorrhages, apoplexies, great diſtention of the heart, ruptured cicatrices of wounds, local inflammations, profuſe perſpiration, vomiting, and diarrhœa. Indeed the increaſe of the biliary ſecretion by this paſſion is very remarkable, and has been well atteſted both by ancient and modern obſervation; inſomuch that *bile* and *choler* are deemed ſynonymous with *anger*. On the other hand, theſe ſtimulant effects have, under certain circumſtances, proved remedial. Thus gout, palſy, dumbneſs, have all been removed by paroxyſms of rage, and life itſelf evidently prolonged for ſeveral days. See Haller, loc. cit. and Falconer's Diſſ. on the Influence of the Paſſions on the Diſorders of the Body, p. 13.

The genial and ſalutary influence of *hope*, in ſupporting the health againſt the impending evils of diſeaſe, by maintaining a ſteady excitement both of body and mind, has been ſtrikingly illuſtrated on various occaſions; and in no inſtance more remarkably, than in that of the ſiege of Breda, as deſcribed by Vander Mye, which we have detailed under the article Imagination, before referred to. The diſtributions of an inſignificant medicine among the garriſon, ſaid to be ſent from their prince, and to poſſeſs infallible powers of curing the ſcurvy, effectually prevented the progreſs of that fatal malady. After mentioning this fact, the celebrated Dr. Lind, (in his Treatiſe on Scurvy,) obſerves, "an important leſſon is hence to be learned, the wonderful and powerful influence of the paſſions of the mind on the ſtates and diſorders of the body. This is too often overlooked in the cure of diſorders, many of which are ſometimes attempted to be cured by the ſole mechanical operation of drugs, without calling in to our aſſiſtance the ſtrong powers of the imagination, or the concurring influences of the ſoul. Hence it is, that the ſame remedy will not always produce the ſame effect, even in the ſame perſon, and that common remedies often prove wonderfully ſucceſsful in the hands of bold quacks, but do not anſwer the purpoſe in a timorous and diſtruſtful patient."

The *depreſſing* or debilitating paſſions produce an oppoſite effect; they rob the body of its vigour, diminiſh and interrupt the ſecretions, weaken the digeſtive powers, and, if continued, wear out the energies of life; while ſome of them, like a ſudden and violent narcotic poiſon, inſtantaneouſly deprive the brain and nervous ſyſtem of its powers, and occaſion immediate death. *Fear* and *grief* are the moſt injurious, perhaps, of the depreſſing paſſions. Under the influence of *fear*, the force of the heart is diminiſhed, and the pulſe is rendered weak, variable, and intermittent; whence paleneſs, ſhivering, tremor, faintneſs, and even actual ſyncope, are attendant ſymptoms on the operation of this paſſion; whence alſo hæmorrhages of every kind have ceaſed under its influence, the natural ſecretions, as of the milk and perſpiration, have been ſuppreſſed, and diſcharges from ſores have ſtopped, and even the blood has not flowed from an opened vein. Or, on the other hand, from the general relaxation of the veſſels, a cold and clammy ſweat has been poured out by the exhalants, like that which attends ſyncope and great weakneſs; or a colliquative diarrhœa has occurred from the relaxed exhalants of the inteſtines. The effects of fear, very much reſemble thoſe of fatigue, watching, and other ſources of debility, in rendering perſons much more liable to receive the infection of peſtilential diſeaſes; whence the panic, which often accompanies an epidemic, tends greatly to increaſe the number of its victims. (See many references upon this point in Haller, loc. cit. p. 584.) It greatly debilitates the organs of digeſtion; whence flatulence, eructations, acidity, cramp at the ſtomach, and various other ſymptoms of want of power in the ſtomach and bowels are produced by it. When its impreſſions have been more violent, many ſevere examples of its directly ſedative and paralyzing effects on the nervous ſyſtem have occurred. Some perſons have inſtantaneouſly loſt the power of muſcular exertion, remaining equally unable to fly or to defend themſelves from the univerſal tremor which ſeized them. Van Swieten has recorded an inſtance, in which the tremor, ſo produced, continued during the remainder of life, namely, for twenty years. In other caſes, palſy, amauroſis, loſs of voice, mental imbecility, permanent melancholy, epilepſy, and even ſudden death, have reſulted from the violent impreſſions of fear.

Yet it is juſtly remarked by Haller, that *terror* and *alarm* have often a ſtimulant effect, like that of *anger*, and have produced violent exertions both of mental and corporeal power, and ſtrong muſcular action, even in the heart. Whence thoſe who had loſt the uſe of ſpeech, have recovered it ſuddenly, and paralytic limbs have been rouſed to action, by a ſudden alarm. Van Swieten relates from Hildanus, that a man, diſguiſed to repreſent a ghoſt or ſpectre, took another, labouring under a paroxyſm of gout, out of his bed, and carried him upon his back down the ſtairs, dragging his feet and legs, which were the ſeat of his pain, down the ſteps, and placed him at laſt on the ground. The man thus treated immediately recovered the uſe of his limbs, and ran up the ſtairs again with great ſwiftneſs, and under the ſtrongeſt impreſſions of terror. After this incident, he lived many years free from any ſymptoms of the gout. In a ſimilar way, the gout has been ſuddenly cured by a fit of anger.

A ſudden impreſſion of *fear*, when accompanied by *deſpair* and *diſtreſs*, has ſometimes occaſioned a ſingular diſorder of the cutaneous exhalants; we once witneſſed an univerſal anaſarca, or ſuperficial dropſy, which was produced in the courſe of one night, in a poor woman, who had loſt her pocket, containing a few pounds, which were her all, and the ſavings of many years. And *fear* combined with *anxiety* have, in many caſes, which have fallen under our obſervation, produced extenſive diſeaſes of the ſkin, of an inflammatory and ſcaly nature. See Bateman's Pract. Synopſ. of Cutan. Diſ. p. 149, note. Alſo Edin. Med. and Surg. Journ. vol. v. p. 127.

Grief is another depreſſing paſſion, the effects of which reſemble in ſeveral reſpects thoſe of fear, but differ in conſequence of the longer duration of this paſſion. Grief diminiſhes the bodily ſtrength in general, and particularly the force of the heart and circulation; as is obvious from the frequent ſighs and deep reſpirations which attend it, and which ſeem to be neceſſary exertions, in order to promote the paſſage of the blood through the lungs. It diminiſhes perſpiration, obſtructs the menſtrual diſcharge, produces paleneſs of the ſkin, and anaſarca, and ſcirrhous obſtructions in the glandular parts. It aggravates the ſcurvy, and the malignity of febrile and contagious diſtempers, and alſo renders people more apt to receive the infection of them. When it comes on ſuddenly and in a great degree, it excites palpitation of the heart, and renders the pulſe irregular, and unequal in the two arms. Blindneſs, gangrene, and ſudden death, have followed exceſſive grief; and its effects in changing the colour of the hair are well known.

One of the moſt remarkable effects of the paſſions on the body is exemplified in the *noſtalgia*, or that vehement deſire of re-viſiting one's native country, which occurs in perſons abroad. This is much allied to *grief*, and *hope* is its cure; for the moment that aſſurance of the opportunity of returning is given, the diſeaſe, which would otherwiſe terminate in atrophy and death, begins to diſappear. See NOSTALGIA.

From this ſketch of the effects of the paſſions on the operations of the animal economy, it muſt be obvious that they are important agents in the modifications of health, and the regulation of them becomes a matter of intereſting inquiry to the phyſician, and affords him a ſource of conſiderable influence over the corporeal functions. Many difficulties, however, muſt occur in the management of theſe nice and precarious inſtruments, and the direction of them will be moſt ſucceſsfully undertaken by thoſe who poſſeſs the greateſt diſcernment in eſtimating individual character and conſtitution, and who are poſſeſſed of what is called a knowledge of mankind and the world. A conſiderable influence towards the cure and alleviation of diſeaſes, may, however, be eaſily exerted by the inſpiration of hope and confidence, and by diſpelling groundleſs fears and apprehenſions: and even fictitious means, or ſuch as a great philoſopher might deſpiſe, are not to be neglected, where a depreſſing paſſion is thwarting the operation of medicine, and the natural efforts of the conſtitution. The powers of the tractors, and of animal magnetiſm, although purely imaginary, were nevertheleſs capable of producing ſubſtantial effects; and where the efficacy of our inſtruments can be thus augmented, by employing ſuch mental aid, it is neither unphiloſophical nor uſeleſs to reſort to it. See IMAGINATION, *Influence of.*

We ſhall here ſubjoin ſome of thoſe inſtances to which we have referred in the preceding article, and with which ancient hiſtory preſents us, of fatal effects from the exceſs of joy; but it plainly appears from their narration, that the ſubjects were, at the inſtant preceding, under the preſſure of extreme anguiſh of mind. Pliny infoms us (lib. vii. § 7.) that Chilo, the Lacedæmonian, died upon hearing that his ſon had gained a prize in the Olympic games. Valerius Maximus tells us (lib. ix. cap. 12.) that Sophocles, the tragic writer, in a conteſt of honour, died in conſequence of a deciſion being pronounced in his favour. Aulus Gellius (Noct. Attic. lib. iii. cap. 15.) mentions a remarkable inſtance of the effects of what may be termed accumulated joy, in Diagoras, who expired at the inſtant, when his three ſons were crowned in the ſame day as victors; the one as a pugiliſt, the other as a wreſtler, and the third in both capacities. Livy alſo (lib. xxii. cap. 7.) mentions the inſtance of an aged matron, who, while ſhe was in the depth of diſtreſs, from the tidings of her ſon's having been ſlain in battle, died in his arms from the exceſs of joy upon his ſafe return. We are alſo told by the Italian hiſtorian Guicciardini, that Leo X. died of a fever, occaſioned by the agitation of his ſpirits, on his receiving the joyful news of the capture of Milan, concerning which he had entertained much anxiety. In all theſe inſtances the previous ſtate of mind, with its pathological effects upon the body, made the impulſe of joy the ſtronger, and contributed to render it fatal.

PASSION, *Cœliac.* See CŒLIACA.

PASSION, *Hypochondriac.* See HYPOCHONDRIASIS.

PASSION, *Hyſteric.* See HYSTERIA.

PASSION, *Iliac.* See ENTERITIS.

PASSIONS, in *Poetry*, denote the paſſionate ſentiments, geſtures, actions, &c. which the poet gives his perſons.

The paſſions are, as it were, the life and ſpirit of the longer poems. Their neceſſity in tragedy and comedy is obvious; nor can the epopœia ſubſiſt without them.

It is not enough that the epic narration be ſurpriſing; it muſt likewiſe be moving and paſſionate, hurrying away the reader's mind, and filling it with anxiety, joy, terror, or ſome other violent paſſion, and this for ſubjects which it knows are feigned. Though paſſions be always neceſſary, yet all are not equally neceſſary, or ſuitable to all. Comedy has joy, and agreeable ſurpriſes, for its part; tragedy, on the contrary, has terror and compaſſion. The proper paſſion of the epopœia is admiration; though the epopœia, as a medium between the two others, takes in both their kinds of paſſions; as we ſee in the griefs of the fourth book of the Æneid, and the games and diverſions of the fifth. Admiration, in effect, is conſiſtent with each; we admire with joy the things that ſurpriſe us agreeably, and with terror and grief thoſe that amaze and afflict us.

Beſides the general paſſion, which diſtinguiſhes the epic from dramatic poems, each epopœia has its peculiar paſſion, which diſtinguiſhes it from other epic poems. This peculiar paſſion ſtill follows the character of the hero. Thus wrath and terror reign in the Iliad, becauſe Achilles is watchful, and ϖαντων εκ ϖαγλοτατ' ανδρων, *the moſt terrible of men.* And, on the contrary, the Æneid is all in the tender, ſofter paſſions; ſuch being the character of Æneas. The prudence of Ulyſſes not allowing theſe exceſſes, we find none of them in the Odyſſey.

As to the conducting of the paſſions, to make them have their effect, there are two things required; *viz.* that the audience be prepared or diſpoſed to receive them; and that ſeveral incompatible paſſions be not mixed together.

The neceſſity of diſpoſing the audience is founded on the natural neceſſity of taking up things where they are, in order to remove them elſewhere. The application of this maxim is eaſy ; a man is calm and at eaſe, and you would put him in a paſſion by a diſcourſe made on purpoſe. You muſt begin, then, in a calm manner ; by this means you join yourſelf to him ; and afterwards, walking together, he will not fail to follow you in all the paſſions, to which you lead him inſenſibly.

If you ſhew your anger at firſt, you will be as ridiculous, and will have as little effect, as Ajax in the Metarmorphoſes ; in whom the ingenious Ovid gives a fine example of this failing. He begins his harangue in the height of paſſion, and with the moſt violent figures, before his judges, who are in the deepeſt tranquillity.

“ ———————— Sigeia torvo,
Litora proſpexit, claſſemque in litore, vultu ;
Protendenſque manus, Agimus, proh Jupiter ! inquit,
Ante rates cauſam, & mecum confertur Ulyſſes.”

The neceſſary diſpoſitions ariſe from ſome preceding diſcourſe, or, at leaſt, from ſome action, which has already begun to raiſe the paſſions before they are mentioned. The orators themſelves ſometimes uſe this laſt means ; for though ordinarily they do not raiſe the paſſions till the end of their diſcourſe, yet when they find their audience already moved, it would be ridiculous in them, by an unſeaſonable tranquillity, to lay them again.

Thus, the laſt time Catiline came to the ſenate, the fathers were ſo ſhocked at his preſence, that thoſe near the place where he ſat down, roſe up, retired, and left him alone. On this occaſion, Cicero had too much ſenſe to begin his oration with the uſual tranquillity and coolneſs of exordiums : by this means, he would have palled and abated the indignation of the ſenators againſt Catiline, which it was his buſineſs to ſpirit up and inflame ; and he would have eaſed the parricide of that conſternation the behaviour of the ſenators had given him, and which it was Cicero's buſineſs and deſign to aggravate. Omitting, therefore, the firſt part of this oration, he takes his auditors in the condition he finds them, continues and augments their paſſions : “ Quouſque tandem abutere, Catilina, patientia noſtra ? Quamdiu nos etiam furor iſte tuus eludet ? Quem ad finem ſeſe effrænata jactabit audacia ? Nihilne te nocturnum præſidium palatii, nihil urbis vigiliæ, nihil timor populi, nihil, &c.”

The poets are full of inſtances of this kind, where the paſſion is prepared or kept up by actions. Dido, in Virgil, begins a diſcourſe like Ajax : *Proh Jupiter, ibit hic, ait,* &c. But then the motions are here well diſpoſed ; Dido is before repreſented under terrible apprehenſions of Æneas's quitting her, &c.

Seneca's conduct, indeed, is quite oppoſite to this rule. If he has a paſſion to raiſe, he is ſure firſt to take from his audience any diſpoſition they might have to be affected. If they be in grief, fear, or the expectation of ſomething horrible, &c. he will begin with ſome fine deſcription of the place, &c. In the Troades, Hecuba and Andromache being prepared to hear the violent and barbarous death of their ſon Aſtyanax, whom the Greeks precipitated from the top of a tower ; of what avail was it to tell them, that, of the ſpectators that crouded from all quarters to ſee the execution, ſome placed themſelves on ſtones, which the ruins of the walls made to project ; that others ſhook their legs, as being placed too high, &c.

“ Alta rupes, cujus e cacumine
Erecta ſummos turba libravit pedes.”

The ſecond thing required in the management of the paſſions is, that they be found pure, and diſengaged from any thing that might prevent their effect.

Polymythy, therefore, *i. e.* a multiplicity of fables, actions, or hiſtories, muſt be avoided ; all adventures much broken, and hard to be retained, and all intrigues intricate, and difficult to conceive, are at once to be excluded. Theſe embarraſs the mind, and require ſo much attention, that there is none to ſpare for the paſſions. The ſoul muſt be free and diſengaged to feel ; on the contrary, we divert ourſelves even from our real ſorrows, by an application to other things.

But, of all others, the greateſt enemies to the paſſions are the paſſions themſelves : they oppoſe and deſtroy each other ; and if two oppoſite ones, *e. gr.* joy and ſorrow, meet in the ſame object, they will neither of them ſtand it. It is the nature of theſe habits that impoſes this law : the blood and ſpirits cannot move gently and equally, as in a ſtate of tranquillity, and, at the ſame time, be ſtopped and ſuſpended with a violence occaſioned by admiration. Nor can they be in either of thoſe ſituations, while fear calls them from the outer parts of the body, to aſſemble them about the heart, or rage ſends them into the muſcles, and makes them act there with violences very oppoſite to the operations of fear.

The cauſes and effects, therefore, of the paſſions in the ſoul are to be ſtudied, in order to be able to manage them with all their force. Virgil furniſhes two examples of what we have ſaid about the ſimplicity and engagement of each paſſion, in the deaths of Camilla and Pallas. See the Æneid.

PASSIONS, in *Rhetoric*, are objects that demand particular attention, both in the compoſition and delivery of public diſcourſes. Accordingly one branch of rhetorical invention relates to the paſſions, and a ſuitable addreſs to them forms a diſtinguiſhing part of the concluſion, or ***peroration***, which ſee. As the paſſions are moving ſprings of action in the human frame, the orator who diſregards them is not likely to accompliſh the end at which he aims. As it is often highly neceſſary, it will likewiſe require his greateſt ſkill, to engage them in his intereſt. Accordingly Quinctilian calls this “ the ſoul and ſpirit of his art,” and without doubt, nothing more diſcovers its empire over the minds of men, than this power which it poſſeſſes of exciting, appeaſing, and ſwaying their paſſions, agreeably to the deſign of the ſpeaker. The orator who engages the paſſions of his hearers will be thus aided on many occaſions in convincing their judgment, and more eſpecially in perſuading them to purſue the courſe of conduct which he recommends. The paſſions are conſtituent parts of our frame as well as the underſtanding ; and unleſs they are called forth into exerciſe, and when rouſed, properly directed and governed, we ſhall need ſome of the moſt powerful incentives to our inquiry after truth and to the regulation of our conduct agreeably to the conviction of our minds. Although the paſſions are liable to be perverted and abuſed, this is no reaſon why they ſhould not be employed to important and uſeful purpoſes ; more eſpecially as this is the moſt likely method of guarding againſt the danger and injury, to which the want of due direction and controul would expoſe us. Quinctilian makes it a neceſſary qualification of an orator, that he ſhould be an honeſt man, and one who will not abuſe his art. He will therefore engage the paſſions in the intereſt of truth and virtue ; and he will thus render them inſtrumental in promoting the moſt uſeful purpoſes. The Stoics, who pretended to eradicate the paſſions, attempted what was in itſelf impoſſible, and in its conſequences prejudicial to mankind. For while they appeared zealous aſſertors of the government of reaſon, they ſcarcely left it any thing to govern : for the authority of reaſon is principally exerciſed in ruling and moderating the paſſions, which, when duly regulated, are the ſprings and motives to virtue. The paſſions, therefore, are not to be extirpated, as the Stoics aſſerted, but put under the direction and conduct of reaſon. The charge that has been brought againſt the art of oratory, for giving rules to influence the paſſions, is groundleſs and unjuſt; ſince the proper uſe of the paſſions is not to hinder the exerciſe of reaſon, but to engage men to act agreeably to reaſon. And if an ill uſe be ſometimes made of this, it is the fault not of the art, but of the artiſt. But that an orator may be enabled to manage this part of his province to the beſt advantage, it is neceſſary that he ſhould, in ſome meaſure, be acquainted with the nature, cauſes and objects of the paſſions. The paſſions to which the orator more particularly addreſſes himſelf differ according to the nature of the diſcourſe. In demonſtrative orations, when laudatory, love, admiration, and emulation are uſually excited; but in invectives, hatred, envy, and contempt. In deliberative ſubjects, either the hope of gratifying ſome deſire is ſet in view; or the fear of ſome impending evil. And in judicial diſcourſes, almoſt all the paſſions have place, but more eſpecially reſentment and pity; inſomuch that moſt of the ancient rhetoricians mention only theſe two. The objects of the paſſions are either *things* or *perſons*, and orators make uſe of both for putting in motion theſe ſprings of the human mind. With regard to *things*, the nature and circumſtances of them are to be conſidered; and different paſſions applied to, in order to induce people either to purſue or avoid them. *Perſons* may be conſidered either as agents or patients. In the former ſenſe, different regards are due to them, according to the different qualities with which they are poſſeſſed, and a ſuitable courſe of actions. So becauſe virtue excites eſteem, and vice hatred; anſwerable regards are paid to virtuous, or vicious men. But in conſidering them as patients, whatever befalls them according to their demerits, be the thing good or ill, others are generally pleaſed; and if the contrary happens, it gives them an uneaſineſs. So that if ſome good thing accrues to one, who does not deſerve it, it cauſes indignation; and where a misfortune happens to a good man, it occaſions pity. And thus perſons are apt to be affected with reſpect to the circumſtances of others. But every one is naturally inclined to think well of himſelf, that every proſperous occurrence is but anſwerable to his merit, and that every misfortune comes undeſervedly. And ſometimes there is joined with the occurrence the conſideration of the agent, or perſon, who occaſioned it; and the deſign in doing it is often more regarded, than the thing itſelf. The orator therefore will obſerve what circumſtances either of things, or perſons, or both, will furniſh him with motives, proper to apply to thoſe paſſions he deſires to excite in the minds of his hearers. Thus Cicero, in his *orations for* Plancus and Sylla, moves his hearers from the circumſtances of the men; but in his *accuſation of* Verres, very frequently from the barbarity and horrid nature of his crime; and from both in his *defence of* Quintius.

But the ſame paſſion may be excited by very different methods. This is plain from the writings of thoſe Roman ſatiriſts, which are yet extant; for they have all the ſame deſign, and that is to engage men to a love of virtue, and hatred of vice; but their manner is very different, ſuited to the genius of each writer. Horace endeavours to recommend virtue, by laughing vice out of countenance. Perſius moves us to an abhorrence and deteſtation of vice, with the gravity and ſeverity of a philoſopher. And Juvenal by open and vehement invectives. So orators make uſe of all theſe methods in exciting the paſſions, as may be ſeen by their diſcourſes, and particularly thoſe of Cicero. But it is not convenient to dwell long upon the ſame paſſion. For the image thus wrought up in the minds of the hearers, does not laſt a great while, but they ſoon return to reflection. When the emotion therefore is once carried as high as it well can be, they ſhould be left under its influence, and the ſpeaker proceed to ſome new matter, before it declines again. Moreover, orators ſometimes endeavour to raiſe contrary paſſions to each other, as they are concerned for oppoſite parties. So the accuſer excites anger and reſentment, but the defendant pity and compaſſion. At other times, one thinks it ſufficient to allay and take off that paſſion which the other has raiſed, and bring the hearers to a calm and ſedate conſideration of the matter before them.

But this eſpecially is to be regarded, that the orator expreſs the ſame paſſion himſelf, with whic[illegible]avours to affect others, and that not only in his action, and voice, but likewiſe in his language; and therefore his words, and manner of expreſſion, ſhould be ſuited to that perturbation and diſorder of mind, which he deſigns to repreſent. However, a decency and propriety of character are always carefully to be obſerved. For as Cicero very well remarks: "A neglect of this is not only very culpable in life, but likewiſe in diſcourſe. Nor do the ſame things equally become every ſpeaker, or every audience; nor every time, and every place." And therefore he greatly commends that painter, who deſigning to repreſent in a picture the ſacrifice of Iphigenia, Agamemnon's daughter, drew Calchas the prieſt with a ſad countenance; Ulyſſes, her father's great friend, more dejected; and her uncle Menelaus, moſt diſconſolate; but threw a veil over the face of Agamemnon himſelf, as being unable to expreſs that exceſs of ſorrow, which he thought was proper to appear in his countenance. And this juſtneſs of character is admirably well obſerved by Cicero himſelf, in his *defence of* Milo. For as Milo was always known to be a man of the greateſt reſolution, and moſt undaunted courage, it was very improper to introduce him, as the uſual method then was in capital caſes, moving pity, and begging for mercy. Cicero therefore takes this part upon himſelf, and what he could not do with any propriety in the perſon of Milo, he performs in his own addreſs to the judges. Cicero Orat. cap. 21, 22. 34. Ward's Orat. vol. i.

It is obſerved by Dr. Blair, that the higher eloquence (ſee Eloquence) is the offspring of paſſion; or of that ſtate of mind in which it is agitated and fired, by ſome object it has in view. A man may convince, and even perſuade others to act, by mere reaſon and argument. But that degree of eloquence which gains the admiration of mankind, and properly denominates one an orator, is never found without warmth or paſſion. Paſſion, under due reſtraint, exalts all the human powers; it renders the mind infinitely more enlightened, more penetrating, more vigorous and maſterly, than it is in its calm moments. A man, actuated by a ſtrong paſſion, becomes much greater than he is at other times: he is conſcious of more ſtrength and force; he utters greater ſentiments, conceives higher deſigns, and executes them with a boldneſs and a facility, of which, on other occaſions, he could not think himſelf capable. But the power of paſſion is particularly felt with reſpect to perſuaſion. Almoſt every man, in paſſion, is eloquent. Then, he is at no loſs for words and arguments. He tranſmits to others, by a ſort of contagious ſympathy, the warm ſentiments which he feels: his looks and geſtures are all perſuaſive; and Nature here ſhews herſelf infinitely more powerful than art. This is the foundation of that juſt and noted rule; "Si vis me flere, dolendum eſt primum ipſi tibi." Admitting this principle, that all high eloquence flows from paſſion, we are able to account for the univerſally acknowledged effect of enthuſiaſm, or warmth of any kind, in public ſpeakers, in affecting their audience. Hence alſo we perceive why laboured declamation, and affected ornaments of ſtyle, which ſhew the mind to be cool and unmoved, are ſo inconſiſtent with perſuaſive eloquence; and alſo why all ſtudied prettineſſes, in geſture or pronunciation, detract ſo much from the weight of a ſpeaker. Hence alſo a diſcourſe that is read, moves us leſs than one that is ſpoken, as having leſs the appearance of coming warm from the heart. Hence it is, that to call a man cold is the ſame thing as to ſay, that he is not eloquent. Hence a ſceptical man, who is always in ſuſpence and feels nothing ſtrongly, and a cunning mercenary man, who is ſuſpected rather to aſſume the appearance of paſſion than to feel it, have ſo little power over men [illegible] ſpeaking. Hence, in fine, the neceſſity of being, and being believed to be, diſintereſted, and in earneſt, in order to perſuade.

In reference to the queſtion, whether it be conſiſtent with firmneſs and candour in a public ſpeaker to addreſs the paſſions of his audience, Dr. Blair obſerves, that this is a queſtion about words alone, and which common ſenſe eaſily determines. In enquiries after truth, in matters of ſimple information and inſtruction, the paſſions have no concern, and all attempts to move them are abſurd. Whereas, conviction is the object we are to apply only to the underſtanding. It is by argument and reaſoning that one man attempts to ſatisfy another of what is true, or right, or juſt; but if perſuaſion be the object, the caſe is changed. In all that relates to practice, there is no man who ſeriouſly means to perſuade another but addreſſes himſelf more or leſs to his paſſions; for this plain reaſon, that paſſions are the giant ſprings of human action. The moſt virtuous man, in treating of the moſt virtuous ſubject, ſeeks to touch the heart of him to whom he ſpeaks; and makes no ſcruple to raiſe his indignation at injuſtice, or his pity to the diſtreſſed, though pity and indignation be paſſions. Blair's Lectures, vol. ii. See PATHETIC.

PASSION, in *Heraldry*. *Croſs of Paſſion* is a croſs thus called, becauſe in ſhape of that on which our Saviour ſuffered; *i. e.* not croſſed in the middle, but nearer the top; with arms ſhort, in proportion to the length of the ſhaft.

PASSION *of our Lord Jeſus Chriſt*, *Order of*, an order of knighthood ſaid to have been inſtituted on the concluſion of the peace between Richard II. king of England, and the French king Charles VI., with a view of protecting and aſſiſting ſuch Chriſtians as were oppreſſed in the Holy Land. The badge of the order was "a red croſs four fingers' broad, edged with gold, and charged on the centre with a cartouche, or octagon ſhield, thereon a holy lamb," which croſs was worn by the knights, ſewed on their habit, which was white.

PASSION, *Noble*, *Order of the*, was inſtituted in the year 1704, by John George, duke of Saxony Weiſenfels, with a view to inſpire the nobility of his dominions with great and elevated ſentiments. The enſign of the order is "a broad white ribband edged with gold," worn ſcarfwiſe from right to left; pendent to which is a medal of gold; and on it "a ſtar of eight points, charged with a croſs gules, ſurrounded with an oval blue, thereon the letters J. G. in a cypher in gold;" the ground of the medal without the ſtar enamelled white, with theſe words "J'AIME L'HONNEUR QUE VIENT PAR LA VERTU:" on the reverſe are the arms of the principality of Querfurt, with this inſcription, "SOCIÉTÉ DE LA NOBLE PASSION, INSTITUÉE PAR J. G. D. D. S. Q. 1704."

PASSION-*Flower*, in *Botany*. See PASSIFLORA.

PASSION *Week*, the week next preceding Eaſter.

It is thus called from our Saviour's paſſion, *i. e.* his crucifixion, &c. which happened on the Friday of this week, now called *Good Friday*.

PASSIONATO, in the *Italian Muſic*, intimates that the part to which it is annexed ought to be played paſſionately, or in a moving and affecting manner.

PASSIONEI, DOMINICO, cardinal, in *Biography*, was born of a noble family, at Foſſombrone, in the duchy of Urbino, in the year 1682. He was educated at the Clementine college in Rome, and at this early period of life he began to collect the copious library which he afterwards rendered ſo uſeful to men of learning. In 1706 he viſited Paris, and contracted an acquaintance with Mabillon and Montfaucon, and other eminent ſcholars of this metropolis. In 1708 he went to Holland, in the character of a negociator. The belligerent powers in the Spaniſh ſucceſſion-war, had ſent deputies thither to treat for peace; and pope Clement XI., who could not have a nuncio in that country, ſecretly commiſſioned Paſſionei to take care of the intereſts of the Holy See. His efforts were ſucceſsful in procuring the evacuation of the papal territories by the German troops. In the year 1713, he was amply recompenſed for his labours, by the poſts of privy chamberlain, and domeſtic prelate to that pope, and afterwards by other high official ſituations. He was employed in legations as well by Clement XI. as by his ſucceſſors. Benedict XIV. entruſted him with the moſt important affairs, and in 1755 nominated him to the office of librarian of the Vatican. He exerted himſelf in augmenting the riches of this celebrated collection, and extended its uſefulneſs to literature by his correſpondences. The Academy of Inſcriptions and Belles Lettres choſe him the ſame year one of the foreign aſſociates. He died of an apoplexy in 1761. He was juſtly regarded as a great benefactor to learning, by the generous aſſiſtance that he afforded to its votaries, and the liberal communication of his literary treaſures. As an author, he joined Fontanini in a reviſion of the "Liber diurnus Romanorum Pontificum," and he wrote ſome ſcriptural paraphraſes, commentaries, and tranſlations, and a funeral oration on prince Eugene. He alſo compiled the "Acta Legationis Helveticæ," which has been found a uſeful guide to ſucceeding nuncios. He had a nephew Benedict Paſſionei, who publiſhed at Lucca, in 1765, a volume containing all the Latin and Greek inſcriptions collected by this cardinal.

PASSIR, in *Geography*, a ſea-port town, on the E. coaſt of the iſland of Borneo, on a river which runs into the ſtraits of Macaſſar, about 45 miles from its mouth, with two fathoms water. The town contains about 300 wooden houſes, on the N. ſide of the river, moſt of them inhabited by Buggueſs merchants, who carry on a conſiderable trade in opium, Hindooſtan piece-goods, ſpices, gold, wax, &c. The houſe or wooden fort of the ſultan, a Malay prince, is ſituated on the S. ſide, a very little way from the river. S. lat. 1° 57′. E. long. 116° 10′.

PASSIVE, a term of relation, implying a thing to ſuffer, or undergo the action of ſome other; which, in reſpect hereof, is denominated *active*.

In all generations, philoſophers conceive an active power, and a paſſive.

In civil life, we ſay, ſuch a perſon, in ſuch an election, has both an active voice, and a paſſive, *i. e.* he is both capable of electing, and of being elected.

Some alſo uſe the term *paſſive debt*, for a debt which we owe another, in contradiſtinction to an active debt, which is owing to us.

The ancient chemiſts divide their principles, or elements, into active and paſſive. Paſſive are ſuch as have no active force inherent in themſelves, and which only act by being joined with ſome of the others.

Passive *Obedience*, a doctrine held by the nonjurors, or high-churchmen, who maintained, that it was never lawful for the people, under any provocation or pretext whatever, to reſiſt their ſovereign. This doctrine has been warmly oppoſed by many, who think it both lawful and neceſſary, in certain circumſtances, and in caſes of an urgent and momentous nature, to reſiſt the prince for the happineſs of the people. In the preſent advanced ſtate of civil and religious liberty, this doctrine is now almoſt exploded in our country.

Passive *Qualities.* See Quality.

Passive *Underſtanding.* See Understanding.

Passive *Prayer*, in the *Language of Myſtic Divines*, is a total ſuſpenſion or ligature of the intellectual faculties, in virtue whereof, the ſoul remains, of itſelf, and as to its own power, impotent with regard to the producing of any effects. See Prayer.

The paſſive ſtate, ſays Fenelon, is only paſſive in the ſame ſenſe as contemplation is ſo, *i. e.* it does not exclude peaceable, diſintereſted acts, but only unquiet ones, or ſuch as tend to our own intereſt.

In the paſſive ſtate, the ſoul has not properly any activity, any ſenſation of its own: it is a mere infinite flexibility of the ſoul, to which the feebleſt impulſe of grace gives motion.

Passive, in *Grammar*, denotes a ſecond voice or inflexion of verbs, which, of active, become paſſive, by aſſuming, in the modern languages, new auxiliary verbs; and, in the ancient, by new terminations. See Verb, Voice. &c.

The Engliſh verbs become paſſive, by taking the auxiliary verb *I am*, in lieu of *I have*, with which the active are conjugated; the French, by *Je ſuis*, in lieu of *J'ay;* the Italian, by *Io ſo*, for *Io ho*, &c.

Latin verbs become paſſive, by changing their terminations; as *amor*, for *amo*, &c. *amari*, for *amare*, &c.

Engliſh verbs paſſive are nothing elſe, in effect, but the verb *I am* in all its inflexions, joined to the particle paſſive; as I am praiſed, in Latin, *laudor;* in French, *Je ſuis loué;* I have been praiſed, *J'ay été loué, laudatus ſum*, &c.

Mr. Harris, who conſiders all verbs, that are ſtrictly ſo called, as energies, diſtinguiſhes active and paſſive verbs in the following manner. Every energy, he ſays, is naturally ſituate between two ſubſtantives, an energizer, which is active, and a ſubject, which is paſſive. Hence then, if the energizer lead the ſentence, the energy follows its character, and becomes what we call a verb active. (See Active.) Thus we ſay, *Brutus amat, Brutus loves.* On the contrary, if the paſſive ſubject be principal, it follows the character of this too; and becomes what we call a verb paſſive. Thus we ſay, *Portia amatur, Portia is loved.*

Passive, *Neuter*, is a verb that has a paſſive conjugation, but a neuter ſignification.

Of theſe there are a very ſmall number in Latin, more in French, and fewer in Engliſh; as, I am entered, *ingreſſus ſum, Je ſuis entré*, &c.

Grammarians are frequently miſtaken here, taking verbs for neuters paſſives, which, in effect, are actives, and only differ in that they act on themſelves, by adding the pronoun perſonal; and which, on that footing, ſhould rather be neuters active than neuters paſſive.

Some admit of no genuine paſſive verbs in the modern tongues; ſuch we mean as anſwer to the notion of paſſives in the ancient, where all is done by different terminations. On which footing, there ſhould be none but actives paſſive, and neuters paſſive.

Passive *Vaſſalage.* See Vassalage.

PASSO, in *Muſic.* See Passage.

Passo, in *Geography*, a town of Portugal, in the province of Beira; ſeven miles E.S.E. of Lamego.

PASSODE' Moia, a town of Naples, in Capitanata; 17 miles W.S.W. of Vicſta.

PASSOVER, ϖασχα, a ſolemn feaſt, celebrated among the Jews, on the fourteenth day of the moon next after the vernal equinox, or the 14th day of the firſt month, that is, of the eccleſiaſtical year, which commenced with the flight of the Iſraelites out of Egypt; and which had the two names of Abib and Niſan. On the 14th day at even, the paſchal lamb was to be killed and eaten, and from thence the feaſt was to be kept ſeven days, till the 21ſt. Exod. xii. 6. 8. 15. Lev. xxiii. 5, 6.

This feaſt was called, by the ancient Latins and Greeks, paſcha, not from ϖασχω, *I ſuffer*, as Chryſoſtom, Irenæus, and Tertullian, weakly imagine, but from the Hebrew פסח, *peſach, paſſage, leap;* the deſign of the feaſt being to commemorate the deſtroying angel's *paſſing over* the houſes of the Iſraelites, when he entered in, and deſtroyed the firſt-born in thoſe of the Egyptians. Exod. xii. 27.

Many erroneouſly imagine, that it was in memory of their paſſing the Red ſea that the paſſover was inſtituted; though it is certain the feaſt was held, and had its name, before the Iſraelites took a ſtep of their way out of Egypt, and conſequently ſeveral days before their paſſing the Red ſea.

Beſides the paſſover celebrated on the fourteenth of the firſt month, there was a ſecond paſſover held on the fourteenth of the ſecond month after the equinox, inſtituted by God in favour of travellers, and ſick perſons, who could not attend at the firſt, nor be at Jeruſalem on the day.

The Greeks, and even ſome of the Catholic doctors, and ſeveral conſiderable critics, from the thirteenth, eighteenth, and nineteenth chapters of St. John, take occaſion to conclude, that Jeſus anticipated the day marked for the paſſover in the law; but the authority of three evangeliſts ſeems to evince the contrary. See Whitby's Diſſertation on this ſubject, in an appendix to the fourteenth chapter of St. Mark.

F. Lamy is of opinion, that he did not attend at the paſſover the laſt year of his life; which ſentiment has drawn upon him abundance of oppoſers.

F. Hardouin maintains, that the Galileans celebrated the paſſover on one day, and the Jews on another.

Some divines have maintained, and not without a conſiderable degree of probability, that the paſſover had a typical reference to Chriſt. Accordingly the apoſtle (1 Cor. v. 7.) calls him "our paſſover." Godwin and Witſius have ſtated a variety of particulars, in which this type reſembles its antitype; but in accommodating alluſions of this kind, the imagination is too apt to miſlead the judgment.

PASSOURA, in *Botany*, a genus of Aublet's, of which the flower is totally unknown. He deſcribes the fruit as follows. "*Peric.* Capſule oblong, triangular, of one cell, and three valves. *Seeds* orbicular, three affixed to a longitudinal partition in the middle of each valve." No account is given of the origin of the name. The *tree*, which is a native of the Timoutou woods in Guiana and bore fruit in May, is deſcribed by Aublet as having a *trunk* ſixteen or eighteen feet high, branched to the ſummit. *Leaves* oppoſite, ſtalked, ovate, acute, ſmooth, entire. *Fruit* forming a terminal ſpike, yellowiſh. *Seeds* ſpherical, green.

Juſſieu has ſuggeſted, that it is very cloſely allied to

Riana, Aubl. Guian. t. 94, in which caſe it muſt be claſſed in *Pentandria Monogynia*.

PASS-PAROLE. See Pass-*Parole*.

PASS-PAR-TOUT, a maſter-key; or key that opens indifferently ſeveral locks belonging to the ſame lodge or apartment.

PASSPORT, a licence or letter from a prince or governor, granting liberty and ſafe-conduct to travel, enter, and go out of his territories, freely, and without moleſtation.

The paſſport is properly given to friends, and the ſafe-conduct to enemies.

For the proviſion by Magna Charta, in favour of merchandize, ſee Merchant.

The violation of ſafe-conducts, or paſſports, expreſsly granted by the king or his ambaſſadors to the ſubjects of a foreign power in time of mutual war, or committing acts of hoſtility againſt ſuch as are in amity, league, or truce with us, who are here under a general implied ſafe-conduct, are breaches of the public faith, without which there can be no intercourſe or commerce between one nation and another; and ſuch offences may, according to the writers upon the law of nations, be a juſt ground of a national war. And it is enacted by the ſtatute 31 Hen. VI. cap. 4. now in force, that if any of the king's ſubjects attempt, or offend, upon the ſea, or in any port within the king's obeyſance, or againſt any ſtranger in amity, league, or truce, or under ſafe-conduct, and eſpecially by attacking his perſon, or ſpoiling him, or robbing him of his goods; the lord chancellor, with any of the juſtices of either of the king's bench or common pleas, may cauſe full reſtitution and amends to be made to the party injured.

Paſquier takes paſſport to have been introduced for *paſſe-par-tout*. Balzac mentions a very honourable paſſport given by an emperor to a philoſopher in theſe terms: "If there be any one on land, or ſea, hardy enough to moleſt Potamon, let him conſider whether he be ſtrong enough to wage war with Cæſar."

Passport is alſo uſed for a licence, granted by a prince, for the importing or exporting merchandizes, moveables, &c. without paying the duties.

Merchants ſometimes procure ſuch paſſports for certain kinds of commodities; and they are always given to ambaſſadors and miniſters, for their baggage, equipage, &c.

Passport is alſo a licence obtained for the importing or exporting of merchandizes deemed contraband, and declared ſuch by tariffs, &c., as gold, ſilver, precious ſtones, ammunition of war, horſes, corn, wool, &c. upon paying duties.

Passport, or *Paſs*, in *Sea Language*, denotes a permiſſion granted by any ſtate to navigate in ſome particular ſea, without hindrance or moleſtation from it. It contains the name of the veſſel, and that of the maſter, together with her tonnage, and the number of her crew, certifying that ſhe belongs to the ſubjects of a particular ſtate, and requiring all perſons at peace with that ſtate to ſuffer her to proceed on her voyage without interruption.

PASSULATUM, a name given by the ancients to a medicine compoſed of the pulp of raiſins paſſed through a ſieve, ſometimes alone, ſometimes with other ingredients.

PASSUM, a name given by the ancients to a kind of wine made of grapes, which had been ſuffered to remain on the vines till much withered and dried up: it is hence uſed alſo by ſome of the moderns to expreſs raiſin wine.

PASSUMACAN Bay, in *Geography*, a bay on the eaſt coaſt of the iſland of Luçon; 15 miles S. of cape Engano.

PASSUMPSICK, a ſmall river of America, in Vermont, which, purſuing a ſouthern courſe, diſcharges itſelf into Connecticut river, below the Fifteen Mile Falls, in the town of Barnet.

PASS-VOLANT, or Passe-volant. See Faggot.

In France, the paſſe-volants are condemned to be marked on the cheek with a fleur-de-lis.

PASSYUNK, in *Geography*, a town of America, in Philadelphia county, Pennſylvania, containing 884 inhabitants.

PASTACA, a river of Quito, which riſes near Riobamba, and runs into the Maragnon, 50 miles W. of St. Joachim de Omaguas.

PASTE, in *Cookery*, a ſoft compoſition of flour, wrought up with proper fluids, as water, milk, or the like, to ſerve for caſes or coffins, therein to bake meats, fruits, &c.

Paſte is the baſis or foundation of pies, tarts, patties, paſties, and other works of paſtry.

Paste is alſo uſed in *Confectionary*, &c. for a preparation of ſome fruit, made by beating the pulp thereof with ſome fluid, or other admixture, into a ſoft pappy conſiſtence, ſpreading it into a diſh, and drying it with ſugar, till it becomes as pliable as an ordinary paſte. See Confects.

It is uſed occaſionally for making the cruſts and bottoms of pyes, &c.

Thus, with proper admixtures, they make almond paſtes, apple paſtes, apricot paſtes, cherry, currant, lemon, plum, peach, and pear paſtes.

Paste is alſo uſed for a preparation of wheaten flour, boiled up, and incorporated with water; uſed by various artificers, as upholſterers, ſaddlers, bookbinders, &c. inſtead of glue or ſize, to faſten or cement their cloths, leathers, papers, &c.

When paſte is uſed by bookbinders, or for paper-hangings to rooms, it is uſual to mix a fourth, fifth, or ſixth, of the weight of the flour of powdered reſin; and where it is wanted ſtill more tenacious, gum arabic, or any kind of ſize, may be added. Paſte may be preſerved, by diſſolving a little ſublimate, in the proportion of a dram to a quart, in the water employed for making it, which will prevent not only rats and mice, but any other kinds of vermin and inſects, from preying upon it.

Pastes, in the *Glaſs Trade*, a ſort of compoſition of the glaſs kind, made from calcined cryſtal, lead, and metallic preparations, to imitate the ſeveral natural gems. Theſe are no way inferior to the native ſtones, when carefully made and well poliſhed, in brightneſs and tranſparence, but want their hardneſs.

The general rules to be obſerved in making them are theſe: 1. That all the veſſels in which they are made are firmly luted, and the lute left to dry before they are put into the fire. 2. That ſuch veſſels are choſen for the work as will bear the fire well. 3. That the powders be prepared on a porphyry ſtone, not in a metal mortar, which would communicate a tinge to them. 4. That the juſt proportion in the quantities of the ſeveral ingredients be nicely obſerved. 5. That the materials be all well mixed; and if not ſufficiently baked the firſt time, to be committed to the fire again, without breaking the pot; for, if this be not obſerved, they will be full of bliſters and air-bladders. 6. That a ſmall vacuity be always left at the top of the pot, to give room to the ſwelling of the ingredients.

To make a paſte of extreme hardneſs, and capable of all the colours of the gems, with great luſtre and beauty, take of prepared cryſtal ten pounds; ſalt of polverine, ſix pounds; ſulphur of lead, two pounds: mix all theſe well together, into a fine powder; make the whole, with common water, into a hard paſte; and make of this paſte ſmall cakes, of about three ounces weight each, with a hole in them, made in their middle: dry theſe in the ſun, and afterwards calcine them in the ſtraighteſt part of a potter's furnace; after this powder them, and levigate them into a perfect fineneſs on a porphyry, and ſet this powder in pots in a glaſs furnace to purify for three days; then caſt the whole into water, and afterwards return it into the furnace, where let it ſtand fifteen days; in which time all foulneſs and bliſters will diſappear, and the paſte will greatly reſemble the natural jewels. To give this the colour of the emerald, add to it braſs thrice calcined; for a ſea-green, braſs ſimply calcined to redneſs; for a ſapphire, add zaffer, with manganeſe; and for a topaz, manganeſe and tartar. All the gems are thus imitated in paſte, by the ſame way of working as the making of the coloured glaſſes; and this is ſo hard, that they very much approach to the natural gems.

The colours in all the counterfeit gems, made of the ſeveral paſtes, may be made deeper or lighter, according to the works for which the ſtones are deſigned; and it is a neceſſary general rule, that ſmall ſtones for rings, &c. require a deeper colour, and large ones a paler. Beſides the colours made from manganeſe, verdigris, and zaffer, which are the ingredients commonly uſed, there are other very fine ones, which care and ſkill may prepare: very fine red may be made from gold, and one not much inferior to that from iron; a very fine green from braſs or copper, and a ſky-colour from ſilver; and a much finer one from the common ſmall garnets of Bohemia, which are of little value. The gems alſo afford glorious colours like their own.

The fine blue from ſilver is, probably, only from the ſmall quantity of copper uſed in the alloy.

A very ſingular and excellent way of making the paſte to imitate the coloured gems is this: take a quantity of ſaccharum ſaturni, or ſugar of lead, made with vinegar in the common way; ſet it in ſand, in a glaſs-body well luted from the neck downwards; leave the mouth of the glaſs open, and continue the fire twenty-four hours; then take out the ſalt, and if it be not red, but yellowiſh, powder it fine, and return it into the veſſel, and keep it in the ſand-heat twenty-four hours more, till it becomes as red as cinnabar. The fire muſt not be made ſo ſtrong as to melt it, for then all the proceſs is ſpoiled. Pour diſtilled vinegar on this calcined ſalt, and ſeparate the ſolution from the dregs: let the decanted liquor ſtand ſix days in an earthen veſſel, to give time for the finer ſediment to ſubſide: filter this liquor, and evaporate it in a glaſs body, and there will remain a moſt pure ſalt of lead; dry this well, then diſſolve it in fair water; let the ſolution ſtand ſix days in a glazed pan; let it ſubſide, then filter the clear ſolution, and evaporate it to a yet more pure white and ſweet ſalt; repeat this operation three times; put the now perfectly pure ſalt into a glaſs veſſel, ſet it in a ſand-heat for ſeveral days, and it will be calcined to a fine impalpable powder, of a lively red. This is called the ſulphur of lead. Neri's Art of Glaſs.

Take all the ingredients as in the common compoſition of the paſtes of the ſeveral colours, only inſtead of red lead, uſe this powder, and the produce will well reward the trouble of the operation, as experience has often proved.

A paſte proper for receiving colours may be readily made by well pounding and mixing ſix pounds of white ſand, cleanſed, three pounds of red lead, two pounds of purified pearl-aſhes, and one pound of nitre. A ſofter paſte may be made, in the ſame manner, of ſix pounds of white ſand cleanſed; red lead, and purified pearl-aſhes, of each three pounds; one pound of nitre, half a pound of borax, and three ounces of arſenic. For common uſe, a pound of common ſalt may be ſubſtituted for the borax. This glaſs will be very ſoft, and will not bear much wear, if employed for rings, buckles, or ſuch imitations of ſtones, as are expoſed to much rubbing; but for ear-rings, ornaments worn on the breaſt, and thoſe little uſed, it may laſt a conſiderable time.

In order to give paſte different colours, the proceſs is as follows.

PASTE *reſembling amethyſt.*—Take ten pounds of either of the compoſitions deſcribed under *Colouring of* GLASS; one ounce and a half of manganeſe, and one dram of zaffer; powder and fuſe them together. See AMETHYST.

PASTE *perfectly black.*—Take ten pounds of either of the compoſitions juſt referred to, one ounce of zaffer, ſix drams of manganeſe, and five drams of iron, highly calcined; and proceed as before.

PASTE, *Blue.*—Take of the ſame compoſition ten pounds; of zaffer, ſix drams; and of manganeſe, two drams; and proceed as with the foregoing.

PASTE *reſembling the chryſolite.*—Take of either of the compoſitions for paſte above deſcribed, prepared without ſalt-petre, ten pounds, and of calcined iron five drams; and purſue the ſame proceſs as with the reſt. See CHRYSOLITE.

PASTE *reſembling the red cornelian.*—Take of the compoſitions mentioned under *Colouring of* GLASS, two pounds; of glaſs of antimony, one pound; of the calcined vitriol, called ſcarlet ochre, two ounces; and of manganeſe, one dram. Fuſe the glaſs of antimony and manganeſe with the compoſition; then powder them, and mix them with the other, by grinding them together, and fuſe them with a gentle heat.

PASTE *reſembling white cornelian.*—Take of the compoſition juſt referred to, two pounds; and of yellow ochre, well waſhed, two drams; and of calcined bones, one ounce. Mix them and fuſe them with a gentle heat.

PASTE *reſembling the diamond.*—Take of the white ſand, ſix pounds; of red lead, four pounds; of pearl-aſhes, purified, three pounds; of nitre, two pounds; of arſenic, five ounces; and of manganeſe one ſcruple. Powder and fuſe them.

PASTE *reſembling the eagle-marine.*—Take ten pounds of the compoſition under GLASS; three ounces of copper, highly calcined with ſulphur; and one ſcruple of zaffer. Proceed as before.

PASTE *like emerald.*—Take of the ſame compoſition with the laſt, nine pounds; three ounces of copper, precipitated from aquafortis, and two drams of precipitated iron. See EMERALD.

PASTE *like garnet.*—Take two pounds of the compoſition under GLASS; two pounds of the glaſs of antimony, and two drams of manganeſe. For vinegar garnet, take of the compoſition for paſte, deſcribed in this article, two pounds; one pound of glaſs of antimony, and half an ounce of iron, highly calcined; mix the iron with the uncoloured paſte, and fuſe them; then add the glaſs of antimony, powdered, and continue them in the heat till the whole is incorporated. See GRANITE.

PASTE, *gold*, or *full yellow colour.*—Take of the compoſition for paſte ten pounds, and one ounce and a half of iron ſtrongly calcined; proceeding as with the others.

PASTE, *deep purple.*—Take of either of the compoſitions for paſte ten pounds; of manganeſe, one ounce; and of zaffer, half an ounce.

Paste, *reſembling ruby.*—Take one pound of either of the compoſitions for paſte, and two drams of *calx caſſii*, or precipitation of gold by tin; powder the paſte, and grind the calx of gold with it in a glaſs, flint, or agate mortar, and then fuſe them together. A cheaper ruby paſte may be made with half a pound of either of the above compoſitions, half a pound of glaſs of antimony, and one dram and a half of the calx of gold; proceeding as before.

Paste *reſembling ſapphire.*—Take of the compoſition for paſte, ten pounds; of zaffer, three drams and one ſcruple; and of the calx caſſii one dram. Powder and fuſe them. Or the ſame may be done, by mixing with the paſte one-eighth of its weight of ſmalt. See Sapphire.

Paste *like topaz.*—Take of the compoſition under Glass ten pounds, omitting the ſalt-petre; and an equal quantity of the gold-coloured hard glaſs. Powder and fuſe them. See Topaz.

Paste *like turquoiſe.*—Take of the compoſition for *blue* paſte, already deſcribed, ten pounds; of calcined bone, horn, or ivory, half a pound. Powder and fuſe them.

Paste, *opaque white.*—Take of the compoſition for paſte, ten pounds; and one pound of calcined horn, ivory, or bone; and proceed as before.

Paste, *ſemi-tranſparent white, like opal.* See Opal.

Paste *for angling.*—There are many receipts which particular people are fond of; but the following compoſition ſeems one of the beſt: take equal quantities of freſh butter and ſheep's ſuet, about half as much of good old cheeſe, and the crum of an old ſtale white loaf, as much as will, when they are all beaten in a a mortar, make the whole into a paſte; add a little wool or tow, that it may keep the better on the hook. The place ſhould be baited with blood and grains over night, and in the morning this paſte will be found an excellent bait. See Fishing.

Pastes *for birds*, a general ſort of food made by the people who breed up birds from the neſt, and ſuiting almoſt all kinds.

It is made in the following manner: grind half a peck of large beans, well dried, to a very fine meal; take of this meal two pounds; of the beſt ſweet almonds blanched, one pound; theſe muſt be well beat together in a mortar, till perfectly mixed; then to a quarter of a pound of freſh butter, in a ſauce-pan well tinned, add the paſte, and mix all well together over a charcoal fire, ſtirring it as it boils with a wooden ſpoon; then add the yolks of four eggs, and a little ſaffron, and finally a ſmall quantity of the fineſt virgin honey. When theſe are well incorporated, and are tolerably thin and without lumps, the whole is to be poured into a colander, made with ſuch holes as will let the compoſition paſs through: if any of it is ſo ſtiff that it will not go through, it muſt be beat again in a mortar, and by that means made fit to paſs the holes, and mix with the reſt. When the whole is done, it is to be put into a pot, and a little clarified honey being melted and poured on it, it will keep very well for ſix months or longer.

PASTEBOARD, a kind of thick paper, formed of ſeveral ſheets paſted together.

There is alſo a coarſe kind of paſteboard, made of old paper, and old paſteboard, beaten in a mortar with water, and reduced into a kind of pulp; to which is added a little paſte, to give the maſs a conſiſtence, after which it is formed into a mould, and, to finiſh it, laid in a preſs, to ſqueeze out all the water, and reduce it to its proper thickneſs.

Each kind is diſtinguiſhed by numeroes, which expreſs the fineneſs and value: the fineſt is covered on both ſides with a very white ſmooth paper; others only on one ſide; and others on both ſides with common paper.

The chief uſe of paſteboard is in the binding of books, and the making of letter-caſes, hat-caſes, gloves, &c. See Book-Binding.

For the duty on paſteboard, ſee Paper.

PASTEH, in *Geography*, a town of Aſiatic Turkey, in the province of Diarbekir; 56 miles W.N.W. of Diarbekir.

PASTEL. See Pastil.

PASTERN of a horſe, the diſtance between the fetlock or joint next the foot and the coronet of the hoof.

This part ſhould be ſhort, eſpecially in the middle-ſized horſes; becauſe long paſterns are weak, and cannot ſo well endure travel.

Pastern *Joint*, is the joint above the paſtern.

The paſtern joint, after travelling, is very apt to be crowned, *i. e.* to have a ſwelling round it, beneath the ſkin, in form of a circle, a third of an inch broad.

PASTICCIO, literally means, in Italian, a pie or paſty; but in muſic implies an opera compoſed of detached airs by different compoſers, frequently introduced without any connection with the drama, character, or ſituation of the ſinger.

PASTIL, or Pastel, among *Painters*, &c. a ſort of paſte, made of ſeveral colours, ground up with gum-water, either together or ſeparately, in order to make crayons to paint with on paper or parchment. See Crayon.

Pastil, *Paſtillus*, is alſo uſed for a dry compoſition, yielding a fragrant ſmell when burnt in a perfuming pan, to clear and ſcent the air of a chamber.

It is compoſed of odorous reſins, mixed with aromatic woods or drugs pulveriſed, and incorporated with mucilages of gum tragacanth. Some call theſe compoſitions oſſelets of Cyprus.

There are alſo paſtils for the mouth, chewed to procure a ſweet breath. Theſe have ſeveral names, and conſiſt of ſeveral preparations, as muſcadines, conſerves, &c.

Pastil, or *Paſtil*, is ſometimes uſed for the plant otherwiſe called *woad*.

Pastil, in *Confectionary*, is a preparation of ſugar with lemon-water, &c. boiled up with gum-water, ſtrained, beat up, and, by the addition of more dry ſugar, worked into a pliable paſte, and thus formed into round or oblong figures, and dried in a ſtove. See Lozenge.

PASTINACA, in *Botany*, ſaid, by ſome authors, to be derived from *paſco*, to feed, or from *paſtus*, a paſture, on account of the nouriſhing qualities of its roots which are eaten by the poor. Linnæus rather conſidered the name as derived from *paſtinum*, a forked tool, uſed in digging or planting vineyards, which the root of *Paſtinaca* reſembles. Linn. Gen. 144. Schreb. 194. Willd. Sp. Pl. v. 1. 1465. Mart. Mill. Dict. v. 3. Sm. Fl. Brit. 328. Prodr. Fl. Græc. v. 1. 202. Ait. Hort. Kew. ed. 2. v. 2. 157. Tournef. t. 170. Juſſ. 219. Lamarck Illuſtr. t. 206. Gærtn. t. 21.—Claſs and order, *Pentandria Digynia*. Nat. Ord. *Umbellatæ*, Linn. *Umbelliferæ*, Juſſ.

Gen. Ch. *General umbel* of many rays, flat; *partial* of many rays. *General involucrum* none; *partial* none. *Perianth* obſolete. *Cor. Univerſal*, uniform; flowers all fertile; *partial* of five, lanceolate, involute, undivided petals. *Stam.* Filaments five, capillary; anthers roundiſh. *Piſt.* Germen inferior; ſtyles two, reflexed; ſtigmas obtuſe. *Peric.* Fruit much compreſſed, elliptical, diviſible into two parts. *Seeds* two, elliptical, girt round the margin, nearly flat on both ſides.

Eſſ. Ch. Fruit elliptical, compreſſed almoſt flat. Petals involute, entire. Involucrum neither general nor partial.

1. P. *lucida*. Shining-leaved Parſnep. Linn. Mant. 58. Jacq. Hort. Vind. v. 2. 94. t. 199. Gouan. Illuſtr. 19. t. 11. and 12.—Leaves ſimple, heart-ſhaped, lobed, ſhining, acutely notched.—Native of the ſouth of Europe, eſpecially in the Balearic iſlands. It flowers in June and July.—*Root* biennial, thick, milky. *Stem* upright, rugged, grooved and angular, branched from the bottom, and, according to Gouan, five or ſix feet in height, yielding, when cut, a fœtid, tenacious gum, ſmelling like rue. *Leaves* alternate, on ſtalks, large and handſome; dark green on the upper ſide; much paler, and veiny beneath. In luxuriant ſpecimens they are ſometimes ternate, or even quinate. *Flowers* yellow.—This elegant umbelliferous plant is ſmooth all over, having a ſtrong, unpleaſant taſte and ſmell, which remain unimpaired even after the plant has been dried many years.

2. P. *ſativa*. White Parſnep. Linn. Sp. Pl. 376. Engl. Bot. t. 556. Mart. Ruſt. t. 83.—Leaves ſimply pinnate, downy beneath.—Native of Great Britain, and of the ſouth of Europe, on hills, and in the borders of fields, on a calcareous ſoil.—It flowers in July.—*Root* biennial, ſpindle-ſhaped, aromatic, ſweet, but acrid. *Stem* three feet high, erect, branched, angulated, furrowed, roughiſh. *Leaves* pinnate; leaflets from five to nine, cut or ſerrated, the terminal one three-lobed. *Flowers* ſmall, yellow, in terminal, ſolitary, erect, roughiſh umbels of many rays. *Fruit* large, elliptical, flat, ribbed, ſmooth, light brown when ripe.

The common garden parſnep is a cultivated variety of this ſpecies, with larger, ſmoother leaves, and a mild eatable root.—The highly ſaccharine juice of this plant is found to render it exceedingly nutritious food for various kinds of animals. The roots are ſweeter than carrots, and Gerarde ſays, that "a good and pleaſant food or bread may be made of them." Nevertheleſs, they diſagree with ſome ſtomachs.

3. P. *Opopanax*. Rough Parſnep. Linn. Sp. Pl. 376. Gouan. Illuſtr. 19. t. 13, 14. Woodv. Med. Bot. v. 2. 309. t. 113.—Leaves pinnate; leaflets gaſhed at the baſe in front.—Native of the eaſt of the ſouth of Europe, flowering in June and July.—*Root* perennial, thick, fleſhy, tapering. *Stalk* ſeven or eight feet high, ſtrong, branched, rough towards the bottom. *Leaves* pinnate, compoſed of many pairs of oblong, ſerrated veined leaflets. *Flowers* ſmall, yellow, in terminal, flat umbels.

This ſpecies has long held a diſtinguiſhed place in the Materia Medica, as affording the gum-reſin called *Opopanax*.

Woodville ſays the plant bears the cold of our climate very well, but it is only in the warm regions of the Eaſt, that the juice concretes into the appearance under which we have it, imported from Turkey and the Eaſt Indies, *viz.* "in little round drops or tears, more commonly in irregular lumps, of a reddiſh-yellow colour, on the outſide with ſpecks of white, internally of a paler colour, and frequently variegated with large white pieces."

We have already mentioned that *Laſerpitium Chironium* of Linnæus is probably the ſame plant with this. See LASERPITIUM.

PASTINACA, in *Gardening*, contains plants of the herbaceous eſculent kind, of which the ſpecies cultivated are, the common parſnep (P. ſativa); and the rough parſnep (P. opopanax).

The garden or cultivated variety of this ſpecies has ſmooth leaves, of a light or yellowiſh-green colour, in which it differs from the wild plant: the ſtalks alſo riſe higher, and are deeper channelled: the peduncles are much longer, and the flowers of a deeper yellow colour: the roots are ſweeter than thoſe of the carrots, and are much eaten by thoſe who abſtain from animal food in Lent, or eat ſalt-fiſh; and are highly nutritious. Hogs are fond of theſe roots, and cattle will eat them with avidity.

Method of Culture.—This in the firſt ſort is eaſily effected by ſowing freſh ſeed in the latter end of February, or beginning of the following month, upon a bed prepared in a ſpot of the beſt light, rich, deep ſoil, in one of the moſt open airy quarters of the garden, by being trenched one full ſpade deep at leaſt, or if two the better, provided the depth of good ſtaple admit, that the roots have a due depth of looſe ſoil to run down ſtraight to their full length. And if the ground be previouſly trenched up in rough ridges in winter, eſpecially where ſtiff or wet, and lie expoſed ſome time to the ſun and air, it will be much improved for this purpoſe. At the time of ſowing, the ground ſhould be made level and even on the ſurface, but not raked till after the ſeed is ſown, which ſhould be performed while the ground is freſh ſtirred, or before the ſurface becomes too dry, ſo as, in raking, the clods will readily fall under the rake to bury the ſeed regularly.

And the ſeed ſhould be ſown broad-caſt thinly, either all over the ſurface, or the ground may be divided into four-feet-wide beds, as moſt convenient, but for large quantities the former is the moſt eligible practice. As ſoon as the ſowing is done, if light ground, it is the practice with ſome to tread down the ſeeds evenly, and finiſh with an even good raking, to cover them equally, ſmoothing the ſurface. In about three weeks, the ſeeds begin to germinate, and the plants ſoon appear above ground. When they are two or three inches high, they ſhould be thinned to regular diſtances, and cleaned from weeds; which may be done either by hand or ſmall hoeing; but the latter is preferable for the benefit of the crop, and conſiderably the moſt expeditious: it ſhould generally be performed by a three or four-inch hoe. Dry weather ſhould be choſen for the purpoſe, and the plants cut out to about ten or twelve inches diſtance, as they ſhould have large room, cutting up all weeds as the work proceeds. After this, no more culture is required till the future progreſs of the weeds renders another hoeing neceſſary; and probably another repetition may alſo be required, till the plants are in full leaf, when they cover the ground, and bid defiance to any further interruption from weeds.

In the autumn, about October, the roots will be arrived nearly at their full growth; when the leaves begin to turn yellow and decay, which is a certain ſign of their maturity, they may then be dug up for uſe, as they are wanted.

They may alſo either remain in the ground all winter, and be taken up as wanted, or a quantity may be dug up in autumn, and their tops pared off cloſe, and then buried all winter in ſand, in a ſhed or other dry place, to be ready at all times for uſe: ſome ſhould alſo be left in the ground for ſpring ſervice, as January or the beginning of February, digging them up juſt before they begin to ſhoot, and laying them in the ſand; as by taking them up at this time, it retards their effect for ſhooting, ſo as that they continue in tolerable perfection until the latter end of April or longer.

But in order to have parſneps in due perfection, great care is neceſſary to ſave ſeed only from ſome of the fineſt rooted plants; for which purpoſe, a quantity of the large, long, ſtraight roots ſhould be ſelected, trimming off their leaves, and planting them in rows three feet aſunder, and two diſtant in the lines, about an inch deep over their top; in which method they will ſhoot up ſtrong in ſpring for flowering, and ripen ſeed in the latter end of Auguſt, or early in September; when in a dry day, the umbels of ſeed ſhould be cut off and ſpread upon mats to dry and harden, afterwards thraſhing out the ſeeds, and putting them up in bags for uſe.

And the ſecond ſort may be raiſed, by ſowing the ſeed in the places where the plants are to remain, at the ſame ſeaſon as the above; keeping the plants afterwards properly thinned and clear from weeds.

The firſt is an uſeful eſculent root, that contains a large proportion of nutritious matter; but the latter is chiefly cultivated for affording variety in the borders or other parts of pleaſure-grounds.

Pastinaca *Marina*, in *Ichthyology*, the name of a fiſh, called in Engliſh the *poiſon-fiſh*, *fire-flaire*, or *ſting-ray*. It is one of the flat cartilaginous fiſhes, and ſomething like the common ſkate. It is a ſpecies of the raia, or ray-fiſh, and diſtinguiſhed by Artedi from the other ſpecies, by the name of the ſmooth-bodied ray, with no fins to the tail, but with a long, bony, ſerrated ſpine in it. See Raja *Paſtinaca.*

This fiſh is the τρυγων of Ariſtotle and Oppian, and is called by the modern Italians, *banco*.

Its tail, in which all its poiſon is ſaid to be lodged, is long, ſmooth, and round, with a thorn, or dart, of a finger's length, toothed on each ſide like a ſaw, with the teeth ſtanding upwards, or toward the head. This is placed at the diſtance of about one-third of the length of the tail; and that from this place grows very ſlender, and ends in a very ſlender point. It grows, ſometimes, to ten pounds weight; and when the tail is cut off, is commonly ſold in the markets of Italy, and elſewhere.

Authors give us many remarkable accounts of the poiſon of this fiſh, which it communicates to animals by the ſtroke of its tail. They mention alſo two kinds of it; that is, beſide the ordinary ſpecies, which is ſmooth, another called the *paſtinaca marina aſpera*, which is rough and prickly.

Mr. Pennant obſerves, that there is no credit due to the generally received opinion of its venomous qualities, though even Linnæus has adopted it. The ſpine is the weapon of offence belonging to the fiſh, which is capable of giving a very bad wound, attended with dangerous ſymptoms, when it happens on a tendinous part, or to a perſon with a bad habit of body Pennant's Britiſh Zool. vol. iii. p. 95.

PASTINATION, a term ſometimes uſed in *Agriculture*, for the act of opening, looſening, and preparing the earth for planting.

PASTO, in *Geography*, a town of Peru; 80 miles N.N.E. of Lima.

Pasto, *St Juan de*, a town of South America, in the province of Popayan, capital of a diſtrict, in the viceroyalty of New Granada, containing above 7000 inhabitants; 80 miles S.S.W. of Popayan. N. lat. 1° 15′. W. long. 76 46′.

PASTOPHORI, παστοφοροι, among the ancients, prieſts whoſe buſineſs it was, at ſolemn feſtivals, to carry the ſhrine of the deity, when they were to pray to him for rain, fair weather, or the like.

PASTOPHORIA, in *Antiquity*, the apartments, near the temples, where the paſtophori were lodged.

Clemens Alexandrinus, deſcribing the temples of the Egyptians, ſays, that, after having paſſed through magnificent courts, you are conducted to a temple, which is at the farther end of theſe courts, and then a paſtophorus gravely lifts up the veil, which is the door, to ſhew you the deity within; which is nothing but a dog or a cat, or ſome other animal. Theſe paſtophori alſo ſupported the ſhrine, or niche of theſe ridiculous divinities, when they were carried in proceſſion. Apuleius ſpeaks of the paſtophori that carried the Syrian goddeſs.

In the temple of Jeruſalem there were two courts ſurrounded with galleries, and all round about were ſeveral lodging rooms for the prieſts, to lay up wood, wine, oil, ſalt, meal, ſpices, incenſe, veſtments, valuable veſſels, and proviſions neceſſary for the ſacrifices and lamps, as alſo for the ſupport and maintenance of the prieſts. See 1 Chron. ix. 26, 33. Ezek. xl. 17, 18. 1 Chron. xxvi. 16.

PASTOR, originally ſignifies one that *(paſcit)* feeds. Hence it was anciently uſed for a *ſhepherd*, or *advocate*; and is now appropriated to a *miniſter*, or one that has the cure of ſouls.

Pastor *Piſcis*, in *Ichthyology*, the name of a fiſh of the mullet kind, caught in the American ſeas and rivers, and eſteemed a very well-taſted one.

It is the uſual ſize of our river trout, and not unlike that fiſh in ſhape; its ſcales are large, and of a ſilvery white, and are ranged in the ſame order with thoſe of the perch, with greyiſh lines between the ſeveral arrangements; it has ſeven fins, all very large, eſpecially that on the back, and its tail is remarkably forked; all the fins are white, and the covering of the gills are ſcaly; not bony, as in moſt other fiſhes; whence it has been ſuppoſed to have no gills.

PASTORAL, ſomething that relates to ſhepherds, *paſtores*. The poets repreſent the innocence of a paſtoral life, and paſtoral manners, in the moſt agreeable light. We muſt not imagine them ſo beautiful in nature as in their deſcriptions.

Pastoral, in *Poetry*, denotes a compoſition, the ſubject of which is ſomething in the paſtoral, or at leaſt in rural life, and the perſons ſhepherds, or at leaſt ruſtics.

Moſt authors, ſays Dr. Blair, have indulged the fancy, that becauſe the life which mankind led at firſt was rural, their firſt poetry was therefore paſtoral, or employed in the celebration of rural ſcenes and objects; but he is of opinion that, though it would borrow many of its images and alluſions from thoſe natural objects, with which men were beſt acquainted, the calm and tranquil ſcenes of rural felicity were not the firſt objects which inſpired that ſtrain of compoſition, which we now call poetry. The firſt themes were furniſhed to the bards of every country by objects and events that rouſed men's paſſions; ſuch as the actions of their gods and heroes, their own exploits in war, and the ſucceſſes or misfortunes of their countrymen and friends. What was of a paſtoral kind in their compoſitions was merely incidental. It was not till men had begun to be aſſembled in great cities, after the diſtinctions of rank and ſtation were formed, and the buſtle of courts and large ſocieties was known, that paſtoral poetry aſſumed its preſent form. It was in the court of king Ptolemy, that Theocritus wrote the firſt paſtorals with which we are acquainted, and in the court of Auguſtus, he was imitated by Virgil. Paſtoral poetry, whatever was its origin, is undoubtedly a natural and very agreeable form of compoſition. It recalls to our imagination thoſe gay ſcenes, and pleaſing views of nature, which are commonly the delight of our childhood and youth; and to which, in more advanced life, moſt men recur with pleaſure. It exhibits to us a life, with which we are accuſtomed to aſſociate the ideas of peace, of leiſure, or of innocence; and therefore we readily ſet open our hearts to ſuch repreſentations as promiſe to baniſh from our thoughts the cares of the world, and to tranſport us into calm Elyſian regions. No ſubject, at the ſame time, ſeems to be more favourable to poetry. Amidſt rural objects, nature preſents, on all hands, the fineſt field for deſcription; and nothing appears to flow more, of its own accord, into poetical numbers, than rivers and mountains, meadows and hills, flocks and trees, and ſhepherds void of care. Hence it is, that this ſpecies of poetry has, at all times, allured many readers and excited many writers. Nevertheleſs, there is hardly any ſpecies of poetry more difficult to be carried to perfection, or in which fewer writers have excelled. Paſtoral life is deſcribed by the author now cited in three different ſtates of it; either as it now is, when ſhepherds are reduced to a mean, ſervile, and laborious condition; or ſuch as it may be ſuppoſed to have been, in the more early and ſimple ages, when flocks and herds were numerous, and ſhepherds, though unrefined in their manners, were reſpectable in their ſtation; or ſuch as it never was, nor can be, when to the eaſe, innocence, and ſimplicity of the early ages, we attempt to add the poliſhed taſte and cultivated manners, of modern times. The firſt of theſe ſtates is too groſs and mean, and the laſt too refined and unnatural, to become the ground-work of paſtoral poetry. Theocritus is cenſured for having deviated too much to the firſt extreme: and ſome of the French and Italian writers of paſtorals have erred in making their ſhepherds diſcourſe like courtiers and ſcholars: and in either way a perſon may retain the name, whilſt he wants the ſpirit of paſtoral poetry. He that would ſucceed in this ſpecies of compoſition muſt keep in the middle ſtation between theſe two extremes. The great charm of paſtoral poetry ariſes from the view which it exhibits of the tranquillity and happineſs of a rural life. This pleaſing illuſion the poet muſt be careful to maintain. The true ſpirit of a paſtoral poet is conſpicuouſly diſplayed by Virgil in the following beautiful lines of the firſt eclogue, in which he has brought together as agreeable an aſſemblage of images of rural pleaſure as can any where be found.

"Fortunate Senex! hic inter flumina nota, &c."

"Happy old man! here mid th' accuſtom'd ſtreams
And ſacred ſprings, you'll ſhun the ſcorching beams;
While from yon willow fence, the paſture's bound,
The bees that ſuck their flowery ſtores around,
Shall ſweetly mingle, with the whiſpering boughs,
Their lulling murmurs, and invite repoſe.
While from ſteep rocks the pruner's ſong is heard;
Nor the ſoft cooing dove, thy fav'rite bird,
Meanwhile ſhall ceaſe to breath her melting ſtrain,
Nor turtles from th' äerial elms to plain." Wharton.

Paſtoral poetry offers to our conſideration its ſcenery, its characters, and the ſubjects and actions which it ſhould exhibit. As to the *ſcene*, it muſt be laid in the country, and the poet's merit much depends on deſcribing it beautifully. Virgil is, in this reſpect, deemed to have been excelled by Theocritus, whoſe deſcriptions of natural beauties are richer and more pictureſque than thoſe of the other. The following deſcription exhibits rural ſcenery painted in very lively colours.

"—— ἔν τε βαθείαις, &c." Idyll. vii. 132.

"—— on ſoft beds recline
Of lentiſk, and young branches of the vine;
Poplars and elms above, their foliage ſpread,
Lent a cool ſhade, and wav'd the breezy head;
Below, a ſtream, from the nymph's ſacred cave,
In free meanders led its murm'ring wave;
In the warm ſun-beams, verdant ſhades among,
Shrill graſshoppers renew'd their plaintive ſong:
At diſtance far, conceal'd in ſhades, alone,
Sweet Philomela pour'd her tuneful moan:
The lark, the goldfinch, warbled lays of love,
And ſweetly penſive, coo'd the turtle dove:
While honey bees, for ever on the wing,
Humm'd round the flowers, or ſipt the ſilver ſpring.
The rich, ripe ſeaſon gratified the ſenſe
With ſummer's ſweets, and autumn's redolence.
Apples and pears lay ſtrew'd in heaps around,
And the plum's loaded branches kiſs'd the ground."
Fawkes.

As to the *characters*, or perſons, that are proper to be introduced into paſtoral poetry, they muſt be ſhepherds, or perſons wholly engaged in rural occupations; whoſe innocence and freedom from the cares of the world may, in our imagination, form an agreeable contraſt with the manners and characters of thoſe who are engaged in the buſtle of life.

In the choice of the *ſubjects* of paſtoral poetry, the principal difficulty of this kind of writing occurs. The active ſcenes of country life will be thought by many, and perhaps not without reaſon, too barren of incidents. The tenor of the ſhepherd's life is uniform, and does not admit of that variety which renders poetry intereſting. Hence it is that, of all poems, the moſt meagre commonly in the ſubject, and the leaſt diverſified in the ſtrain, is the paſtoral. Common-place topics have been thrummed over by all eclogue writers, ſince the days of Theocritus and Virgil; and to this circumſtance is owing much of that inſipidity which prevails in paſtoral compoſition. But why, ſays Dr. Blair, may not paſtoral poetry take a wider range? Human nature, and human paſſions, are much the ſame in every rank of life; and whenever theſe paſſions operate on objects that are within the rural ſphere, there may be a proper ſubject for paſtoral.

The two great fathers of paſtoral poetry are Theocritus and Virgil. In thoſe Idyllia of the former, which are properly paſtorals, there are many great beauties. He is diſtinguiſhed for the ſimplicity of his ſentiments; for the great ſweetneſs and harmony of his numbers; and for the richneſs of his ſcenery and deſcription. He is the original after which Virgil has copied; but he has followed him with judgment, and in ſome reſpects improved upon him. Moſchus and Bion, two other Greek poets, have alſo conſiderable merit in the paſtoral ſtyle; and if they want the ſimplicity of Theocritus, they excell him in tenderneſs and delicacy.

The modern writers of paſtorals have generally contented themſelves with imitating the ancient poets. Sannazarius, indeed, a famous Latin poet in the age of Leo X., attempted a bold innovation, by compoſing Piſcatory eclogues; changing the ſcene from woods to the ſea, and from the life of ſhepherds to that of fiſhermen. But he has gained no followers among all the moderns. M. Geſner, a poet of Switzerland, has been, in the judgment of Dr. Blair, the moſt ſucceſsful in his paſtoral compoſitions. He has introduced into his Idylls many new ideas. His rural ſcenery is ſtriking, and his deſcriptions are lively. He preſents paſtoral life to us, with all the embelliſhments of which it is ſuſceptible, but without any exceſs of refinement. The chief merit of this poet conſiſts in his writing to the heart; and he has enriched the ſubjects of his Idylls with incidents, which give riſe to much tender ſentiment. Scenes of domeſtic felicity are beautifully painted. The mutual affection of huſbands and wives, of parents and children, of brothers and ſiſters, as well as of lovers, are diſplayed in a pleaſing and touching manner.

Neither Mr. Pope's, nor Mr. Philips's paſtorals, do any great honour, in our author's opinion, to the Engliſh poetry. Mr. Gay publiſhed his Shepherd's Week, in ſix paſtorals, with a deſign of ridiculing that ſort of ſimplicity which

Philips and his partizans extolled, and they are an ingenious burleſque of paſtoral writing, when it riſes no higher than the manners of modern clowns and ruſtics. Mr. Shenſtone's paſtoral ballad, in four parts, may juſtly be reckoned, ſays Dr. B., one of the moſt elegant poems of this kind in the Engliſh language.

Paſtoral writing has appeared in later ages under the form of a regular drama, blending plot, characters, and paſſions, with the ſimplicity and innocence of rural manners. Accordingly paſtoral has been defined a dramatic piece, in which the perſons are clad like nymphs and ſhepherds, and act their own amours. The ſcene is always in the fields or woods; whence Taſſo calls paſtoral "favole boſcareccia." Such are the Paſtor Fido, of Guarini; the Aminta, of Taſſo; the Sylvia, of Mairet, the French poet; and the Comus of Milton, &c. Taſſo aſſumes to himſelf the honour of having invented paſtoral; but the firſt idea of this kind of drama ſeems to be Beccari's, who made the firſt attempt of this kind in 1552. But Taſſo's Aminta, which did not appear till the year 1573, effacing what had been done by Beccari, the firſt author was forgot, and Taſſo left as the inventor.

It is certain this kind of paſtoral fable, compoſed according to the rules of the ſtage, was unknown among the ancients. The Greeks and Latins have indeed introduced ſhepherds in their eclogues; but theſe eclogues had nothing theatrical in them: nor were the ſhepherds ever brought upon the ſtage.

Taſſo's Aminta claims the preference, as it is leſs intricate in the plot and conduct, and leſs ſtrained and affected in the ſentiments than the Paſtor Fido of Guarini. Both poſſeſs great beauties, and are entitled to the reputation they have gained. Dr. Blair mentions another paſtoral drama, which will bear being brought into compariſon with any compoſition of this kind, in any language; that is, Allan Ramſay's Gentle Shepherd. The characters are well drawn, and the incidents affecting; the ſcenery and manners lively and juſt. It affords a ſtrong proof, both of the power which nature and ſimplicity poſſeſs, to reach the heart, in every ſort of writing; and of the variety of pleaſing characters and ſubjects, with which paſtoral poetry, when properly managed, is capable of being enlivened. Blair's Lectures, vol. iii.

Pastoral *Column*. See Column.

Pastoral *Staff*. See Crosier.

PASTORALE, Ital. and Fr., in *Muſic*, an air of the paſtoral kind, is generally in *Siciliana* time. "French airs called paſtorals (according to Rouſſeau) are generally in $\frac{6}{8}$ meaſure, or two triplets in a bar, and in the character of the *muſette*. Italian paſtorals have more accent, more grace, as much ſweetneſs, and are leſs inſipid; their meaſure is always $\frac{6}{8}$." A miſtake; the celebrated paſtoral at the end of Corelli's eighth concerto, is in $\frac{12}{8}$.

Among French paſtorals, they have whole dramas, called *opera champétres*, the perſonages of which are ſhepherds, and the muſic ought to be ſuitable to their ſtate, ſimple and ruſtic, ſuch as we ſuppoſe their manners to be.

A paſtoral is alſo a piece of muſic, ſet to words relative to paſtoral life, or a melody which imitates the ſongs of the ſhepherds, which is equally ſweet, tender, and natural. The air of a dance compoſed in the ſame character, is alſo called a paſtoral.

PASTORIUS, Joachim, in *Biography*, a writer of hiſtory, was born in the year 1610, in Great Glogau, in Sileſia. He was brought up to the medical profeſſion, and received the title of honorary profeſſor at Elbing and Dantzic, but the avowal of Socinian principles ſubjected him to various ill offices. At length his conſtancy gave way, and he conformed to the Roman Catholic religion; he was almoſt immediately ennobled, created apoſtolic prothonotary, advanced to other high offices, and finally made hiſtoriographer, ſecretary, and commiſſary of the kingdom of Poland. He died at Frauenberg, in Pruſſia, in 1681. He was author of a number of hiſtorical pieces, written in the Latin language, and he publiſhed the Ariſtotelian Ethics of Crellius, with a life of the author, and ſome orations and poems. Moreri.

PASTRY, that branch of cookery which teaches the preparation of paſte, with ſeveral ſavory ingredients of fleſh, fruits, ſpices, ſugar, butter, &c.

Paſtry is chiefly converſant in the making of pies, paſties, patties, cakes, biſcuits, &c.

PASTURE, Pastura, in our law-books, is any place where cattle are occaſionally fed. By which it differs from *paſcua*, which is a place ſet wholly apart for feeding, and never ploughed.

"Paſtura omne genus paſcendi ſignificat, ſive in pratis, ſive in ſtipula, ſive in agris, ſive in campis: ſed paſcua eſt locus principaliter deputatus pecoribus paſcendis, ut puta in montibus, moris, mariſcis, et planis non cultis nec aratis." Linwood.

Pasture, *Common of*. See Common *of Paſture*.

Pasture, *Admeaſurement of*. See Admeasurement.

Pasture, in *Agriculture*, a field kept fed down by cattle, ſheep, or other animals. Theſe differ conſiderably according to the modes in which they are managed, ſome being almoſt wholly appropriated to the fattening of animals, under which ſyſtem they are termed grazing, or fattening paſtures; while thoſe which are almoſt ſolely applied to the ſupport of ſuch animals as afford uſeful products, ſuch as cheeſe or butter, are denominated dairy paſtures. The ſituations and incloſure of paſtures have alſo ſome effect on the manner of employing them, the lower and more incloſed kinds being in general more adapted to the fattening ſyſtem, while the higher are more ſuited to ſheep-paſtures. The ſtate of the ſward may likewiſe have ſome influence in the ſame way, as the new lays are ſaid to be more proper for the ſtore ſtock, while the old graſs lands are better for feeding. See the following article.

Pasture *Land*, a general name for all ſorts of land reſerved for the purpoſes of paſturing and feeding cattle upon. Paſture ground is of two ſorts: the one is low meadow land, which is often overflowed; and the other is upland, which lies high and dry. The firſt of theſe will produce a much greater quantity of hay than the latter, and will not require manuring or dreſſing ſo often: but the hay produced on the upland is much preferable to the other; as is alſo the meat which is fed in the upland, more valued than that which is fed in rich meadows: though the latter will make the fatter and larger cattle, as is ſeen by thoſe which are brought from the low rich lands in Lincolnſhire. But where the people are nice in their butcher's-meat, they often give a much larger price for ſuch as has been fed on the downs, or in ſhort, upland paſtures, than for the other, which is much larger. Beſides this, dry paſtures have an advantage over the meadows, that they may be fed all the winter, and are not ſo ſubject to poach in wet weather; nor will there be ſo many bad weeds produced; which are great advantages, and which, in a great meaſure, recompenſe for the ſmaller produce of graſs.

The author of a late practical work has ſtated, that the grounds that are the moſt perfectly adapted to this uſe, are all thoſe which have a conſiderable depth of good mould, and, at the ſame time that they afford a good herbage, are ſo dry in their nature, as to admit animals to feed upon them at almoſt all ſeaſons, without injury by poaching. Coarſe ruſhy lands may, however, in many caſes, be converted into good paſtures, by proper attention in draining, and cutting over the ruſhes in the early part of the ſpring, as by this means the water enters their ſtems, and the plants decay, the young ſhoots being afterwards eaten by young ſtock, and the good graſs plants allowed to flouriſh. He likewiſe adds, that there is alſo another ſort of land that may be employed in this way, which is that of the moory kind, conſiſting of much imperfectly reduced vegetable matter, proceeding from the leaves and roots of various decayed vegetable productions, that require to be brought into a ſuitable condition for the ſupport of graſs plants by proper drainage, and the application of ſubſtances of the foſſil kind. And he obſerves, that paſture lands ſhould likewiſe, as much as poſſible, poſſeſs properties in the nature of their graſſes that are the moſt advantageous for the particular method of management under which they are to be conducted. In this view, ſome may be more adapted to the producing of milk and butter, others of cheeſe, and others again of feeding or fattening animals. It is in ſome meaſure on this account, as well as that of local convenience, that different modes of management are employed on graſs lands.

And it is ſuggeſted, that the difference of ſituation in paſture lands has likewiſe much influence in directing the uſes to which they may be applied with the greateſt benefit. The higher and more elevated grounds being, in general, more proper for ſheep, while thoſe of the lower and more incloſed kinds are moſtly better ſuited for the purpoſe of neat cattle, or other animals under the fattening ſyſtem. And beſides, the age of the lay makes a difference in ſome caſes; new laid-down paſture lands being commonly found more proper for the ſupport of young ſtore animals, while thoſe that have been long in the ſtate of ſward, are in general better adapted to the feeding or fattening ſtock. It is alſo obvious, that the mode of incloſing has ſome effect in the ſame way; as when the incloſures are of a moderate ſize, they are found more ſuitable for the purpoſes of feeding, than where the contrary is the caſe.

It may be obſerved, that this ſort of graſs land, as well as that of the hay kind, is ſubject to be overrun and much injured in its produce, both by moſs, coarſe plants, and ant as well as mole-hills. Theſe ſhould therefore be conſtantly removed, or ſpread about as ſoon as poſſible, and prevented from obſtructing the complete paſturage of the lands, in the manner that is recommended under theſe different heads.

It is ſuggeſted, that on the marſh grazing lands in Kent, where ant-hills frequently occur, they have a mode of extirpating them in an eaſy and expeditious way, and of bringing the ſurface level at the ſame time, which is by the uſe of an implement, eight or nine feet in breadth, which is armed with a ſort of ſtrong cutting blade. When in uſe it is drawn by a horſe directed by a boy, and guided behind by a man, and is capable of often cutting off ſeveral of the hills at one ſtroke, and of courſe of clearing a number of acres in a very ſhort ſpace of time. There are various other implements in uſe for this ſort of work, in different parts of the iſland, which anſwer the intention in a very perfect manner.

There can be no doubt that paſtures, when not well attended to, muſt frequently be prevented from being properly fed by various kinds of ſhrubby plants, ſuch as thoſe of the alder, brier, broom, furze, and other ſorts that ſpring or ſhoot out upon the ſurface, and which ſhould always be extirpated as ſoon as poſſible, as by remaining upon and ſhading the ground, they render the herbage ſour, coarſe, and improper for the food of cattle. This ſort of work may be performed by cutting them cloſely down, as they riſe in the early ſpring months, by a ſtrong ſcythe; but a better practice is to dig them or plough them completely out, where it can be done, which ſhould be the caſe while it is under the ſtate of tillage, in order to its being laid down to the condition of ſward.

And the ſhrubby, black, and other thorns and briers, that ſpring up from ſuckers on the ſides of the hedge-rows of paſture grounds, ſhould likewiſe be exterminated, eſpecially where ſheep are paſtured, as they do great miſchief by pulling and entangling their coats. Beſides, much ground is often loſt in this way, and the appearance of the hedges is diſguſting. In many caſes, after the plants are ſtocked up, the earth about them might be thrown into a compoſt with a ſmall proportion of well-rotted dung, and ſpread upon the land with much benefit; and at the ſame time the land thus cleared be brought into a proper condition for being ſown down with graſs ſeeds.

Beſides, where paſture lands are productive in graſſes of the more ſharp coarſe-bladed kinds, which riſe into tufts or tuſſocks, and ſuch as are known to agricultors under the titles of pink or carnation graſſes. and there are other ſorts of aquatic plants preſenting themſelves, it is a certain indication that the ſoil is too retentive of moiſture, and not only ſtands in need of draining, but alſo of being kept in a cloſe ſtate of feeding by different ſorts of ſtock, ſo that every part of them may be kept quite pared down by the animals.

It has been well ſuggeſted, that the manuring of paſture lands is a buſineſs much leſs in practice than ought perhaps to be the caſe; as where the ſoil is not good, and they are kept in a conſtant ſtate of feeding or paſturage, it would ſeem probable that their fertility muſt in ſome meaſure decline, if proper means be not taken to preſerve and keep it up, even though they ſhould be fed down with ſheep, which is unqueſtionably, in this view, the moſt favourable ſort of ſtock. It is indeed hardly to be ſuppoſed, that the ſmall proportion of excrementitious matter that is dropped at random during the feeding of animals, eſpecially the larger kinds, under an expoſure to the diſſipating and waſhing effects of the atmoſphere, at different ſeaſons, where no other ſorts of food than that of the natural graſſes of the paſtures is conſumed, can in ſuch ſorts of land be adequate to the reſtoration of the great degree of fertility that is conſtantly conveyed away in the time of paſturing. In the better kinds of paſture lands, where the produce of graſs is conſiderable, improvement may, and undoubtedly does take place by feeding them, eſpecially by ſheep, as the diſcharges of the animals are not only more abundant, but a proportion of old graſs is left to decay during the winter ſeaſon, and in that way make an annual addition to their fertility. It appears probable to this writer, however it may differ from opinions that have been held on this ſubject by ſome cultivators, from much cloſe attention to the management of graſs lands of the leſs rich kinds in the ſtate of paſture; that, in ſuch caſes, unleſs attention be paid to improve their condition by ſome other means than merely that of the manure diſperſed over the land by the animals in ſimply conſuming the herbage, they muſt in time become gradually deteriorated, and the quantity of paſturage be leſſened ſo as to ſupport ſmaller proportions of ſtock than was formerly the caſe. This ſuppoſition ſeems indeed, in ſome degree, ſupported by the condition of downs, and other unincloſed lands, that have been in a ſtate of paſturage for a great length of time; as in theſe caſes, if feeding had rendered them more fertile, they muſt long ſince have been enabled to carry a vaſtly increaſed proportion of ſtock; which is certainly not the caſe, as has been ſtrongly remarked long ago, by Dr. Anderſon in his uſeful Eſſays on Rural Affairs.

But that feeding down paſture lands, of theſe as well as other kinds, in a judicious manner, has the effect of rendering the herbage more fine, and better for the ſupport of ſtock in general, there cannot be the ſmalleſt doubt; though it does not certainly follow that the fertility of the land, in ſuch caſes as have been juſt mentioned, is thereby really improved, as has been ſuppoſed by ſome employed in the buſineſs of grazing in particular ſituations and circumſtances. Where the paſtures, as has been juſt obſerved, are in ſuch heart as to afford a large quantity of herbage for being converted into manure, and ſufficient to permit a portion annually to revert to the ſtate of vegetable mould by its undergoing the proceſs of putrefaction, a conſiderable progreſſive improvement muſt, without doubt, be the caſe under the paſturing ſyſtem, eſpecially where ſheep conſtitute the principal ſtock. And in moſt caſes, the fining of the herbage by this practice muſt be advantageous. It ſeems, therefore, not improbable, but that the bettering of the condition of the herbage, by feeding the lands with ſheep, may have occaſionally led to the ſuppoſition, that the fertility of the grounds was thereby, in all caſes, really improved. That an increaſe of fertility is produced, in moſt inſtances, by the paſturing of lands with ſheep, is not diſputed; it is only in particular circumſtances that the contrary is contended to take place. And in all caſes the injury that may be ſuſtained in this way, muſt evidently be very ſmall, when compared with that which takes place from repeated mowing without the application of ſuitable dreſſings to the lands.

The improvement of the fertility of paſture grounds may be effected in different ways, as either by the direct application of manure in its natural ſtate, ſuch as that of rotten dung, lime, marle, or in that of earthy compoſt, occaſionally ſpread over their ſurfaces in a thin even manner; or indirectly by the folding or confining of ſheep upon the land during the time they conſume other ſorts of green food, ſuch as turnips, &c. The latter mode is unqueſtionably the moſt advantageous and convenient, as it is in but very few ſituations that the former can be practiſed without injury to the arable or hay lands. By proper attention in this way the more poor paſture grounds might ſoon, and at little expence, be brought into a good ſtate of paſturage; which could ſeldom or ever be the caſe without ſome ſuch means of increaſing their productiveneſs.

The writer of the Report of Salop ſtates, that upon upland meadows, the manure from the chaff at the barn-doors mixed with ſoil, aſhes, and ſhovellings, is very properly applied. But that the farmer's paſtures are more neglected than any other part of his land, as very little manure is ever put upon them; they conſider it as more wanted elſewhere. All graſs lands at a diſtance from towns are, in general, too much neglected. The barn-door muck and aſhes, mixed with the ſhovellings of roads and cleanings of ditches and ponds, ſhould be more frequently applied to ſuch as cannot be watered. Ponds may be frequently made on the ſides of roads and water-courſes, to catch the fine ſoils that are waſhed down by the rains in winter: this ſhould form part of a compoſt. It is added that, for the hay fields, which are ſhut up for a crop at Candlemas, or before; the beſt time of manuring them is immediately after the hay harveſt. Some farmers do this work in winter, when the ground is ſufficiently hardened by the ſeverity of continued froſt. For the purpoſe of manuring, the diligent huſbandman provides a large compoſt mixen. With this view he cleanſes his ponds, he ſcours his ditches, he ſhovels his fold, he collects his aſhes, he ſends to the lime-kiln, he provides fern, weeds, ſtubble, &c.; in a word, he amaſſes all materials that will increaſe the bulk, and promote the fermentation, of a general dunghill. Melioration of ſoil is beſt obtained by an unremitted attention to this buſineſs of manuring. Hereby the quantity of graſs is greatly increaſed, and the quality of it much improved. Two tons of hay *per* acre is produced inſtead of one, and trefoil and white clover flouriſh and abound inſtead of moſs and ruſhes. And for the improvement of paſture as well as meadow-lands, it is adviſed to ſuffer no weeds to feed, nor mole or ant-hills to continue; the land to be either mowed or grazed bare once in every year. Such as is mowed ſhould be manured in the autumn of every ſecond year with dung or compoſt, conſiſting of dung and earth or mud, at the rate of about ten cubic yards to the acre. Cloſe attention ſhould be paid to examining the ſtreams of water, by the aſſiſtance of the ſpirit level, for generally the water from the ſummits will be found to cover much more land than is expected; and where it takes its courſe through ſeveral properties, it may be agreed to be uſed to the mutual benefit of the owners, by ſtipulating the times for each to uſe it, in due proportion to the quantity they reſpectively have ſuitable to that purpoſe. He knows of no improvement upon graſs land (after being drained when neceſſary) greater than this, though but little attended to in compariſon of the large tracts that may be improved. See AFTER-GRASS and MEADOW.

PASTURE *Lands, Stocking of,* the art of eating them down with the greateſt economy and advantage by one or more ſorts of live ſtock. This is a point of management in graſs huſbandry that has hitherto been but little attended to by farmers in general. It is obvious, however, that a great deal muſt depend upon its being judiciouſly performed, both in reſpect to the improvement of the ſtock, and the laſting of the graſs, as, under ſome circumſtances, much more waſte will be incurred than under others. A practical writer has obſerved, that the moſt proper period for turning the ſtock into the paſtures in the ſpring ſeaſon has been a matter of diſpute among thoſe employed in the management of graſs lands; ſome contending, that it ſhould be done early, before the natural graſs has riſen to too great a bite, while others maintain the contrary opinion. And that there are probably inconveniences attending each of theſe extremes, as in the firſt the ſtock, eſpecially when of the fattening kind, may ſuſtain injury from the want of a ſufficient bite to permit the animals to fill themſelves in an expeditious manner; and in the latter, there may not only be much waſte by the ſtock not being capable of keeping it under, but great loſs and inconvenience from its running up in tufts to feed, and by that means rendering the paſture patchy and unevenly fed down, by which the extent of real paſturage is leſſened. That it has been alſo obſerved by Mr. Marſhall, in his Rural Economy of Yorkſhire, that by turning the ſtock upon the paſtures when there is a full bite, the better ſorts of graſſes are only conſumed, the more coarſe herbage being rejected and let run to feed, by which the lands are greatly injured at the time as well as in future; while, on the contrary, if the ſtock be allowed to enter during the time ſuch coarſe plants are in their more tender early growth, and before the paſture is covered with better herbage, the whole of the other plants will be fed down in a regular manner with the graſs. And that the want of a full bite on the firſt turning out of the ſtore ſtock is of advantage to the animals, as they become more gradually accuſtomed to the change from dry food to ſucculent herbage. And it is ſuppoſed that fattening ſtock only require a full bite on being at firſt put upon the paſture. The firſt of theſe writers further ſtates, that in anſwer to the objection that has been made, that early turning upon paſtures expoſes them more to the effects of drought in the ſpring months, it is ſaid, that it is in a great meaſure ill founded, ſince cattle milk and thrive well in ſuch caſes. It is not, Mr. Marſhall remarks, the length of graſs, but the quantity of nouriſhment which it contains, that makes cattle pay for their paſturage.. And it is not ſuppoſed improbable, but that the richneſs of the herbage may in ſome degree depend on the ſun or heat of the ſeaſon. Facts and obſervations are however here much wanted, as little, till within theſe few years, has been attempted in reſpect to the moſt advantageous ſyſtem of feeding down paſtures. The former of the writers, whom we have juſt mentioned, has obſerved, that as the ſtate of the graſs, which is the moſt favourable to the feeding of the ſtock, and their expeditious filling themſelves and taking their reſt, as well as that of their waſting the leaſt poſſible proportion of the food, would ſeem to be that of a middle degree of growth; it is not improbable, but that that may be the moſt proper and advantageous period for breaking the paſtures; the exact time of which muſt obviouſly be regulated by the nature of the ſoil, the ſituation of the land, and the ſtate of the ſeaſon, as well as the circumſtances of the farmer; but that from the end of March to the latter end of April, or beginning of the following month, according to the forwardneſs of the ſeaſon, may be the moſt advantageous in the ſouthern diſtricts, while in thoſe of the north it may be deferred a week longer or more with propriety and advantage in many caſes.

In regard to the general eating down of paſture lands, there is much difference of opinion, ſome adviſing that it ſhould be done in as cloſe a manner as poſſible, others, that this ſhould never be the caſe. It would ſeem, however, that the cloſeneſs or degree of feeding that is the moſt proper ſhould be directed by the nature of the graſs and the time at which it is performed, as where the herbage is of the coarſer kind and conſumed in the autumnal ſeaſon, it may be done much more cloſely than in the contrary circumſtances, as ſuch ſorts of graſs muſt always be improved by ſuch cloſe feeding, and no injury can be ſuſtained at ſuch ſeaſons from the roots of the graſſes being left ſo much expoſed, which would be the caſe in the latter ſpring or early ſummer months, from the conſtantly increaſing heat at ſuch periods. The advice, that has been given by an intelligent obſerver on this ſubject, may in general be adopted with propriety, which is, to be cautious not to overſtock, as by that means great loſs may be ſuſtained, as land when fed too bare is apt to burn in the ſummer and to be chilled in the winter. Beſides, the necks of the roots are ſo injured by very cloſe biting, that they do not afford ſo quick or free a ſpring or growth to the ſucceſſion of blade as there would otherwiſe be. But, on the other hand, it is not recommended to leave a long bite of graſs on the land: a middle degree will ſuit all lands the beſt, and afford the moſt benefit to the perſons who occupy them. This advice of Mr. Kent's deſerves to be well attended to, as being founded in real practice.

It has been further ſtated, that by the too thin ſtocking of paſtures, though loſs may be ſuſtained in their not ſupporting the proper number of animals, as well as from the injury which is done by the graſs plants running ſo much up to ſtems, the broken graſs, in ſuch caſes, can be mown when in ſufficient proportion for hay; but the diſadvantages of over-ſtocking are ſcarcely capable of being repaired, according to Mr. Marſhall, as beſides the lands being often expoſed to much injury by the crowns of the plants being ſo cloſely pared down, eſpecially in the finer kinds of graſs, the cattle, from ſuffering a check in their feeding, are long in regaining their former thriving diſpoſition; that, of courſe, almoſt the whole of the produce of paſture lands may, in this way, be often thrown away, and that it is an error that young farmers are extremely liable to fall into. It is therefore obvious that the medium degree of ſtocking, which has been adviſed above, is, in general, to be carefully adopted from the experience obtained upon the land; in the procuring of which it is beſt to begin by an under proportion of ſtock, that the effect may be the better perceived.

Among graziers there has been a conſiderable difference of opinion in reſpect to the manner of ſtocking, or feeding down ſuch lands; ſome contending that it ſhould be done with only one ſort of ſtock, while others ſuppoſe that they ſhould be mixed, in order to produce the beſt effects both on the lands and ſtock; Mr. Kent has ſuppoſed that the more various the kinds of cattle are that are fed upon the paſtures at different times, the better. But it has not been ſhewn, the author of Practical Agriculture ſays, on what principle this advantage depends. If the different modes of feeding in the different animals be attended to, and minutely examined, it will be found that though ſome ſorts may conſume graſs when in a more luxuriant ſtate of growth than others, they are all fondeſt of paſturing on that which is the moſt ſweet and tender. This is rendered extremely obvious by the obſervations of an attentive inquirer, who has found, that although horſes appear partial to particular patches of ſward, he has never been able to diſcover any peculiarity in the ſoil or the herbage of ſuch barely eaten ſpots.' It has been ſuppoſed that they have been fed down by ſuch animals at firſt in ſo cloſe a manner merely by accident, but that afterwards they are kept in ſuch a cloſe ſtate of feeding from their peculiar ſweetneſs depending on the peculiar ſhortneſs of the herbage. It would, however, ſeem more probable, from the circumſtance of the animals being almoſt wholly directed by the taſte in the choice of their food, that the ſweet or tender nature of the herbage in theſe parts firſt induces them to feed upon and conſume them in ſo cloſe a manner, as well as the continuing the cloſe eating them down afterwards. The ſame thing is obſerved to happen in the vicinity of preſerved covers, with hares and rabbits, from their keeping ſpots of barley or other grain crops cloſely fed down. And ſheep are well known to ramble over the whole of the paſtures in order to nibble and pick out the moſt ſweet and delicate morſels. The feeding of neat cattle is, perhaps, leſs particular and delicate in this reſpect; but where not forced by hunger they moſtly appear to fix upon ſuch parts of the land as poſſeſs the moſt ſweet and palatable herbage, rejecting the coarſer ſpots where it is leſs tender and agreeable. It is contended that, if the concluſion be therefore well founded, that ſtock of all ſorts prefer the beſt, ſweeteſt, and moſt tender herbage, it is evident that no mixture of animals can inſure the even and regular feeding down of paſtures, as they will, in ſome degree, be all attracted by the ſweeteſt and moſt tender parts, and thoſe of the more coarſe ſour kinds be in conſequence almoſt wholly rejected. An agricultor of great experience and nice obſervation, the Rev. Mr. Cloſe, has remarked, that in paſtures, ſtock naturally pick the moſt palatable graſſes firſt, leaving the others to run up to bents; and though it is admitted that one ſort may have a preference for one ſpecies of graſs, and another for another, there is no mixing the animals in ſuch a manner as to prevent this circumſtance from taking place. It is wholly impracticable to proportion each kind of ſtock in ſuch a way to the ſpecies of graſs that may be moſt agreeable

able to it, as to prevent the ſcarcity of one ſort and the abundance of the other. It is of courſe obvious, that there are therefore not only difficulties in the regular feeding down of paſtures, from the cattle being more fond of ſome ſorts of herbage than others, but alſo from the inability of the grazier to proportion them in a way that may fully anſwer the purpoſe which he has in view. Theſe obſervations, at the ſame time that they ſhew the difficulty of the buſineſs, convince us of the advantage and importance of keeping paſture lands regularly and evenly fed down, which is perhaps only to be fully effected by one ſort of ſtock properly ſucceeding another, till the want of the finer ſorts of herbage obliges them to feed upon thoſe that are of a more coarſe nature. In this, as well as other views, the fattening ſtock ſhould be firſt turned into the lands, and kept upon them ſo long as they continue to improve in a proper manner; theſe may then be ſucceeded by the older ſorts of cattle that require to be brought into condition, and the more young ſtore ſtock may conſume the remainder of the graſs, according to the intentions of the farmer. That great utility and advantage may be derived from often ſhifting the cattle, by having recourſe to a *head* ſtock and proper *followers*, there can be little doubt. The few writers that have touched upon the ſubject of graſs huſbandry, have, in general, indeed, recommended the practice as highly beneficial both in reſpect to the paſture and the ſtock. And Mr. Marſhall, in his Rural Economy of Yorkſhire, ſpeaks of this being a defect in the graſs land management of that diſtrict. The correct graſs farmer ſhould, therefore, be more attentive to this part of his management than is commonly the caſe, taking care that the changes of his ſtock are made in a ſeaſonable and judicious manner, and without either the ſtock or the land ſuffering any injury from it.

It is ſuggeſted that this is probably a practice from which greater utility may be derived than that of permitting many different ſorts of ſtock upon the ground at the ſame time, as, beſides their not anſwering the intention of feeding the paſtures down with more regularity and evenneſs, they are inconvenient and diſadvantageous in other reſpects. For when the paſtures are fed down with a mixed ſtock, the animals ſeldom thrive or fatten ſo well as where the contrary is the caſe. They are too much driven about and diſturbed by the different kinds teaſing each other, eſpecially where horſes and neat cattle are put together. A mixed ſtock is alſo improper in another point of view; many ſorts of animals feed cloſer and more expeditiouſly than others; of courſe, when there happens to be any ſcarcity of feed, ſome of the kinds may be greatly injured from the want of proper ſupport. The horſe, like the ſheep, feeds cloſe and quick, while the contrary is the caſe with the cow; it would of courſe ſeem improper to mix horſes with neat cattle in the paſturing of graſs lands, though the practice has been prevalent in many places. It has indeed been obſerved, that ſheep and horſes may feed and thrive beſt together, both from the ſimilarity of their manner of eating and that of the former conſuming the rich luxuriant herbage which ſprings in conſequence of the manure dropped in the ſeaſon, while the latter prefer the leſs vigorous, but the more clean graſs. It is a practice, however, that has ſometimes been found uſeful to mix ſheep with neat cattle. The notion of deriving advantages from the mixing of ſtock, from the circumſtances of ſome ſorts having a greater diſlike to feed near their own dung, and leſs towards that of others, is probably not founded on juſt obſervation, as all animals have a fixed averſion to both their own and that of other animals, and none of them will feed near either till compelled by the ſcarcity of food. This averſion does not perhaps depend wholly on the dung, but it is in ſome meaſure avoided in conſequence of the graſs becoming rank and coarſe about ſuch places, and of courſe more ſour and unpalatable to the animals.

But very little attention has, till lately, been beſtowed upon the manner or ſtate of feeding down graſs lands, the buſineſs being moſtly left to chance, accident, or the caprice of the farmer. It is, however, obviouſly a matter of vaſt importance, not only in ſo far as it reſpects the economy of the paſtures, but the ſucceſs and proper progreſs of the ſtock that conſume it; as by improper management that proportion may be waſtefully eaten down in a ſhort ſpace of time without the ſtock being brought more forward, that under a better ſyſtem would laſt out a longer time with a greater increaſe or progreſs in the animals that feed upon it. And that, as it is a matter of conſequence to keep paſtures and grazing-grounds as even as poſſible, a proportion of ſtock fitted to produce this purpoſe ſhould always be put upon the lands. On the rich and more fertile kinds where the graſs ſprings quick and in great abundance, more ſtock will be neceſſary to effect this purpoſe than where the contrary is the caſe. It has been found, on the marſh lands in Lincolnſhire, that where the moſt graſs is left in the autumn the herbage is the coarſeſt and the worſt in the ſucceeding year. In the extenſive feeding tract of Romney Marſh, the cloſe feeding ſyſtem is alſo found to anſwer in the moſt perfect manner. Theſe facts ſhew the neceſſity of hard ſtocking on the richer deſcriptions of land. In other parts of the firſt of the above diſtricts, on turning upon a full bite in the ſpring, they ſtock in ſuch a manner as to prevent the graſs from becoming coarſe by running up to ſtem. The neceſſity of ſweeping over the rough tufty parts by the ſcythe is thus avoided, except in very wet ſeaſons. And it is a practical remark of a cautious obſerver, on deſcribing a field not ſufficiently ſtocked, that on the marſh juſt mentioned, the grazing farmers would be ruined if they ſuffered ſo much graſs on their lands. It ſeems to be a bad practice to allow the graſs in paſtures to advance to ſuch a ſtate as to require to be ſwept over by the ſcythe, though it may be right to do it under ſuch circumſtances, in order to prevent the greater injury that might otherwiſe be produced. It appears extremely probable, indeed, that by permitting the graſs plants to run up to ſeed-ſtems, the paſtures may ſuſtain vaſt injury, not only by the exhauſtion of the ſoil that takes place during the efforts of the plants to form and fill the ſeeds, but in conſequence of their whole vegetative powers being directed to that purpoſe, from their ſending forth few or no leaves. This is extremely evident in all the coarſer ſorts of graſs plants, and fully explains the utility of keeping them cloſely fed down, as by ſuch means a more abundant graſſy herbage is provided for the ſupport of ſtock. There are various obſervations that ſeem to ſupport this opinion. Thus it has been recommended to ſtock paſture lands in ſuch a manner as will keep the graſs in a young ſucculent ſtate; as in this way there is a benefit, by the whole of the produce being conſumed, and at the ſame time the ſtems of the graſs plants are prevented from ſeeding, which exhauſts the roots and the lands; the ſoil is of courſe preſerved in a better ſtate of fertility, more ſhoots are thrown out, the ſward is rendered more cloſe, and a more conſtant verdure kept up.

Therefore the true principle of grazing, in the opinion of this writer, is to eat *all*, and particularly at thoſe ſeaſons when vegetation is rapid, that it may not weaken the turf and ſoil, but by keeping the graſs in a young ſtate, have the ſhoots more vigorous.

And it is practically remarked, that, as for the purpoſe of feeding the larger ſorts of neat cattle, it is neceſſary for the graſs to have grown to a pretty full bite before they are turned in, and of courſe numerous ſeed-ſtems to be formed; it ſeems not improbable, but that the ſuperior benefit of feeding with ſheep may depend upon the circumſtance of their eating more cloſely, and thereby preventing ſuch effects from taking place. That of courſe, in the ſtocking of paſture grounds, the growth of the graſs ſhould be particularly attended to, and the proportion of ſtock adapted to it; care being always taken to have a full proportion during the ſummer months, from May to Auguſt; a proper reſerve being then made for the winter ſeaſon; as Mr. Price has well ſuggeſted, in this buſineſs, that the farmer ſhould be as careful as poſſible to neither over or under-ſtock, as by either means he muſt ſuſtain loſs and inconvenience, in the different reſpects that have been already noticed.

But on this intereſting point of management there is another matter, upon which farmers have differed very conſiderably in their opinions; each contending, as in many other caſes, for the propriety of their practice, on the ground of experience. It is that of giving the ſtock, of whatever ſort it may be, the whole range of the lands, however extenſive, at *once;* or having them divided, ſo as to let it have the graſs at *different* times, in a freſh, unbroken, and untrampled ſtate. This is a queſtion, which, from its involved nature, and from few experiments having been made directly in reſpect to it, that is not readily decided; yet much in the economy of feeding down graſs land depends upon it. The obſervations of Mr. Young may perhaps throw ſome light upon it. When cattle, whether cows, fatting beaſts, or young ſtock, are turned out to graſs, it is requiſite to conſider the beſt method of feeding. There are two opinions on this point directly contrary to each other. Firſt, it is aſſerted by one ſet of graziers, that, let the graſs to be fed conſiſt of ever ſo many acres, the cattle ſhould have it all at once: if it is divided into eight or ten fields, the gates of all to be ſet open, for the ſtock to feed where they like. Secondly, thoſe of the other ſet advance, that large fields of fifty, eighty, or an hundred acres, ſhould be divided, that the farmer may change his ſtock from one to the other, and give the graſs freſh and freſh. And each of theſe parties aſſert, that they know themſelves to be right from experience. But that is impoſſible: one muſt undoubtedly be wrong. Let us conſider the point from reaſon: it is one that will never be decided *fairly* from experiment; for two pieces of graſs, each of eighty or an hundred acres, contiguous and *perfectly* alike, are not to be met with in the king's dominions; and, if they were, two ſets of ſtock, exactly ſimilar, would not be found. The diviſions into fields by hedges and ditches, for the purpoſes of draining and ſhelter, is not the inquiry, the compariſon not being fair; as ſuch diviſions may be fed at once, by ſetting all the gates open, as well as one field. The inquiry is, whether the cattle will ſpoil the graſs more in one way than in the other? and whether the graſs will go as far in one as in the other, by fattening and feeding the beaſts as well? The argument of giving the graſs freſh and freſh appears to be rather vague; for it ſuppoſes that the cattle will not eat it freſh, if they have the whole range at once, which may be a miſtake: they will not be ſeen in the evening where they were feeding in the morning, but vary their food in the manner moſt agreeable to themſelves; and we may in general obſerve, that the ſagacious animals, when left to their own conduct, manage ſuch points better than we can for them. As to the treading and ſpoiling, it is an equal objection to both methods; the legs of the beaſts are not tied in ſmall cloſes, any more than in large ones. In caſe all the ſmaller pieces have not water, the objections to feeding them ſeparate are much greater.

On the other hand, it muſt be admitted that there are diſadvantages attending this way of paſturing: for a time the trampling may be greater, as cattle are diſpoſed to beat a ſort of march around the fields, on firſt turning in, and alſo on ſome kinds of diſturbance. But the greater evil is that of diſturbing a large herd, inſtead of a ſmall one: this a dog may effect in one incloſure, unſeen from others, and conſequently the ſtock in them left without interruption; and, perhaps, a motive greater than this is, its having been obſerved that cattle, and ſheep alſo, do better when well proportioned to their paſture, when divided into ſmall lots rather than large ones.

Mr. Young here leaves the matter without any deciſion. There are, however, a variety of circumſtances that would ſeem to ſhew the mode of feeding in diviſions to have the ſuperiority over that of turning upon the whole at a time. There can be no doubt but that much greater waſte of graſs is made in turning upon the whole at once, eſpecially if the full proportion of animals for the land be put in; as it muſt be well known to the practical farmer, that when graſs has been once trampled upon, ſtock of all ſorts reject or eat it with great reluctance. And in cow farming, where vaſt numbers are often turned upon the land at one time, in order to procure the greateſt poſſible abundance of milk for a ſhort period, as is frequently the caſe near London, and other large towns, no one can have avoided obſerving the uncommon loſs and deſtruction of food that is the conſequence. The writer has attended to many circumſtances of this nature, in which he is convinced that the ſame proportion of ſtock might have been equally well kept for one-fourth of the time longer, by having the graſs conſumed by the ſame ſtock in ſuitable diviſions.

It is ſtated by a writer in the third volume of the Farmer's Magazine, that in the management of paſturage, he would carry on a ſucceſſive ſtock, and a ſeries of paſture fields, ſo as to give three ſhifts. Thus, the fattening ſtock is to get the top of the paſture firſt broken upon. Before the paſture is eaten too bare, this ſtock is to be removed into a ſecond field of freſh graſs, and is to be followed on the firſt field by the keeping ſtock. Before the ſecond field is too bare, the fatteners are to be removed into the third, and the keepers into the ſecond. While theſe two ſtocks are employed in this ſhift, in eating the ſecond and third fields, the firſt field has time to get again into full herbage. It is certainly, he thinks, needleſs to enlarge on this courſe, as the principles and practice are both ſufficiently obvious.

And in a late practical work it is noticed, that the experience of a writer, who has examined graſs huſbandry with much minuteneſs and attention in different diſtricts, would ſeem alſo, in ſome meaſure, to favour the ſame concluſion, while it ſhews the benefit of one ſort of ſtock following another; as he adviſes, that, in all caſes where fattening cattle or dairy cows conſtitute a part of the ſtock, and where ſoil, ſituation, and water will admit, every range of grazing lands ſhould have three diviſions; one for the head ſtock, as the cows and fattening animals; another for followers, ſuch as the rearing or other lean ſtock; and a third for being preſerved in order to freſhen, for the reception of the principal ſtock. Beſides, he is decidedly of opinion, that whether the ground may conſiſt of one, two, or a greater number of diviſions, not a weed ſhould be ſuffered to feed, or a tuft of ſtale graſs to ſtand on it; but once, at leaſt, in the ſummer ſeaſon, be levelled down by the ſcythe; as, by ſuch means, weeds may be converted into nouriſhment, and waſte into after-graſs. But it has been ſeen above, that by proper ſtocking, there need not be any neceſſity for the operation of the ſcythe; as the practice of cloſe feeding renders it unneceſſary, and at the ſame time affords a ſuperior advantage to the grazier.

The proportions of ſtock of different ſorts, that can be properly ſupported on any given ſpace of paſture ground, muſt vary conſiderably, according to the natural goodneſs of the ſoil, the properties of the graſs, and the differences in the ſizes of the animals. And there is likewiſe another circumſtance which ſhould be attended to, which is the length of time the land has been in the ſtate of ſward; as new lays are ſeldom capable of carrying ſo much ſtock on the acre as thoſe of the older kinds. But it is alſo a point that ought to be attended to, that thoſe lays ſhould be ſtocked as much as poſſible with ſheep.

Mr. Young adviſes, that, in the ſtocking of graſs lands, the farmer ſhould attend well to the proportion between his ſtock and the quantity of his feed. Let him remember, when he ſtocks his grounds, that he ſhould be pretty nice in this proportion: for if he overſtocks, his loſs will be certain and great; and if he does not throw in as many cattle as he ought, then he will ſuffer in his profit.

The exact number of animals, whether of the cattle or other kinds, that may be grazed on the acre, is not eaſily aſcertained, ſo as to avoid leading the farmer into error, as it will differ ſo greatly in different ſituations and circumſtances. Beſides, it is unneceſſary, as the proportion of different ſorts of ſtock that may be admitted upon grazing lands, in different diſtricts, has been ſhewn, in ſpeaking of the manner of feeding or fattening animals at graſs, in conſidering the practice of grazing. See GRAZING.

Lands employed for the purpoſe of paſture are frequently occupied by ſtock during the autumn and winter, as well as the ſpring and ſummer months: it is, however, only thoſe of the very dry kinds that can be turned upon in the winter ſeaſon, eſpecially by heavy cattle; and it is probably, in all caſes, a much better practice to confine that ſort of ſtock wholly to the fold-yards at ſuch ſeaſons, as by ſuffering them to be turned upon the paſtures, there muſt be a great loſs in the waſte of manure. And it has been found an advantageous practice by ſome, to ſhut up their paſtures late in the autumn, according to the ſtate of the graſs, and other circumſtances; eating them down as cloſe and evenly as poſſible, previous to the ſtock being removed; and keeping them perfectly free, till they are wanted for ewes and lambs in the early part of the year, or for cattle at a later period, as when the firſt ſhoots appear in the ſpring, which, from being intermixed with thoſe of the autumn, are ſuppoſed to afford more nouriſhment for the ſupport of the ſtock, than when either of them are eaten ſeparately.

In the Agricultural Report of Perthſhire, it is adviſed that, in fields that are paſtured by cattle, care ſhould be taken that all ſuch plants as are hurtful to ſtock be completely eradicated from them; as much injury is often done by them to the cattle, as well as the products which they afford. The plants moſt prejudicial in this way are thoſe of the hemlock, henbane, nightſhade, and yew kinds. It has been ſuggeſted, that while the graſs is plentiful, there is not much danger of their feeding upon ſuch plants; but when it becomes ſcarce, and they are confined, it is likely to take place, eſpecially in the ſpring ſeaſon, when they are fond of devouring young ſhoots of almoſt any kind. And a writer in the Farmer's Magazine ſtrongly adviſes the following practice, which he has uniformly followed himſelf, and is thoroughly ſenſible of its benefical effects: it is regularly to cut down all weeds, that ſpring up in the fields, in ſpite of the ſtock, before they get into ſeed. This is by no means expenſive, as two or three children are ſufficient to keep down the weeds of a large paſture farm. And it is an old and true proverb in huſbandry, that "once ſeeding cauſes ſeven years' weeding."

It is indiſpenſably neceſſary to attend to the circumſtance of paſtures being well ſupplied with water, as, without having this in ſome degree at command, it is impoſſible that the ſtock can thrive well, or anſwer in the moſt perfect manner in other views. Where they are not, therefore, ſupplied by brooks or ſtreams running through them, it will be neceſſary to have recourſe to the forming of ponds or pools for the purpoſe in the fields. And in ſituations where the natural ſtratum of the clay is of conſiderable thickneſs, there is little difficulty in the conſtructing of ſuch watering ponds, ſo as to be perfectly retentive or water-tight; but in looſe porous ſoils, the buſineſs is not executed without conſiderable care and attention, as well as much art. See WATERING *Ponds*.

It is adviſed, in the Treatiſe on Landed Property, that in laying out perennial paſture lands, as thoſe of grazing and cow grounds, attention ſhould be particularly paid to the circumſtance of water; and that wherever good water is naturally found, or can be brought conveniently by art, to that point the paſture grounds ought to tend, in order that they may have a due ſupply of ſo neceſſary an article to the paſturing of them with cattle.

The firſt improvement of upland paſture, before eating it down with ſtock, when not incloſed, is by fencing it in, and dividing it into ſmall fields of four, five, ſix, eight, or ten acres each; planting timber trees in the hedge-rows, which will ſcreen the graſs from the dry pinching winds in March, which prevent it from growing in large, open, expoſed lands; ſo that, if April proves a dry month, the land produces very little graſs: whereas, in the ſheltered fields, the graſs begins to grow early in March, covers the ground, and prevents the ſun from parching the roots, whereby it keeps growing, ſo as to afford a tolerable bite, if the ſpring ſhould prove dry. But, in fencing in the land, it muſt be obſerved not to make the incloſures too ſmall, eſpecially where the hedge-rows are planted with trees; becauſe, when the trees are advanced to a conſiderable height, they ſpread over the land, and, where they are cloſe, render the graſs ſour, and in that way, inſtead of being of advantage, greatly injure the paſture. A ſecond improvement of upland paſture is that of making the turf or ſward good, where, either from the badneſs of the ſoil, or for want of proper care, the graſs has been deſtroyed by ruſhes, buſhes, or mole-hills. Where the ſurface of the land is rough, clayey, and cold, it may be beſt improved by paring it off, and burning it in the manner directed under that head, breaking it up, and then laying it down again to ſward; but if it is hot ſandy land, then chalk, lime, marle, or clay, are very proper manures to apply upon it: but this ſhould be laid in pretty good quantities, otherwiſe it will be of little ſervice to the land. Where the ground is over-run with coarſe plants, as ruſhes, &c. it will be a great advantage to it, to cut or grub them up towards the latter part of ſummer; and, after they are dried, to burn them, and ſpread the aſhes over the ground juſt before the autumnal rains; at which time the ſurface of the land ſhould be levelled, and ſown with graſs-ſeeds, which will come up in a ſhort time, and make good graſs the following ſpring. So alſo, when the land is full of ant-hills, theſe ſhould be pared off as above, and either burnt for the aſhes, or ſpread immediately on the ground, when they are pared off, obſerving to ſow the bare patches with graſs-ſeeds in the autumn. See Ant-*Hill*.

And where the land has been thus managed, it will be of great ſervice to roll the turf, in the months of February and March, with an heavy wooden roller, in moiſt weather, that the roll may make an impreſſion; this will render the ſurface level, and cauſe the turf to thicken, ſo as to have what the people uſually term a good bottom. The graſs will likewiſe be ſweeter, and bad weeds be deſtroyed.

Another improvement of theſe paſtures is, by judicious feeding as above. Where this is not practiſed, the land muſt be manured at leaſt every third year: but where a farmer has much arable land in his poſſeſſion, he will not care to part with his manure to the paſture. Therefore every farmer ſhould endeavour to proportion his paſture to his arable land, eſpecially where manure is ſcarce, otherwiſe he will ſoon find his error; as the paſture is the foundation of all the profit which may ariſe from the arable land.

But whenever ſuch upland paſtures are to be mended by manure, there ſhould be a regard had to the nature of the ſoil, and a proper ſort of manure applied; as for inſtance, all hot ſandy lands ſhould have a cold manure; neat's dung, ſwine's dung, and earthy compoſts are very proper for ſuch lands; but for cold lands, horſe-dung, aſhes, and other warm manures are more proper. And when theſe are applied, it ſhould be done in autumn, before the rains have ſoaked the ground, and rendered it too ſoft to cart on; and it ſhould be carefully ſpread, breaking all the clods as ſmall as poſſible, and then harrowed with buſhes, to let it down to the roots of the graſs. When the manure is laid on at this ſeaſon, the rains in winter will waſh down the valuable parts, ſo that the following ſpring the graſs will receive the advantage of it. And there ſhould alſo be great care had to the deſtroying of weeds and coarſe plants in paſtures every ſpring and autumn as above; for where this is not practiſed, they ripen their ſeeds, which ſpread over the ground, and fill it ſo as ſoon to overpower the graſs, and deſtroy it. Beſides, it is very difficult to root them out, after they have gotten ſuch poſſeſſion. But in theſe paſtures, the graſs ſeldom degenerates if the land is tolerably good; whereas in the low paſtures, which are overflowed in winter, in a few years it often turns to a harſh ruſhy nature.

Perhaps there is no part of huſbandry, which, till of late, farmers were, in general, more ignorant of, than that of the mangement of paſtures; moſt of them ſuppoſed, that when old paſtures were ploughed up, they could never be brought to have a good ſward again; of courſe their common method of managing their land, after ploughing, was to ſow, with their crops of barley, ſome graſs-ſeeds, as they call them; that is, either red clover, which they intended to ſtand two years after the corn was taken off the ground, or rye-graſs mixed with trefoil; but as moſt of theſe are but biennial plants, whoſe roots decay ſoon after their ſeeds are perfected; ſo the ground, having no crop upon it, was again ploughed for corn; and this was the conſtant round which the lands were employed in by moſt farmers: they had not any notion of laying down their lands to graſs for any longer continuance. Modern huſbandry has, however, ſhewn that it is poſſible to lay down land, which has been in tillage, with graſs, in ſuch a manner, as that the ſward ſhall be as good, if not better than any natural graſs, and of as long duration. See Laying *down to Graſs*.

In the improvement of wet paſtures, it has been ſuggeſted that, the firſt thing to be done is, to make large deep ditches round every field, and if the fields are large, to divide them into ſmaller, of five, ſix, or ſeven acres each, by new ditches; nothing is attended with a more ſudden improvement of all the ground near the borders of the fields than good ditches. They are generally made ſix feet deep perpendicularly, ſeven wide at top, and three at bottom. They ſhould be made in ſuch a manner that no water can remain in them, but have a deſcent from one to another to carry it quickly off. As ſoon as the ditching is done, the next work is to land-drain the whole fields in ſuch a manner that every part of them may be laid dry. If there is the leaſt fall in any part, or any place more wet than another, the drains ſhould be cut through them. If the ſurface be exactly level, the depth of the drains ſhould vary, ſo that the water may every where have a deſcent. Theſe drains are made, in general, thirty-two inches deep, twenty inches wide at the top, and four wide at the bottom. They are filled eight inches deep with either ſtones or wood; but the former are the moſt effectual and laſting to thoſe who are not deſirous of ſaving the difference of expence. However, wood anſwers extremely well in many caſes. See Draining *of Land*, and Water, *Removing of, from Land*.

The prodigious advantage of theſe drains appears the very firſt year, eſpecially if the ſeaſon proves wet; the graſs being freſh, vigorous, and ſweet. And the materials taken out of the ditches ſhould, after being well mixed with dung, or ſome other manure, be ſpread evenly over the ſurface of the ground. The expence of this ſort of improvement will vary greatly according to the nature of the land, the ſituation, and other circumſtances.

PASTUS, the procuration of proviſion, which the king's or lord's tenants are bound to make for them at certain days or ſeaſons, or as often as they make a progreſs to their lands.

This, in many places, has been converted into a pecuniary fee; as in the procurations of the clergy.

PASTY, in *Cookery*, a work of paſtry; being a preparation of ſome proper meat, as beef, veniſon, lamb, or the like, well boned, beaten up to a pulp, and highly ſeaſoned; put up in a paſte, and then baked in an oven. They alſo make veal paſties, umbel paſties, kidney paſties, marrow paſties, &c.

PASZBERG, or Pas, in *Geography*, a town of Iſtria; 25 miles S.S.E. of Trieſte.

PATA, a town on the N. coaſt of the iſland of Luçon. N. lat. 18° 15′. E. long. 121° 20′.—Alſo, a ſmall iſland in the Sooloo Archipelago. N. lat. 5° 45′. E. long. 121° 10′.

Pata, in *Ornithology*, the name by which the Portugueſe in Braſil call a large and very beautiful American duck, known among others by its Braſilian name, *ipecatiapoa*.

PATABEA, in *Botany*, a plant deſcribed and figured by Aublet, the derivation of whoſe name we are unable to trace. Juſſieu conſiders the genus as allied to *Lonicera bubalina* of Linnæus. Aubl. Guian. v. 1. 110. t. 43. Juſſ. 208. Lamarck Dict. v. 5. 52. Illuſtr. t. 65.—Claſs and order, *Tetrandria Monogynia*. Nat. Ord. *Rubiaceæ*, Juſſ.

Gen. Ch. *Cal.* Perianth ſuperior, of one leaf, turbinate, with four, acute, little teeth. *Cor.* of one petal; tube oblong, inſerted into the diſk above the germen; limb cloven into four, oblong, acute lobes. *Stam.* Filaments four, ſhort, inſerted into the tube at its throat; anthers oblong, two-celled. *Piſt.* Germen inferior, firmly united to the bottom of the calyx; crowned by the diſk; ſtyle oblong, cloven; ſtigmas two, obtuſe. *Peric.* and *ſeeds* unknown.

Eſſ. Ch. Calyx four-toothed. Flowers in little heads, which are ſcaly on the outſide. Corolla tubular, four-cleft. Anthers nearly ſeſſile.

1. P. *coccinea*. Aubl. Guian. t. 43.—Native of woods and foreſts in Guiana, particularly at Orapu, where it flowers

in the month of June. The *ſtem* of this ſhrub is four or five feet in height, furniſhed with numerous *branches* even to its ſummit, ſcattered in all directions; the ſmaller ones knobbed and oppoſite. *Leaves* oppoſite, ſtalked, oval, ſmooth, pointed, paler beneath. *Stipulas* two, oblong, acute, at the baſe of each footſtalk. *Flowers* red, in a terminal head, ſeparated from each other by little ſcales.

PATACA, in *Commerce*, coins of Braſil, of 600 and 640 rees' value, which are current only in that country, and whoſe intrinſic value is 10 *per cent.* leſs than that of the Portugal coins. The Spaniſh patacas, or dollars, are reckoned in Liſbon at 830 rees, more or leſs. The aſſay of the old pataca of Braſil, of 640 rees, is worſe than the Engliſh ſtandard, being 2 dwt.; its weight is 12 dwt. 4¾ gr.; its content in pure ſilver grains is 268.3; and its ſterling value 3*s.* 1½*d.* The pataca of 600 rees (1755) is 4 dwt. worſe than the Engliſh ſtandard; its weight 11 dwt. 7½ gr.; its content in pure ſilver grains 246.4; and its ſterling value 2*s.* 10½*d.* The aſſay of the pataca of 640 rees (1768) is 4½ dwt. worſe than the Engliſh ſtandard; its weight 11 dwt. 9¾ gr.; its contents in pure ſilver grains 247.8; and its ſterling value 2*s.* 10¾*d.* The aſſay of the pataca of 640 rees (1801) is 7 dwt. worſe than the Engliſh ſtandard; its weight 12 dwt. 4¾ gr.; its content 262.2; and its ſterling value 3*s.* 0½*d.*: the half, quarter, &c. pieces are in proportion. The impreſſion on the pataca is the arms of Portugal, with 640 on the ſide, and the date near the top; legend, the name and title of the reigning ſovereign, with the addition of BRAS D. *Braſiliæ dominus* or *domine*, lord or lady of Braſil; reverſe, an armillary ſphere, placed on a croſs; legend, SUBQ. SIGN. NATA STAB.; *i. e.* SUBQUE SIGNO NATA STABILI; born under a ſteady ſign. There is a pataca of 600 rees bearing the letter J, with a crown over it, 600 on the ſide, and the date at the bottom; reverſe, an armillary ſphere, with an R in the centre.

PATACA is alſo the name given to the German dollars in Egypt; which formerly paſſed for 85 medini, but have been raiſed to 90 medini. In making bargains, however, where patacas are to be received in payment, it is neceſſary previouſly to ſettle the value of the coin.

Contracts alſo at Grand Cairo are made in funducli and Mahbub ſequins. The funducli are reckoned at 146 medini; and three Mahbubs are equal to four patacas, ſo that the Mahbub is worth 120 medini.

PATACA *Chica* and PATACA *Gourda*, two monies of account at Algiers, the former being eight temins or 232 aſpers. The pataca chica is worth 11½*d.* ſterling: the pataca gourda, or piaſtre, contains three patacas chicas, a Sultanin paſſes for 8½ patacas chicas, more or leſs, a ſequin for 10, and a Portugueſe dobraon, or Joaneſe, of 6400 rees, for 36. A Spaniſh dollar is worth from 4¾ to 4⅞ patacas chicas.

PATACK, in *Geography*, a town of Hindooſtan, in Palnaud; 20 miles W. of Timerycotta.

PATACON, or PATAGON, in *Commerce*, a ſilver coin in Switzerland, and alſo at Liege in Germany. The patacon of Bern conſiſts of 3 livres 6 ſous, or 33 batzes; the livre, according to the Tariff of 1755, being equal to 1*s.* 2½*d.* ſterling.

The patagon, or ecu, of Geneva, which is ſometimes uſed in accounts, is a real coin, worth 3 livres, or 10½ florins.

The patagon, or crown of Bern (and the half in proportion) appears by the aſſay to be 7 dwt. worſe than the Engliſh ſtandard; 18 dwt. 22 gr. in weight; its content in pure ſilver 411.5; and in value 4*s.* 9½*d.* ſterling. The old patagon, or ecu, of Braſil, is 14 dwt. worſe than the Engliſh ſtandard; 18 dwt. 4 gr. in weight; in content of pure ſilver 377.9; and in value 4*s.* 4½*d.* ſterling. The patagon, or ecu, of 1795 (the double and half patagons, and rix-dollars in proportion) is 1 oz. 0½ dwt. worſe than the Engliſh ſtandard; in weight 16 dwt. 14 gr.; in content of pure ſilver 329.3; and in value 3*s.* 10*d.* ſterling. The patagon of Geneva is 1 oz. worſe than the Engliſh ſtandard; in weight 17 dwt. 9 gr.; in content of pure ſilver 351; and in value 4*s.* 1*d.* ſterling.

The patacon of account at Liege is 4 florins, 8 eſcalins or ſchillings, or 80 ſtivers. The patacon is alſo a ſilver coin of 4⅝ current florins, or 8¼ eſcalins. The patacon weighs 429½ Engliſh grains, and is 10 oz. 8½ dwt. fine; it is therefore worth 4*s.* 4*d.* ſterling; but the patacon of account is worth only 4*s.* 2½*d.*; the eſcalin weighs 75½ Engliſh grains, and is 7 oz. 5 dwt. fine. A deterioration of the coins took place about the year 1792, as the patacon then coined is found to weigh only 423 grains, and to be 10 oz. 5 dwt. fine, which reduces its value to 4*s.* 3*d.*: ſince that period there has been no coinage at Liege, the city and its territory having been ſhortly after united to France, and the new French monies and coins introduced there.

The old patagon of Liege is 14 dwt.; worſe than Engliſh ſtandard; in weight 17 dwt. 20¾ gr.; and in value 4*s.* 4*d.* ſterling. The patagon of 1792 is 17 dwt.; worſe than the Engliſh ſtandard; in weight 17 dwt. 15 gr.; in content of pure ſilver 362.3; and in value 4*s.* 2½*d.* ſterling.

The impreſſion on the patagon of Baſil is a view of the city, over which is the name BASILEA; reverſe, a griffin ſupporting the arms of the city; legend, DOMINE CONSERVA NOS IN PACE. But the new ecus of 1795, &c. bear the arms of the city, with a hat and feathers, and the legend, RESPUBLICA BASILEENSIS; and on the reverſe, a wreath of oak, incloſing the legend as on the ducat. The impreſſion on the patagon of Bern is a man reſting on his ſword, legend, DEUS PROVIDEBIT; reverſe, arms of the city; legend, RESPUBLICA BERNENSIS. The old patagon or ecu of Geneva, has upon it a two-headed eagle crowned; legend, POST TENEBRAS LUX; reverſe, arms of Geneva, and over them a ſun, with the letters I. H. S. in the centre; legend, RESPUBLICA GENEVENSIS. The ecu of 1794 bears the head of a woman with a mural crown, legend, REPUBLIQUE GENEVOISE, and under it EGALITÉ, LIBERTÉ, INDEPENDENCE; reverſe, two ears of corn, and between them the words PRIX DU TRAVAIL, L'AN III. DE L'EGALITÉ; legend, APRES LES TENEBRES LA LUMIERE. But the ecus coined ſince that period have a ſun with the letters I. H. S. in the centre; the legend, POST TENEBRAS LUX, with XII FLORINS, IX SOLS; reverſe, the arms of Geneva encircled by a wreath of oak; legend, GENEVE REPUBLIQUE, L'AN V. DE L'EGALITÉ. The half ecu bears the ſame impreſſions, except that it is marked within the ſun VI FLORIN, IV S. VI d.

PATADA, in *Geography*, a town of Hindooſtan, in the circar of Aurungabad; 30 miles N. of Darore.

PATÆCI, or PATAICI, in *Mythology*, images of certain gods carried by the Phœnicians on the prows, or, as others ſay, on the ſterns, of their gallies.

Herodotus, lib. iv. calls them παταικοι. The word is Phœnician, and derived from *pethica*, *i. e.* *titulus*. (See Bochart's Chanaan, lib. ii. cap. 3.) But Scaliger does not agree. He derives the name from the Hebrew word *patach*, inſculpere, to engrave; and Bochart from *batach*, confidere, to truſt in; neither of which etymologies agrees to the uſe which the Phœnicians, and after them the Greeks, made of the gods pataici. Morin derives it from πιθηκος, *monkey*, this animal having been an object of worſhip among the Egyptians, and hence might have been honoured by their neighbours.

Mr. Elſner has obſerved, that Herodotus does not call the *pataci* gods; but that they obtained this dignity from the liberality of Heſychius and Suidas, and other ancient lexicographers, who placed them at the ſterns of ſhips, whereas Herorotus placed them at the prow. This ancient hiſtorian intimates that they reſembled little pigmies, and that they were ſo ugly that they provoked the ſcorn of Cambyſes, when he entered into the temple of Vulcan in Egypt.

Scaliger, Bochart, and Selden, have taken ſome pains about this ſubject.

Mr. Morin has alſo given us a learned diſſertation on this head, in the Memoires de l'Acad, des Inſcript. & Belles Lettres, tom. i. but Mr. Elſner thinks it defective in point of evidence.

PATAGOA, in *Geography*, a river of Braſil, which runs into the ſea near Rio Janeiro.

PATAGONIA, or as it is called by ſome geographers, "The Magellanic Lands," and by others "Tehuelia," a country of South America, bounded on the N. by the viceroyalty of La Plata or Buenos Ayres, on the E. by the Atlantic ocean, on the S. by the ſtraits of Magellan or Magelhaens, and on the W. by the South Pacific ocean; extending from about 64° 30′ to 74° 30′ W. long., and from about 38° to 54° S. lat. The boundaries of this country, however, are not accurately aſcertained, and its figure is very irregular. This country was firſt diſcovered by Magellan in the year 1519 (ſee *Straits of* MAGELLAN); but his account of it is defective and erroneous. The inhabitants have been repreſented by Dr. Robertſon, as occupying that vaſt, but leaſt known, region of America, which extends from the river De la Plata to the ſtraits of Magellan. Their proper ſtation, however, is in that part of the interior country which lies on the banks of the river Negro; but in the hunting ſeaſon, they often rove as far as the ſtraits already mentioned, which ſeparate Terra del Fuego from the main land. The firſt accounts of this people were brought to Europe by the companions of Magellan, who deſcribed them as a gigantic race, above eight feet high, and ſtrong in proportion to their enormous ſize. Several navigators have, in the courſe of the laſt century, viſited the country of the Patagonians; but, like their predeceſſors, they differ in their account of its inhabitants. Commodore Byron and his men, who entered the ſtraits in 1764, repreſent them to be of a gigantic ſtature, and to realize the tales of monſters in a human ſhape. One of them, who appeared to be a chief, had the ſkin of ſome wild beaſt thrown over his ſhoulders, and was painted ſo as to exhibit a hideous appearance: round one eye was a large circle of white, a circle of black ſurrounded the other, and the reſt of his face was ſtreaked with paint of different colours. Captain Byron did not meaſure him; but judging of his ſtature by its proportion to his own, he concluded it could not be much leſs than ſeven feet. This was the general ſize of the men, and the women were proportionably large. They were all painted and clothed nearly in the ſame manner: their teeth were as white as ivory, remarkably even and well ſet; but, except the ſkins, which they wore with the hair inwards, moſt of them were naked, ſome few only having upon their legs a kind of boot, with a ſhort pointed ſtick faſtened to each heel, which ſerved as a ſpur. When they were prevailed upon to ſit down, they accepted a quantity of yellow and white beads, which were diſtributed among them, with pleaſure. They did not appear to be wholly ſtrangers to European ornaments; for one woman among them, of an enormous ſize, and having her face frightfully painted, had bracelets, either of braſs, or very pale gold, upon her arms, and ſome beads of blue glaſs ſtrung upon two plaits of her hair. Theſe apparent giants had with them a great number of dogs, with which, it was ſuppoſed, they chaſed the wild animals which ſerved them for food. Their horſes, though not large, nor in good condition, ſeemed to be nimble, and well broken. Their bridle was a leathern thong, with a bit of a ſmall piece of wood, and their ſaddles reſembled the pads uſed among the country people in England. The women rode aſtride, and both men and women without ſtirrups; and yet they galloped without fear over the ſpit on the ſhore, the ſtones of which were large, looſe, and ſlippery. Such is the account given by Byron, in Hawkeſworth's Voyages, vol. i. Mr. C. Clarke, an officer of Byron's ſhip, in a letter publiſhed in the Philoſophical Tranſactions, vol. lvii. deſcribes the Patagonians as of a copper colour, with long black hair, and ſays, that ſome of them were certainly nine feet, if they did not exceed this ſtature. They are ſtout and well made: the women, he ſays, were from ſeven and a half to eight feet, though there was hardly a man leſs than eight feet. It does not appear, however, that theſe people were actually meaſured. The country is repreſented as ſomewhat hilly: the ſoil, in that part which lies off Port Deſire, is ſandy, producing nothing but a coarſe harſh graſs. Captain Wallis, who viſited this coaſt in 1766, meaſured thoſe that appeared to be the talleſt among them. One of theſe was ſix feet ſeven inches high, ſeveral more were ſix feet five inches, and ſix feet ſix inches; but the ſtature of moſt was from five feet ten inches to ſix feet. Captain Carteret's account agrees with that of captain Wallis. (See Philoſophical Tranſactions, vol. lx.) Theſe ſeem to have been the ſame people, whoſe ſize had been ſo much over-rated in the year 1764; for ſeveral of them had beads, and red baize, ſuch as that which had been put on board captain Wallis's ſhip, and which he naturally concluded they had got from captain Byron. In 1767 they were again meaſured by M. Bougainville, whoſe account agrees nearly with that of captain Wallis. To theſe teſtimonies we may here add another of great weight. In the year 1762, Don Bernardo Ibagnez de Echavarri accompanied the Marquis de Valdelirios to Buenos Ayres, and reſided there ſeveral years. He obſerves, that the ſouthern extremity of America is inhabited, not by the fabulous Patagonians, who have been ſuppoſed to occupy this diſtrict, but by Indians of the ſame ſtature with Spaniards, among whom no one was ſeen that exceeded in height two varas and two or three inches, *i. e.* about 80 or 81.332 Engliſh inches, if Echavarri makes his computation according to the vara of Madrid. This agrees nearly with the meaſurement of captain Wallis. Mr. Falkner, who reſided as a miſſionary forty-eight years in the ſouthern parts of America, ſays, that "the Patagonians, or Puelches, are a large bodied people; but I never heard of that gigantic race which others have mentioned, though I have ſeen perſons of all the different tribes of Southern Indians." Captain Wallis deſcribes them as being of a deep copper colour, like that of the Indians in North America, with ſtraight hair as harſh as hog's briſtles, which was tied back with a cotton ſtring: they are well made, robuſt, and bony, but their hands and feet are remarkably ſmall. They were clothed with the ſkins of the guanico, an animal reſembling a deer, without horns, and having a hump on its back: theſe ſkins were ſewed together in pieces about ſix feet long and five feet wide, wrapped round the body, and faſtened with a girdle, with the hairy ſide inwards: ſome of them had a ſquare piece of cloth made of the downy hair of the ſame animal, through which a hole being cut for the head, the reſt hung round them about as low as the knee. They alſo wore a kind of drawers, and buſkins, reaching from the mid-leg to the inſtep before, and behind brought under the heel: the reſt of the foot was without any covering: round their eyes were the circles already mentioned, and they were painted on their arms, and on other parts of the face. The eye-lids of all the young women were painted black. They talked much, but their language, a ſingle word or two excepted, was unintelligible. Every one had a miſſile weapon, tucked into the girdle. This weapon conſiſted of two round ſtones, covered with leather, and weighing about a pound, which were faſtened to the ends of a ſtring about eight feet long. This they uſed as a ſling, keeping one end in the hand, and whirling the other round the head, till with the force it had acquired, they diſcharged it upon the object. In the management of this double-headed ſhot they are ſo expert, as to be able to hit a mark not larger than a ſhilling, with both the ſtones, at the diſtance of fifteen yards: it is not, however, their cuſtom to ſtrike either the guanico or oſtrich with them, in the chaſe, but they diſcharge them ſo that the cord comes againſt the legs of the oſtrich, or two of the legs of the guanico, and ſo twiſted round them by the force and ſwing of the balls, that the animal, being unable to run, became an eaſy prey to the hunter. They eat their fleſh raw, and the paunch of the oſtrich without any preparation beſides turning it inſide out and ſhaking it. Each of theſe people, both men and women, ſays captain Wallis, had a horſe with a decent ſaddle, ſtirrups, and bridle. The men had wooden ſpurs, except one who had a large pair of ſuch as are worn in Spain, braſs ſtirrups, and a Spaniſh ſcymitar, without a ſcabbard: but notwithſtanding theſe diſtinctions, he did not appear to have any authority over the reſt: the women had no ſpurs. Their horſes, about fourteen hands high, appeared to be of a Spaniſh breed. Although they had no objection to familiar intercourſe, manifeſted no intention of miſchief, and jumped into the Engliſh boats with alacrity and joy, and when in them ſung ſeveral of their country ſongs; when on board they expreſſed no curioſity or wonder which the multiplicity of objects around them had a tendency to excite: they partook of the ſhip's proviſions without heſitation or ſcruple, but they would drink nothing beſides water. The animals on board, particularly the hogs and ſheep, and the Guinea hens and turkies, engaged their attention, but they ſeemed not to deſire any thing which they ſaw except the apparel; and only one of them, who was an old man, aſked for that. When the firſt volley was fired by the marines in their exerciſe, they were ſtruck with aſtoniſhment and terror; the old man, in particular, threw himſelf down upon the deck, pointed to the muſkets, and then ſtriking his breaſt with his hand, lay ſome time motionleſs, with his eyes ſhut; thus, as it was ſuppoſed, intending to ſhew that he was not unacquainted with fire-arms, and their fatal effect. The reſt ſeeing the people on board merry, and finding themſelves unhurt, ſoon reſumed their cheerfulneſs and good humour, and heard a ſecond and a third volley fired without much emotion: but the old man continued proſtrate upon the deck for ſome time, and never recovered his ſpirits till the fire was over. Although they were pleaſed with the beads and other trinkets which were diſtributed among them, and ſeemed very deſirous of hatchets and bill-hooks, they did not give the leaſt intimation that they would part with any proviſions; therefore no traffic was carried on between them and the Engliſh navigators.

This country conſiſts, for the greateſt part of it, of open deſerts and ſavannas, with a few willow trees on the rivers; and ſeems to enjoy a temperate but rather cool climate. But ſeparated in the middle by the vaſt mountains of the Andes, one part of it, and alſo its inhabitants, differ widely from the other. To the northward of La Plata this part of South America is covered with wood and ſtored with an inexhauſtible fund of large timber: but to the ſouthward of that river the eye can ſcarcely diſcover a ſingle tree or ſhrub fit for any mechanical purpoſe; but even this ſeemingly barren country has ſome good paſtures, and numerous droves of wild horned cattle, and every diſtrict abounds with horſes, which are ſuppoſed to have been brought hither by the Spaniards.

It has been ſuggeſted, that the Patagonians, called alſo Tehuels, are deſcendants of the natives of the Canaries, who were a tall people; and it is ſaid that they bury their dead on the eaſtern ſhores, as looking towards the country of their anceſtors. Bougainville ſuggeſts, that they lead the life of Tartars. They are ſaid to ramble through the immenſe plains of South America, being conſtantly on horſeback, purſuing the game or wild beaſts with which theſe plains abound, and dreſſing or covering themſelves with ſkins. They alſo reſemble the Tartars in another reſpect, by pillaging the caravans and travellers.

In a country which lies E. of Bootan, it is ſaid there are men of gigantic ſtature, being not leſs than eight feet high. See Turner's Tibet, p. 156.

PATAGONULA, in *Botany*, altered by Linnæus from the original name PATAGONICA, beſtowed on it by Dillenius, in his *Hortus Elthamenſis*, v. 2. 304. t. 226. f. 293.—It was ſo called from being a native of Patagonia. Such generic names however as are taken from countries being very unexceptionable, it is fortunate that the preſent one has been aboliſhed, the plant belonging to another genus. See CORDIA.

PATAIA, or PATHAY, in *Geography*, a town of Hungary; 7 miles N. of Colocza.

PATAK, a town of Hungary, on the Latorcza, in which the Proteſtants have a college; 25 miles S.S.E. of Caſchau.

PATALA, a town of Sweden, in Tavaſtland; 45 miles N.N.E. of Jamſio.

PATALA, one of the receptacles for ſinners, or hells of the Hindoos; for a liſt of which, ſee NARAKA. The name patala does not, however, occur there. It means rather the lower regions, a ſort of purgatory perhaps, over which Yama preſides, who is, however, uſually ſtyled king of hell. (See YAMA.) It is this word, probably, that ſome European writers have altered to Padalon. As conſort to Yama, who is a form of Siva, Parvati aſſumes the name of *Patala-devi*; which ſee.

PATALA-DEVI, in *Mythology*, a name of the Hindoo goddeſs Parvati, in her character of conſort of Yama, regent of the lower, or infernal regions. In this character ſhe correſponds with Proſerpine, or Hecate, and, like the Grecian goddeſs, has a triple character; and is ſometimes called Tri-ſakti-devi, and Tri-ſakti-devi-kumari, meaning the goddeſs with three powers, and the thrice-potent-virgin-goddeſs. Thus the triple-virgin-goddeſs Diana is ſo named as a terreſtrial deity, and Parvati is ſimilarly named Bhudevi, goddeſs of the earth. Luna and Swardevi are ſeverally the celeſtial goddeſſes, and Patala-devi correſponds with Proſerpine, in their ſubterrene, or infernal deſignations. See farther hereon under the articles PARVATI and YAMA.

PATANAM, in *Geography*, a town of Hindooſtan, in Marawar; 40 miles N.W. of Ramanadporum.

PATANI, the capital of a kingdom of the ſame name, in the peninſula of Malacca; 250 miles N. of Malacca. N. lat. 6° 58′. E. long. 10° 40′. See MALACCA.

PATANJALI, in *Philoſophy*, one of the ſyſtems or ſchools among the Hindoos. It correſponds, in many points, with that of the ſtoics, and its promulgator Patanjala, with Zeno; but the commentators on the Hindoo ſyſtems have buried the ſuccinct works of the founders in ſuch a maſs of illuſtration, as they term it, that their preciſe differences are not eaſily determinable. The ſyſtem called Sankya is two-fold; one diviſion was promulgated by *Kapila*, of which ſome notice is taken under that article, and the other by Patanjala. See Philosophy *of the Hindoos*, and Sankya.

PATAPA, in *Geography*, a town on the N. coaſt of the iſland of Samar. N. lat. 12° 40′. E. long. 125° 14′.

PATAPSCO, a river of America, in Maryland, which riſes in York county, Pennſylvania, and purſuing a S. and S.E. courſe till it reaches Elkridge Landing, about eight miles S.W. of Baltimore, turns eaſtwardly over falls, and widens into a broad bay-like ſtream to its mouth, formed in Cheſapeak bay by N. point, and Bodkin point on the S., the laſt being in N. lat. 39° 8′ 30″. It is about 30 or 40 yards wide juſt before it communicates with the baſon, on which ſtands the large commercial town of Baltimore. By its firſt diſcoverer it was called Bolus river, from the red earth found near it, reſembling bole armeniac. It is navigable for veſſels drawing 18 feet water to Fell's point at Baltimore; but its navigation further is prevented by the falls a little above Elkridge Landing.

PATARD, or Patac, in *Commerce*, a copper coin in Flanders. Patacs are florins or gilders of 20 ſtuyvers or ſtivers, each of which was formerly ſubdivided into 16 phennings, but for a long time they have been divided into 12 parts or deniers. Accounts were formerly kept at Dunkirk, as at Antwerp, in florins, patards, and phennings. The following proportions ſubſiſted among the old monies of Dunkirk; 1*l.* Flemiſh = 6 florins = $7\frac{1}{2}$ livres Tournois = 20 ſhillings = 120 patards = 150 ſous = 240 pence or gros = 1800 deniers = 1920 phennings. But of late years the new French ſyſtem of francs and centimes has been adopted, and the new coins of France are alſo uſed at Dunkirk. At Liſle, a patard, or ſtiver, is reckoned at $1\frac{1}{4}$ ſou, or 15 deniers; however, the preſent current coins are chiefly thoſe of France.

PATARINS. See Albigenses and Paulicians.

PATARNE, in *Geography*, a town of France, in the department of the Sarthe, and chief place of a canton, in the diſtrict of Mamers. The place contains 717, and the canton 9941 inhabitants, on a territory of 175 kiliometres, in 17 communes.

PATASPOUR, a town of Bengal; 28 miles S.S.E. of Midnapour. N. lat. 22° 3′. E. long. 87° 37′.

PATATE, a town or village of South America, in the audience of Quito, and juriſdiction of the aſſiento of Hamberts, ſituated between Riobamba and Latacunga. Patate is famous for its plenty of ſugar-canes, and the fineneſs of its ſugar.

PATAVINITY, Patavinitas, among *Critics*, a fault objected to Titus Livy, which he derived from his country Padua, by the ancients called Patavium.

Aſinius Pollio, as we are informed by Quintilian, taxed Livy with Patavinity. But what this Patavinity conſiſted in, the critics have been much puzzled to find out.

Morhof believes it to be a certain turn of expreſſion, and ſome phraſes peculiar to the Paduеſe. All we know for certain is, that it was a fault in the language of Livy, not in the ſentiments or manners. In all probability it is one of thoſe delicacies that are loſt in a dead language.

Dan. Georg. Morhof has an expreſs treatiſe, "De Patavinitate Liviana," printed at Kiel in 1685, where he explains, very learnedly, the urbanity and peregrinity of the Latin tongue.

PATAVIRCA, in *Geography*, a town of Peru, in the juriſdiction of Santa, or Guarmey, conſiſting of about 60 houſes; and lying upon the road from Paita to Lima, 67 miles N. of that city. In its vicinity, at the diſtance of about three quarters of a league, and near the ſea-coaſt, are the ruins of a palace of the Indian princes. S. lat. 10° 25′.

PATAVIUM, in *Ancient Geography*, a town of Italy, in Venetia. The honour of its foundation is aſcribed to Antenor. It was ſituated in a country ſo fertile, that Conſtantine Palæologus is ſaid to have declared, that throughout the Eaſt, he did not know a place ſo proper for the ſeat of the terreſtrial paradiſe. Its citizens were diſtinguiſhed at Rome more than thoſe of other towns, as they had a right of ſuffrage in common with the Roman citizens themſelves. It was taken and deſtroyed by Attila, about the year 450 or 452, and ſoon after re-eſtabliſhed by Narſes. It was taken by the Lombards in 601, and reduced to aſhes; but Charlemagne reſtored its former luſtre. See Padua.

We learn from Tacitus (Annal. l. xvi. c. 21.) that this city was accuſtomed to celebrate the antiquity of its origin, and the name of its founder, in annual games, ſaid to have been inſtituted by that hero. Livy informs us (l. x. c. 2.) that a Naumachia, exhibited annually on one of the rivers that water the town, perpetuated the memory of a ſignal victory obtained by the Paduans, long before their union with Rome, over a Lacedæmonian fleet, commanded by Cleonymas. They are alſo ſaid to have not unfrequently aſſiſted the Romans, and contributed in no ſmall degree to their victories, particularly over the Gauls, the common enemy of both ſtates, while an immenſe population furniſhed them with the means of giving effect to their meaſures, by ſending powerful armies into the field. Padua afterwards ſubmitted to the genius of Rome, but ſubmitted with dignity, and was accordingly treated not as a conquered, but an allied republic. She was admitted to a participation not only of the franchiſe, but even of the riches of Rome, as ſhe could count at one period 500 Roman knights among her citizens, and drew by her manufactures, from the emporium of the world, no ſmall ſhare of the tribute of the provinces. After having ſhared the glory of Rome, Padua partook of her diſaſters; like her ſhe was plundered by Alaric and Attila; and, like her, half depopulated by the flight of her diſmayed inhabitants, and obliged to bend under the yoke of a ſucceſſion of barbarian invaders. Padua was, after the expulſion of the Goths, ſubjected to the Lombards, the Franks, and the Germans. At length it ſhook off the yoke, and with its ſiſter ſtates, Verona, Vicenza, Ferrara, and Mantua, experienced the advantages and diſadvantages of republicaniſm, occaſionally bleſſed with the enjoyment of freedom, and occaſionally, with all its forms, ſmarting under the rod of a powerful uſurper. At length, in the 15th century, Padua united itſelf to the Venetian territory, and under the influence of its laws acknowledged the ſupreme authority of that republic. At a late period it ſuffered much by fire and ſword, as well as by earthquakes and peſtilence. Nevertheleſs, it is ſtill a great, and in many reſpects a beautiful city, as its circumference is near ſeven miles, its population about 40,000 perſons, and notwithſtanding the general narrowneſs of its ſtreets, many of its buildings, public and private, are truly magnificent. The abbey of St. Giuſtina deſerves particular attention; it was planned by Palladio, and built by Andrea Riccio in the higheſt ſtyle of architecture. The piazza before it, called Prato della Valle, is perhaps one of the largeſt and nobleſt in Europe. The cathedral deſerves to be ranked in the claſs of eminent buildings; and the church, called "Il Santo," from St. Antony of Padua, is of Gothic architecture, and was enriched, before the late French invaſion, with a valuable treaſury; the tomb of the ſaint, however, ſtill remains, adorned with fine marble, and moſt exquiſite ſculpture. The town-hall, "Il Salone," is remarkable for its magnitude, being 312 feet long, 108 broad, and 108 high, and contains a monument in honour of Livy, with an ancient buſt. In ancient times, Padua was famous for its woollen manufactures, celebrated in proſe by Strabo, and in verſe by Martial; it ſtill retains much of its reputation in this reſpect, its wool, and woollen articles, being conſidered as the beſt in Italy. But the principal glory of Padua ariſes from its literary purſuits, and an ancient, and well directed propenſity to literary ſcience. The univerſity was founded about the 11th century, and its foundation was to Padua the commencement of an era of glory and proſperity. Students, amounting in number to 18,000, are ſaid to have crowded its ſchools during ages. Of 18,000 ſtudents, 600 only remain; though the lecturers are men of zeal and abilities, the plan of ſtudies, the reſult of long and ſucceſsful experience, and its libraries, collections and cabinets of every kind numerous and magnificent. Its decline is owing to the eſtabliſhment of ſimilar inſtitutions in other countries, and to the general diffuſion of the means of knowledge. Beſides the univerſity, in which is an agricultural lecture, encouraged by the allotment of 15 acres of land for experiments, Padua has ſeveral academies, which have been eſtabliſhed at different times, and are ſupported with ſpirit. Euſtace's Claſſical Tour through Italy, vol. i.

PATAY, in *Geography*, a town of France, in the department of the Loiret, and chief place of a canton, in the diſtrict of Orleans; 12 miles N.N.W. of Orleans. The town contains 930, and the canton 6198 inhabitants, on a territory of 227½ kiliometres, in 15 communes. This place is famous for the defeat of the Engliſh by the French, under the conduct of the celebrated Maid of Orleans, in the year 1429.

PATAZ. See CAXAMARQUILLA.

PATCHEPALIAM, a town of Hindooſtan, in Coimbetore; 13 miles N.N.E of Coimbetore.

PATCHIEU, a river of Bootan, called by the Bootans Jumta Chieu, or the junction of three rivers, *viz.* the Hatchieu, the Tchintchieu, and the Patchieu.

PATCHWARY, a town of Bengal; 32 miles S. of Rajemal.

PATCOOM, a town of Bengal; 50 miles S.W. of Rogonatpour. N. lat. 23° 3′. E. long. 87° 2′.

PATE, in *Fortification*, a kind of platform, like what they call a horſe-ſhoe; not always regular, but generally oval, encompaſſed only with a parapet, and having nothing to flank it. It is uſually erected in marſhy grounds, to cover a gate of a town, or the like.

PATE, in *Geography*, a ſmall iſland of France, in the river Gironde, near Blaye.

PATEABARRY, a town of Bengal; 20 miles S. of Moorſhedabad.

PATEAGUR, a town of Hindooſtan, in the circar of Sollepour; 35 miles N.W. of Sollepour.

PATEE, or PATTEE, a term, in *Heraldry*, for a croſs, ſmall in the centre, and widening towards the extremes. The field, ſable, a croſs patee, argent; by the name of Croſs.

This form of a croſs is alſo called *formé*.

It is alſo a term uſed by ſome to expreſs a ſort of irregular line, differing from the indented, ingrailed, and all the other regular and common lines, and called by ſome the dove-tail line. It is ſomewhat like the joint called by our joiners by this laſt name, but it is not in general uſe, and is by ſome reckoned among what the French call the *clatte*.

PATEEBA, in *Geography*, a town of Hindooſtan, in Benares; eight miles S. of Chunar.

PATEES, PATTY. See PETTY.

PATEGOW, in *Geography*, a town of Hindooſtan, in the circar of Hindia; eight miles S. of Hurdah.

PATEL, in *Biography*, a French landſcape painter much eſteemed. The place of his birth, and the date of it, are equally unknown. The execution of his pictures is of an eaſy, light, and agreeable character; and his general taſte of a pleaſing nature; but he does not rank above the claſs of artiſts merely agreeable.

PATELI, or PUTALA, in *Geography*, a town of Thibet, in the diſtrict of Laſſa, where is ſituated, upon a mountain, the temple or palace of the grand Lama; five miles E. of Laſſa.

PATELLA, in *Anatomy*, the knee-pan, a ſmall bone ſituated in the tendon of the extenſor muſcles of the knee, and occupying the front of the joint. See EXTREMITIES.

PATELLA, *Fractures of.* See FRACTURE.

PATELLA, *Diſlocations of.* See LUXATION.

PATELLA, the *Limpet*, in *Natural Hiſtory*, a genus of worms of the claſs and order Vermes Teſtacea, of which there are about 250 ſpecies deſcribed. The animal is a limax: the ſhell is univalve, ſubconic, ſhaped like a baſon, and without a ſpire. In all caſes the ſhells of this ſpecies are attached to ſome hard body. Their ſummit is ſometimes acute, ſometimes obtuſe, flatted, turned back or perforated. The rock, or other hard body to which they are always found adhering, ſerves as a kind of ſecond or under ſhell to preſerve them from injury; hence they have by ſome naturaliſts, though erroneouſly, been claſſed among the bivalves. The ſhells have been analyſed, and they are found to conſiſt chiefly of carbonate of lime. When expoſed to a red heat, they emit a ſmell like horn; and when diſſolved in acids, a ſemi-liquid gelatinous matter was left behind. The various ſpecies, which are ſo numerous, are diſtinguiſhed by the peculiarities in their ſhells. The ſpecies are ſeparated into five ſections.

Species.

Section A. *Furniſhed with an internal lip; ſhell entire.*

EQUESTRIS. Shell orbicular, perfoliate outwardly; lip vaulted perpendicular. This ſpecies, of which there is a variety, inhabits the Indian and American ſeas. It is an inch wide.

NERITOIDEA. Shell ovate, with a ſubſpiral tip; lip lateral. The native place of this ſpecies is not known. It is generally found adhering to other teſtaceous ſubſtances. The ſhell is the ſize of a cherry, and the inhabitant is red.

SINENSIS. Shell ſubconic, ſmooth; lip ſomewhat lateral. It inhabits the Mediterranean, Atlantic, and Indian ſeas. The ſhell is very thin and pellucid, ſometimes it is of a cheſnut colour ſpeckled with minute grey dots, but generally it is white, with brown ſpots and rays.

PORCELLANA. Shell oval, with a recurved tip; lip placed behind, and flat. It inhabits India and Goree. The ſhell is convex, within white, the outſide red, with white ſcaly ſpots, and tranſverſe undulate blue lines.

FORNICATA. Shell oval, obliquely recurved behind; lip placed behind, and concave. This is found in the Mediterranean and near the iſland of Barbadoes,

ACULEATA. Shell oval, brown, with prickly ſtriæ; the

the crown is recurved. This is found in the American iſlands.

Trochiformis. Shell conic, longitudinally plaited; internal lip lateral. It inhabits Tranquebar and the Falkland iſlands.

Auricula. Shell roundiſh, with radiate grooves and ſtriate; crown recurved; internal cavity ear-ſhaped. It inhabits Borneo, Santa Cruz, and St. Thomas's iſlands.

Rugosa. Shell ovate, thin, hyaline, obſoletely wrinkled tranſverſely; margin unequal; lip unequally repand, hyaline. It inhabits China, and is generally found in the Buccinum ſpiratum.

Goreensis. Shell oval, flat, thin, white, gloſſy, lamellate on the outſide. This is found adhering to rocks at Goree, and is about half an inch in diameter.

Contorta. Shell granulate with white, with very fine perpendicular oblique ribs; the lip is very thin, oblique and covering half the cavity. This is a very ſmall ſhell.

Explanata. Shell white, very finely ſtriate; crown inclining downwards, and dilated, behind which the ſhell is depreſſed.

Plicata. Shell conic ochraceous, with ferruginous rays within, with longitudinal tranſverſely ſtriate plaits.

Striata. Shell conic, white and ſtriate, with undulate grooves; the crown is a little lateral.

Solea. The ſhell of this is a little twiſted, pellucid, with ferruginous ſpots, thinly plaited, and tranſverſely grooved above; lip undulately repand.

Echinata. Shell conic, prickly, glabrous within. It is found foſſile near Crignon. The ſhell is calcareous and whitiſh, covered on the outſide with prickles.

Section B. *With the margin angular or irregularly toothed.*

Crepidula. Shell oval, flattiſh, ſmooth, the lip flat behind. It is found in the Mediterranean, eſpecially about the coaſts of Barbary.

Laciniosa. Shell with elevated unequal rays, thicker and obtuſe on the outſide. This is an inhabitant of India.

Saccharina. The ſhell of this ſpecies is angular, with ſeven carinate obtuſe ribs; It is found at Java and Barbadoes.

Barbara. Shell toothed, with nineteen elevated vaulted muricate rays. It is found near the Falkland iſlands.

Granularis. Shell toothed, with elevated angular imbricate ſtriæ. Inhabits Southern Europe, and the Cape of Good Hope.

Granatina. Shell angular, with numerous muricate ſtriæ. It inhabits Jamaica and Southern Europe, is from one to three inches long.

* Vulgata. Shell with about fourteen obſolete angles, and dilated acute crenate margin; crown central. This is deſcribed and figured in Donovan's Shells: it inhabits the marine rocks of Europe and India. It is about two inches high, and from three to four wide: in the older ſhells the margin is nearly even, and the number of ribs irregular.

* Depressa. Shell with fourteen angles, oblong; crown lateral. This is deſcribed and figured in Pennant's Britiſh Zoology. It inhabits the rocks of Europe.

Cærulea. Shell crenate, ſubangular, with numerous unequal ſtriæ; beneath it is blue. This is an inhabitant of the Mediterranean.

Tuberculata. The ſhell of this ſpecies is ſlightly toothed, conic, tuberculate, retuſe behind. The ſhell is yellowiſh, with white tubercles diſpoſed in rows.

Lepas. Shell roundiſh, pectinate, with imbricate tuberculate tranſverſely ſtriate rays; crown incurved. There are two varieties, the one found in Chili, the other in the Falkland iſlands. The ſecond is uſually named the Bronze limpet.

Tricostata. Shell oval, three-ribbed, white, ſtriate at the ſides; internal margin flattiſh and a little jagged. It is found in the Indian ocean.

Mytilina. Shell carinate, rounded on the fore-part, with undulate ſtriæ, brown, perlaceous within, the hinder margin crenate. Found in different parts of South America, and is an inch and a quarter long.

Ovata. Shell toothed, oval, rather conical, ribbed, white, brown between the ribs, within brown with white grooves.

Stellata. Shell angular, ovate, depreſſed, with ten elevated rays, and ſhorter intermediate ribs.

Islandica. Shell ſolid, ovate, gibbous, unequally ribbed, within glabrous, with alternate cinereous and horny rays; margin crenate. It inhabits, as its ſpecific name denotes, the ſhores of Iceland, and is about an inch and a half long.

Cypria. Shell oval, ſubpellucid, ribbed, the ribs are occaſionally tuberculate, and foliaceous on the outſide. It inhabits the ſhores of Cyprus.

Costata. Shell ovate, a little gibbous, white, with crowded unequal tuberculate rugged ribs.

Leucopleura. Shell ovate, duſky, with crowded white ſmooth unequal ribs.

Striatula. The ſhell of this ſpecies is a little rugged, white, with brown flexuous ſtriæ branching outwards, with two brown ſpots in the bottom of the hollow.

Octoradiata. Shell convex, with eight larger tuberculate ribs beſides leſſer ones. It inhabits the American iſlands.

Rubra. Shell toothed, red under the brown ſkin, with elevated rounded ſtriæ, and leſſer imbricate ones, within white.

Hepatica. Shell ovate, gibbous, thin, toothed, and of a liver colour, with elevated carinate, obtuſely ſpined ſtriæ.

Badia. Shell ſubconvex, brown, within bay, with twelve larger rays each ſurrounded by a rib, and as many leſſer ones.

Fuscescens. Shell flattiſh and brown, with ten elevated ſtriæ; crown of a different colour; bottom with a pale liver coloured ſpot, edged with glaucous and gold; the inner margin in brown. The ſhell is from two to four inches long; more or leſs convex.

Maculosa. Shell flattened, the fore part narrow and rounded; yellowiſh, ſpotted with brown, with a white crown; with flat rounded equal rays.

Rotundata. Shell ſuboval, flattened, varied with brown, with rounded flat ribs and a differently coloured crown and bottom.

Pecten. Shell ovate, obſcurely edged with white, radiate, with diſtant ſtriæ pectinate outwardly; crown grey; bottom with a ſpot ſurrounded with a white belt. It is found in North America.

Corrugata. Shell ovate, wrinkled, cheſnut; crown with a white circle; within cinereous, radiate with white; bottom pale edged brown edged with white.

Alboradiata. Shell ovate, each ſide brown, radiate with white, with elevated pectinate ſtriæ; the crown is white and the bottom yellowiſh. It is about half an inch long.

Olivacea. Shell ovate and olive colour; within brown, varied with white, with elevated unequal ſtriæ; the margin with two rows of unequal ſpines; crown pale yellow; bottom ſilvery, with a brown centre. The ſhell is half an inch long, and the bottom is ſurrounded with a white belt.

Cerea. Shell ovate, both ſides waxen colour, perpendicularly ſtriate, with thirteen flattened ribs and white bottom.

Impressa. Shell ovate, with elevated, tranſverſely ſtriate, browniſh ſtriæ, ſpotted with white, and reaching half way down; crown with a white impreſſed circumference.

Aurantia. Shell ovate, ſolid; citron undulate with brown, with elevated crowded wrinkled ſtriæ and white bottom.

Cingulum. Shell ovate, denticulate, cinereous, with three black belts, within milk-white, with elevated unequal ſtriæ, nodulous on the outſide, and ſpinous at the margin.

Oculata. Shell ovate, white, with flattened ribs of unequal length, browniſh between them; crown with a brown belt.

Magellanica. Shell thin, ovate, white, with a nodulous margin, within perlaceous, with elevated ſtriæ; crown pointed, brown; bottom brown. It inhabits the ſtraits of Magellan.

Ochroleuca. Shell ochraceous, with three yellow bands, and elevated, acute, unequal ſtriæ; crown white; bottom ſilvery.

Dentata. Shell white, denticulate, with elevated, acute, unequal ſtriæ; crown ſurrounded with a double row of cinereous dots, and a duſky-grey band.

Nodosa. Shell yellow, radiate with brown, with elevated, nodulous, unequal ſtriæ; crown and bottom white.

Cinerea. Shell toothed, cinereous, with unequal elevated ſtriæ, between which it is brown and rugged; crown pointed, milk-white.

Exalbida. Shell whitiſh, with brown rays, and elevated, rounded, unequal ſtriæ, between which it is rugged; crown obtuſe, white, with a broad interrupted brown band, and another marginal one.

Cancellata. Shell cinereous and brown, with decuſſate ſtriæ and two rows of tubercles; the crown is yellowiſh, and the bottom has a white ſpot. There is a variety that is grey, with duſky rays, and a few yellow ſtriæ; within dirty yellow with a white bottom. It is found in Jamaica, and is about one inch and a half long.

Lævis. Shell rounded, ſmooth, yellowiſh, with a broad citron marginal band ſpotted with brown, and another narrow one; margin dilated, acute, and a little rugged.

Argentea. Shell ſmooth, thick, a little ſilvery; with eleven brown rays; margin ſilvery; crown pale yellow; bottom ivory, with a double white ring. This is about two inches long, but is very rare.

Cuprea. Shell white, with ſtrong, rounded, brown ribs, within perlaceous; crown and bottom coppery.

Rubida. Shell pale, liver-coloured both ſides, with alternate larger and leſſer carinate ribs; it has a flat and white crown.

Glabra. Shell brown, glabrous above, with elevated crowded white ſtriæ beneath; crown obtuſe, white, with a fulvous border; bottom fulvous.

Flaveola. Shell yellowiſh, varied with brown; with flattened unequal ribs; crown obtuſe; bottom varied reddiſh and white.

Infundibulum. Shell denticulate, compreſſed on each ſide, rounded, yellow, with perpendicular ſtriæ and carinate ribs; bottom varied with white and cinereous.

Cyathus. Shell rounded, glabrous, white.

Sinica. Shell ovate, entirely yellow, with undulate grooves, within ſtriate perpendicularly; margin ſcalloped. It is found in China, and is about three inches and a half long.

Punctata. Shell roundiſh, white, with many-coloured dots, radiate at the baſe, and ſurrounded with two brown rings; margin a little flexuous.

Lugubris. Shell ovate, with annular ſtriæ, black, with elevated unequal ſtriæ; margin crenate; crown and bottom white.

Ulyssiponensis. Shell ovate, toothed, yellowiſh, with elevated flattened ſtriæ; crown pointed, and of an orange colour.

Umbella. Shell oblong, red, with elevated, unequal, white ſtriæ; the margin is crenate. It inhabits Africa, in numerous varieties. The ſhell is rarely of a ſtraw-colour; it is ſometimes ſpotted or clouded.

Crenata. Shell thin, pellucid, ſtriate, blackiſh, with olive rays, within glaucous or cinereous; crown pointed; margin crenate; bottom milk-white. It is found on the ſhores of Africa, Malaga, and Liſbon.

Ferruginea. Shell ferruginous, with angular or undulate ruſſet lines, and cinereous belts, within milk-white, with elevated knotty ſtriæ; the margin is plaited.

Melanogramma. Shell oval, ochraceous, with elevated black ſtriæ, within ſilvery, ſpotted; crown pointed, white; bottom with a ſtraw-colour ſpot.

Repanda. Shell ovate, thin, within ſilvery, with browniſh rays, and thin undulate ſtriæ, with bay-coloured granulations. The margin is flexuous. It inhabits the ſeas of Magellan.

Angulosa. Shell oval, white, with very thin ſtriæ, and varied with red ſpots and dots; margin eight-angled.

Tigrina. Shell oval, ſmooth, poliſhed; pellucid, ſtriate with ſeven yellowiſh ribs; the colour is blueiſh-olive, dotted with brown; the margin is ſeven-angled.

Monopis. Shell oblong, flattiſh, bay ſtriate with white, within milk-white, with eleven elevated unequal ſtriæ; crown rounded, white. It inhabits the American iſlands.

Chloroflicta. Shell ovate, toothed, brown, dotted with green, with eleven elevated, hollow, broader ſtriæ, and as many narrower ones; the crown is white.

Margaritacea. Shell thin, unequally ſtriate, white, within perlaceous; crown with an orange mark, ſurrounded with a yellowiſh ring; the margin crenate. This is an Iceland ſhell.

Tenuissima. Shell oval, thin, ochraceous, with angular cheſnut lines, and elevated, obtuſe, hollow, unequal ſtriæ.

Mitrula. Shell ſolid, ſub-conic, tranſverſely plaited, with a flexuous margin. It inhabits Barbadoes.

Plicaria. Shell ovate, toothed, with thirty elevated, obtuſe, undulate, and tranſverſely wrinkled ſtriæ. Found in the ſtraits of Magellan.

Pentagona. Shell whitiſh, obtuſely pentangular, with a dilated crenate margin; crown obtuſe; bottom reddiſh.

Ænea. Shell ovate, tender, pellucid, with elevated ſtriæ, covered with a whitiſh cuticle, under which it is ſilvery, with ruſſet rays; crown and bottom coppery. It inhabits the ſtraits of Magellan.

Conchacea. Shell thin, oblong-ovate, with very fine undulate ſtriæ, yellowiſh, with elevated darker rays; crown recurved. It inhabits South America, and reſembles the common muſcle, except in the hinge.

Stannea. Shell ovate, ſilvery, with elevated flattened ſtriæ; crown obtuſe, coppery; bottom with an oval bay mark; the margin is flexuous.

Candidissima. Shell orbicular, ſtriate, white, with a browniſh band, dotted with brown, within grey, with unequal ſtriæ; margin tranſverſely wrinkled.

Section C. *With a pointed recurved tip or crown.*

* HUNGARICA. Shell entire, conic, pointed, ſtriate, with a hooked revolute crown. This is deſcribed and figured in Donovan's Britiſh Shells; and likewiſe in Pennant's Britiſh Zoology, vol. iv. It inhabits the American, Mediterranean, and Aſiatic ſeas.

IMBRICATA. Shell entire, oblong, imbricate, the crown placed behind.

* MAMMILLARIS. Shell entire, conic, ſtriate, ſub-diaphanous, with a reflected ſmooth crown. This is deſcribed and figured by Pennant, and it inhabits the ſhores of the Mediterranean and Africa.

TRICARINATA. Shell ſubſtriate, with three ribs on the fore-part.

PECTINATA. Shell entire, ovate, with wrinkled ſlightly branched ſtriæ; crown nearly central, reflected, and pointed. It is found on the ſhores of the Mediterranean, and is about two inches long.

LUTEA. Shell entire, oval, convex, ſtriate, with a ſubmarginal, reflected, mucronate crown. It inhabits divers parts of India, and is about the ſize of a melon ſeed.

CRISTATA. Crown revolute; back creſted, carinate.

* LACUSTRIS. Shell very entire, oval, membranous, with a nearly central, mucronate, reflected ſhell. It inhabits the freſh waters of Europe.

* FLUVIATILIS. Shell very entire, oval, a little horny, with a marginal mucronate crown; aperture oval. This is very like the laſt, and inhabits, like it, the freſh waters of Europe.

CÆCA. Shell entire, with elevated dots, and ſtriate; crown acute, ſtraight. Found in the bays of Norway, on ſtones. The ſhell is white, with from ſixty to eighty ſtriæ; the inhabitant is white, ovate, without the leaſt appearance of eyes.

VIRGINEA. Shell very entire, white, with red bands. This is found on the fuci, in the bays of Norway.

TESSELATA. Shell, very entire, of a whitiſh colour, teſſellate with red. Found on the rocks and fuci about Norway.

FULVA. Shell very entire, orange, with a mucronate and nearly vertical crown. It inhabits Norway, on fuci and teſtaceous ſubſtances.

SUBSPIRALIS. Shell ovate, with an obtuſe ſub-ſpiral tip. Found in Norway.

AMBIGUA. Shell ovate, with a ſlightly toothed margin, and a rather acute and reflected point. Inhabits Norway.

RUBICUNDA. Shell very entire, rather conical, ſmooth, and reddiſh. It inhabits the deeps of Greenland.

BORNIANA. Shell ovate, very entire, with very fine longitudinal ſtriæ, white, with red veins.

CALYPTRA. Shell entire, with imbricate ribs; the crown is hooked; the margin ſinuate. Inhabits North America.

MELANOLEUCA. Shell ſtriate, very entire, alternately black and white.

PECTUNCULUS. Shell oblong, convex, with elevated nodulous ſtriæ, ſlightly toothed, within poliſhed; crown curved forwards.

FASCIATA. Shell ovate, white, with a brown band, and elevated acute ſtriæ; the margin is dilated, crenate, and cinereous within.

ELEGANS. The ſhell of this ſpecies has decuſſate ſtriæ that are white, radiate with red, denticulate; the crown is grey.

SQUAMOSA. Shell with elevated ſtriæ, tranſverſely undulate on the outſide, brown, ſilvery towards the margin, crown bronzed, hooked.

SQUALIDA. Shell entire, brown, within whitiſh with a blueiſh bottom; the margin blueiſh, radiate with brown, with elevated obſolete ſtriæ; crown knotty.

CROCEA. Shell ſmooth, ſub-angular, yellow, radiate with brown; crown obtuſe, white; bottom with a whitiſh ſpot.

CANDIDA. Shell ovate, ſmooth, on both ſides white, with a roſy belt on the outſide.

TRIGONA. Shell compreſſed, convex in the middle, cancellate, white, with a browniſh band on the outſide, and margin within; crown marginal, obtuſe.

MINIMA. Shell rounded, convex, thin, ſmooth, whitiſh with reddiſh ſpots; crown very obtuſe, and white. It inhabits Ferroe iſland.

TRANQUEBARICA. Shell ovate, thin, pellucid, with very fine crowded ſtriæ, cheſnut with white ſcales, within milk-white, with a brown ſpot at the bottom; the crown is marked with an azure ſpot. It inhabits Tranquebar, as its name imports.

PERVERSA. Shell oblong, horny, very thin, pellucid, glabrous, with a ferruginous baſe. It is found in Africa. The point of the crown is bent back towards the hind parts of the ſnail.

CERNUA. Shell with decuſſate grooves, thin, pale fleſh-colour, with an oblong aperture.

INCURVA. Shell entirely white, flat; point of the crown twiſted.

INTERRUPTA. Shell oval, depreſſed, glabrous, browniſh, with green dots diſpoſed in oblique interrupted rays; crown with an obtuſe hook.

Section D. *Very entire, and not pointed at the tip or crown.*

AFRA. Shell conic, ſtriate, greeniſh or pale brown, within white; crown glabrous, white, obtuſe, central; margin glabrous. It inhabits the iſland Gorée.

LUSITANICA. Shell conic, white, with brown rays marked with ſtriæ, granulate with black; crown acute, not radiate, and ſurrounded with a cheſnut ring. It inhabits Portugal, on the ſea rock, and is very ſmall.

RADIATA. Shell rounded, convex, grey, with decuſſate ſtriæ; crown pointed, central, and marked with twelve orange radiate lines; the bottom is horny. It inhabits Jamaica.

AREOLATA. Shell pyramidal, reddiſh-grey, with very thin circular ſtriæ, croſſed by longitudinal ones; crowned violet. It reſembles the P. magellanica of a former ſection, but is more depreſſed, and broader at the baſe.

FLAMMEA. Shell ovate, with very fine annulate ſtriæ, reddiſh-grey, with undulate brown rays; the crown is acute, central, white in the middle.

INDICA. Shell reddiſh-grey, with radiate ſtriæ, glabrous, narrower on one ſide; crown acute, ſmooth, ſurrounded with a reddiſh ring. It inhabits India, is nearly four inches long, and reſembles the P. ruſtica, to be deſcribed hereafter.

SURINAMENSIS. Shell thick, ſubovate, yellowiſh, with black rays, and longitudinal unequal ſtriæ, and ſurrounded with knotty belts; crown obtuſe, ſmooth and white. It inhabits Surinam.

VITELLINA. Shell ovate, yellow, with an unequally ſtriate baſe, and obtuſe whitiſh crown.

SANGUINOLENTA. Shell ovate, convex, white, ſolid, with intermixed, capillary, and flexuous elevated longitudinal ſtriæ; the crown is ſurrounded with a broad ring, dotted with red. It is found in Africa.

LÆVIGATA. Shell ovate, yellow, within blueiſh-white, with oblique ſtriæ, the crown is white, ſmooth, and poliſhed.

Punctulata. Shell rounded, white, with many-coloured dots, radiate towards the baſe, and ſurrounded with two brown rings.

* Pellucida. Shell very entire, ovate, gibbous, pellucid, with four blue rays. This is deſcribed and figured by Donovan, Pennant, Liſter, and others. It is about the ſize of a walnut, and is found in the European and Northern ſeas.

Testudinaria. Shell very entire, acute, ſmooth, glabrous. It inhabits the Indian and Northern ſeas in numerous varieties.

Testudinalis. Shell very entire, ovate, and ſtriate ; a variety has its crown obtuſe, and nearly central. It inhabits the ſeas about Greenland, among fuci.

Compressa. Shell very entire, oval, oblong, ſtriate, ſmooth, compreſſed on the back. It inhabits India, and is about four inches long.

Rustica. Shell very entire, conic, with fifty obtuſe ſtriæ.

Fusca. Shell very entire, ovate, obtuſe, with elevated ſtriæ.

Notata. Shell entire, ſtriate, with a ſub-mucronate erect crown, within white, with a black heart-ſhaped ſpot white in the middle. It inhabits the Mediterranean.

Cruciata. Shell very entire, oval, ſub-convex, brown, with a white croſs.

Radians. Shell entire, oval, pellucid, depreſſed, ſtriate, horny, radiate, with black ſpots. It inhabits New Zealand.

Rota. Shell roundiſh, the inſide ſomewhat ſilvery, the outſide with reddiſh ſtreaks and a yellowiſh border. Inhabits the Indian and American ſeas.

Umbellata. Shell entire, roundiſh, diaphanous, depreſſed, with yellowiſh rays within ; crown pale yellow, margin very acute. It is about four inches and a half long, and is found in the Indian ocean.

Pastulata. Shell thin, oval, depreſſed, radiate, white, dotted with red, within ſmooth.

Symmetrica. Shell ovate, conical, ſolid, brown, divided into partitions by perpendicular white lines, within ſmooth, white ; margin cut archwiſe.

Citrina. Shell ovate, convex, with very fine decuſſate ſtriæ, white, with two broad yellow bands, within whitiſh, with a milk-white bottom ; crown browniſh.

Capensis. Shell oval, with decuſſate ſtriæ, the longitudinal ones alternately brown and white, within ſomewhat perlaceous, with a white bottom. It inhabits the Cape of Good Hope.

Anomala. Shell coarſe, brown, orbicular, with a ſub-marginal crown. It inhabits the deeps of the Norway ſeas, on rocks and dead teſtaceous ſubſtances. The ſhell of this ſpecies is very minute, rough, with very fine raiſed dots, ſometimes cinereous, beneath blue ; the inhabitant conſiſts of two reddiſh tough twiſted maſſes, fringed down the whole length ; the fringes compoſed of crowded yellow rigid criſp hairs united to the reſt of the body by a blue tendon ; ovaries branched, orange ; eggs globular.

Guttata. Shell finely ſtriate, and varied with dots of different colours ; the bottom is duſky. It is about an inch and a half long, and reſembles the compreſſa.

Mytiliformis. Shell glabrous, lead colour, with a white horſe-ſhoe ſhaped band within. It inhabits the Ferroe iſland, adhering to zoophytes.

Scutiformis. Shell oval, thin, black, with white perpendicular flattened ſtriæ.

Cochlear. Shell white, flattiſh, one part narrow, caniculate within, with a blueiſh callus ſhaped like a horſe-ſhoe, the other part rounded.

Craticulata. Shell oval, thin, depreſſed, cancellate, radiate.

Cruentata. Shell oval, a little convex, varied with red, and ſlightly toothed, with elevated unequal rough ſtriæ.

Papyracea. Shell depreſſed, thin, hyaline, dotted with red, with cheſnut rays outwardly, and crowded thinner, and granulate thicker ſtriæ.

Cylindrica. Shell oval, flat, with crowded longitudinal ſtriæ of unequal thickneſs, and all granulate.

Decussata. Shell ſomewhat convex, white, with crowded red dots, within radiate with red and white, with decuſſate glabrous ſtriæ, and a few longitudinal thicker white ones.

Hæmatostricta. Shell thin, depreſſed, white, dotted with red, within browniſh, ſpotted, ſtriate ; crown varied with cinereous and browniſh.

Asteroides. Shell flattiſh, cancellate, cinereous, with a cheſnut ſtar and rays towards the margin ; crown ſmooth, grey, ſurrounded with brown dots.

Ovalis. Shell oval, ſomewhat convex, thin, with crowded ſtriæ, grey, with blackiſh rays and ſpots.

Rubella. Shell a little convex, ſtriate, reddiſh ; crown whitiſh, ſpotted with red ; the bottom part is whitiſh.

Spectabilis. Shell flattiſh, a little wrinkled, ſtriate, reddiſh-white, with a cheſnut band towards the crown, and another bay one at the margin.

Conspurcata. Shell ſolid, flattiſh, ſtriate, black, with ſtriate dots, within blueiſh, crown dirty-yellow.

Melanosticta. Shell ſolid, flattiſh, ſtriate, whitiſh, with cinereous rays and black dots, within blueiſh ; crown a little pointed and whitiſh.

Atra. Shell black, ſtriate, with a paler crown ; bottom with a browniſh mark ſurrounded with a white horſe-ſhoe ſhaped band.

Specularis. Shell oval, convex, ſolid, glabrous, liver-colour, within and the crown browniſh, the latter ſurrounded with a white border, and interrupted browniſh band.

Canescens. Shell oval, black, within blueiſh, ſtriate, the larger ſtriæ flattened and grey ; crown obtuſe, browniſh, with a whitiſh area.

Virescens. Shell oblong, flattiſh, dilated on each ſide and ſtriate, olivaceous, radiate, and ſpotted with white, within blue.

Pulla. Shell rounded, convex, longitudinally ſtriate, and tranſverſely wrinkled, browniſh, within ruſſet-brown, with whitiſh and browniſh rays, and two milk-white bands above.

Revoluta. Shell ſub-oval, crenate, ſtriate, ochraceous, with red ſpots and rays, broader on one ſide ; margin revolute.

Squamata. Shell ovate, convex, ſtriate, the ſtriæ ſcaly, varied with white and black ; crown nearly central, grey.

Testacea. Shell ovate, very finely ſtriate, teſtaceous, with three tranſverſe browniſh rings, within pale yellow, with a whitiſh bottom.

Capillaris. Shell ovate, thin, brown, with darker bands, and paler ſtriæ, within browniſh ; crown and bottom white.

Glauca. Shell ovate, narrower on one ſide, very finely ſtriate, blueiſh, with a white band towards the margin, and another blueiſh one ; crown and margin white.

Obscura. Shell ovate, flattiſh, ſtriate, varied with yellowiſh and brown, dotted with green, within brown, crown bay.

Exoleta. Shell oval, ſub-convex, unequally ſtriate, whitiſh, with a few black lines reaching half way; bottom with an ochraceous ſpot.

Affinis. Shell oval, flattiſh, ſolid, with a few black rays reaching half way; the bottom is marked with a white ſpot.

* Rotalis. Shell white, opaque, flat, round, with a regular toothed margin. It is found occaſionally at Sandwich; is very minute and rare.

Fuscata. Shell ovate, convex, very finely ſtriate, and varied with brown.

Mellia. Shell rounded, ſolid, glabrous, honey-colour, within white; crown browniſh; margin ſpotted with brown, and ſilvery within; bottom with a liver-colour ſpot.

Anceps. Shell ſolid, glabrous, a little pointed, pale cheſnut, within pale fleſh-colour.

Guineensis. Shell ovate, convex. very ſmooth, one ſide broader and cheſnut-coloured, the other with the crown pale yellow; margin fleſh-coloured on each ſide.

Complanata. Shell depreſſed-hemiſpherical, obſoletely cancellate, varied with white and browniſh.

Virgata. Shell ovate, longitudinal ſtriate, whitiſh with brown rays and crown, within perlaceous.

Nivea. Shell ſubconic, ſolid, glabrous, ſnowy, with tranſverſe concentric rings. Inhabits Africa.

Grisea. Shell oval, with crowded radiate grooves, within poliſhed; crown nearly central. It inhabits Africa.

Navicula. Shell narrow, with decuſſate ſtriæ, roſy with a whitiſh callous belt on one ſide in the middle, and whitiſh bottom, the margin is revolute on each ſide.

Cingulata. Shell ſuboval, obſoletely ſtriate, ferruginous, with two elevated obſcurely barred belts; crown nearly central.

Scarpa. Shell clear white, with undulate ſtriæ, narrow, the broader ſide with an acute callus, the narrower ſide repand.

* Parva. Shell ſmall, entire, without gloſs, whitiſh, faintly radiate with red. This is deſcribed and figured by Donovan. It is found on the Devonſhire coaſts, but is very rare.

Section E. *With the crown or tip perforated.*

* Fissura. Shell oval, conic, with reticulate ſtriæ, cleft on the fore-part; crown recurved. It is found on divers parts of the coaſts of Europe and Barbary, and in this country. It has been deſcribed by Donovan, Pennant, and others.

Fissurella. Shell grooved and perforated on the forepart; crown recurved. It is found adhering to ſtones in the Iceland ſeas.

Pustula. Shell oval, gibbous, convex, with reticulate ſtriæ, and crenate margin. It inhabits the Mediterranean, Atlantic, and Indian ſeas.

* Græca. Shell ovate, convex, reticulate; the margin crenulate inwardly. Deſcribed and figured by Donovan, Pennant, Liſter, and other naturaliſts.

Nimbosa. Shell ovate, ſtriate, rugged, brown, with an oblong perforation. It inhabits the Mediterranean and Atlantic.

Nubecula. Shell ſubovate, rugged, white, radiate with red, with an ovate perforation. It inhabits the Mediterranean, and reſembles the laſt ſpecies.

Picta. Shell ovate, ſolid, clouded, white and green, with oblique, undulate, alternate violet and white rays. It inhabits the ſtraits of Magellan.

Barbadensis. Shell oblong, unequally ſtriate, within ſmooth, milk-white, with greeniſh bands; margin crenulate. It inhabits Barbadoes.

Jamaicensis. Shell whitiſh, tranſverſely annulate, with longitudinal ſtriæ covered with foliaceous tubercles, which are larger outwardly. This is found on the coaſts of Jamaica and Barbadoes.

Caffra. Shell ovate, compreſſed, ſtriate, very finely annulate, and radiate with black; bottom milk-white; perforation nearly central. It inabits the Cape of Good Hope.

Perforata. Shell a little convex, tranſverſely wrinkled, browniſh with ſtraw-coloured rays and ſpots, with longitudinal ſtriæ alternately larger and ſcaly.

Porphyrozonias. Shell oblong, compreſſed, unequally ſtriate, white with five purple interrupted belts, within greeniſh-white. It inhabits North America. The perforation is very minute, orbicular, and ſurrounded on the inſide with a red circle.

Rosea. Shell very thinly ſtriate, with alternate roſy and white rays; the perforation is oval.

Scutellum. Shell each ſide repand, compreſſed; perforation radiate with grooves.

Avellana. Shell thin, white, with very fine ſtriæ; perforation oblong, and divided by a ligament. There is a variety of which the margin is a little revolute on each ſide.

Spinosa. Shell ovate, convex, white, with elevated ſtriæ, growing thicker towards the margin, and marked with four rows of tubercles, the exterior tubercles are ſpinous.

Denticulata. Shell ovate, gibbous, whitiſh radiate with brown, within green, with elevated ſtriæ; margin denticulate, crenate within.

Nodulosa. Shell ovate, convex, with elevated nodulous ſtriæ, croſſing thinner tranſverſe ones, within white; crown black.

Angusta. Shell depreſſed, white, with elevated ſtriæ, every fourth of which is larger; perforation very narrow, and ſurrounded with a cheſnut band on the outſide, and a green one within.

Inæqualis. Shell ovate, convex, with decuſſate ſtriæ, white, ſomething triangular on the broader ſide; perforation ſurrounded with an elevated ring, round which is a red line.

Minuta. Shell oval, pyramidal, reddiſh, with twelve elevated white ſtriæ; bottom white; perforation oval, and nearly central; margin denticulate.

Conspersa. Shell ovate, convex, ſtriate, yellowiſh, with red dots, and three oblique rays; within ſmooth, white.

Rubescens. Shell oval, ſtriate reddiſh, with a white band in the middle; within it is white; margin entire; perforation linear.

Sanguinea. Shell oval, thin, red, within greeniſh-white, with longitudinal ſtriæ croſſing finer tranſverſe ones, which are rugged outwardly.

Ventricosa. Shell oval, ventricoſe, with decuſſate red ſtriæ, within white; crown depreſſed, with an orbicular perforation; margin entire.

Triradiata. Shell oval, flattiſh, ſtriate, white with three brown rays, within whitiſh, perforation linear; margin entire.

Tenuis. Shell oval, a little convex, pellucid, longitudinally ſtriate, white, with five half-brown rays; within yellowiſh.

Melanozonias. Shell convex, roſy, with an interrupted black band, and elevated unequal white ſtriæ ; within ſmooth, white ; margin denticulate.

EFFUSA. Shell convex, roſy, with elevated nodulous white, alternately larger ſtriæ ; perforation round and large.

PUNICEA. Shell convex, cheſnut, with unequal, crowded decuſſate ſtriæ, within ſmooth, with alternate green and white bands ; the perforation is round.

RUFESCENS. Shell convex, white ſhaded with red, and here and there ſtriate with red, with granulate ſtriæ ; within it is ſmooth and white.

DIMIDIATA. Shell convex, above clear white, cancellate, longitudinally ſtriate towards the margin, with a roſy band.

LACTEA. Shell convex, white, with unequal acute glabrous ſtriæ ; within ſmooth ; the crown is roſy ; the perforation large and orbicular.

PYRAMIDALIS. Shell convex, roſy, ſtriate, with twelve ſmooth ribs ; within ſmooth and greeniſh-white.

BICOLOR. Shell narrow, alternately radiate with cheſnut and white, with unequal, thick, lamellate ſtriæ ; within ſmooth, white, margin crenulate.

ERYTHROCEPHALA. Shell convex, white, with red lines outwardly, and elevated rugged contrary ſtriæ, ten of them larger ; the margin repand and inflected.

VERRUCOSA. Shell above brown, ſtriate, terminated by a knotty belt, beneath radiate with red, with acute nodulous ribs ; margin denticulate, repand.

CONTAMINATA. Shell convex, with nodulous unequal ribs, the larger ones yellowiſh-brown, and marked with black dots diſpoſed in interrupted circles, within greeniſh-white ; the crown is cinereous.

ATRATA. Shell a little convex, narrow, white with red lines, outwardly ſpotted with black, with elevated, convex, unequal ſtriæ ; the perforation is oblong, with a cheſnut margin.

CANDICANS. Shell white, cheſnut-coloured towards the margin, with twenty alternately larger ribs ; the crown is reddiſh, with an oblong perforation.

SUCCINCTA. Shell ovate, pointed, white, above ſmooth, with an elevated belt in the middle, dotted with ferruginous towards the margin, with elevated unequal ſmooth ſtriæ ; margin denticulate.

PUSILLA. Shell flattiſh, white, ſub-orbicular, with twenty alternately leſs and ſhorter elevated ſtriæ ; the perforation is round, and ſurrounded on each ſide with a reddiſh circle.

FLAVESCENS. The ſhell of this ſpecies is very thin, pointed, finely ſtriate, yellowiſh, with ſix brown rays ; margin denticulate ; crown cinereous, with an oblong perforation.

ANTIQUATA. Shell a little convex, obſoletely ſtriate ; white with red ſtriate rays on the outſide. The perforation is oblong and unequal.

GALEATA. Shell ſolid, ovate, compreſſed, within white ; crown a little recurved, obtuſe, with a linear perforation ; margin crenate.

PERSONATA. Shell convex, with decuſſate lines and black rays. It inhabits the Falkland iſlands.

PATELLA, in the *Hiſtory of Inſects*, a name given by Liſter, and ſome others, to a certain little huſk or ſhell, found on the bark of the cherry, plum, and roſe trees, and ſome others, containing an animal within, and uſeful in colouring. Theſe patellæ are of a globular form, except when they adhere to the tree, and are of a ſhining cheſnut colour in moſt kinds. The huſk itſelf ſtrikes a very fine crimſon colour on paper, and within it is found a white maggot of no value : this, in time, hatches into a very ſmall but beautiful bee. The whole ſize of this bee is not more than that of half the body of an ant. They have the ſting of bees, and the three ſpots placed in a triangle on the forehead, which are ſuppoſed to be eyes. They are black, and have a large round whitiſh or pale yellow ſpot upon the back. The upper pair of wings are ſhaded and ſpotted, but the other pair are clear.

The ſhells or huſks deſerve a trial, to find whether the colour they yield might not be brought to uſe ; it is to be obſerved, that the deepeſt coloured huſks afford the fineſt and deepeſt purple : they muſt be alſo uſed while the creature contained in them is in the maggot form ; for when it is changed into the bee ſtate, the ſhell is dry and colourleſs. Dr. Liſter, who had obſerved theſe patellæ, went ſo far, on comparing them with the common kermes, as to declare that they were of the ſame nature with that production : but this hiſtory of their being the workmanſhip of a bee, to preſerve her young maggot in, is not agreeable to the true hiſtory of the kermes ; for that is an inſect of a very peculiar kind. This author has been too juſtly cenſured for his precipitancy of judging of things, and perhaps has fallen into an error by means of it here.

It is very poſſible that this patella may be the ſame ſort of animals with the kermes, but then it produces its young within this ſhell or huſk, which is no other than the ſkin of the body of the mother animal ; but as there are many flies, whoſe worms or maggots are lodged in the bodies of other animals, it may be, that this little bee here deſcribed, may love to lay its egg in the body of the proper inſect now mentioned, and the maggot hatched from that egg may eat up the proper progeny, and, undergoing its own natural changes there, iſſue out at length in form of the bee. This may have been the caſe in ſome few which Dr. Liſter examined, and he may have been miſled by this to ſuppoſe it the natural change of the inſect. Phil. Tranſ. N° 72.

PATELLA *Fera*, the *wild limpet*, a name very improperly given by Rondeletius and Aldrovand, to the auris marina, or concha Veneris. This is by no means of the patella kind. See EAR-*ſhell.*

PATELLARIA, in *Botany*, from *patella*, a diſh with a broad brim, a name firſt adopted by Ehrhart, in his *Phytophyllacium*, for ſome of the *Lichen* tribe ; and retained by Hoffmann, *Pl. Lichenoſæ*, v. 1. 54, for what Linnæus termed *leproſi ſcutellati*. Acharius, in his *Prodromus* 36, receives it on a larger ſcale, ſo as to admit the *leproſi tuberculati*, at leaſt in part ; ſuch as afterwards, in his *Methodus*, conſtituted the genus of *Lecidea*. *Patellaria* is, in that work, ſunk in his multifarious genus *Parmelia;* and though its idea is reſtored, in his more recent *Lichenographia*, the name has given place, apparently without neceſſity, to *Lecanora*. See LICHENES and PARMELIA.

PATELLARII, in *Mythology*, among the Romans, placed by Plautus in the loweſt claſs, and called by Horace alſo the little gods.

PATENA, in the *Romiſh Church*, the cover or lid of the chalice, made of the ſame metal with it, ſerving to hold the particles of the hoſt, and give the people to kiſs, when they make an offering.

It has its name *patena, a patendo;* and this is a general name, in Columella, for any broad flat veſſel.

PATENODE, in *Geography*, a town of the iſland of Ceylon, near the E. coaſt ; 78 miles E. of Candy. N. lat. 7°. E. long. 82°.

PATENTS, or *Letters* PATENT, in *Law*, the king's letters, ſealed with the great ſeal, ſerving to convey the title or property of ſome grant, favour, privilege of a new eſtabliſhment, or the like. See LETTERS *Patent*.

They have their name from their being delivered open, *ut pateant omnibus*; by way of contradiſtinction from *letters de cachet*, or *literæ clauſæ*, or *cloſe rolls*, which are ſealed.

Grants or letters patent muſt firſt paſs by bill; which is prepared by the attorney or ſolicitor-general, in conſequence of a warrant from the crown; and is then ſigned, that is, ſuperſcribed at the top, with the king's own ſign manual, and ſealed with his privy ſignet, which is always in the cuſtody of the principal ſecretary of ſtate; and then ſometimes it immediately paſſes under the great ſeal, in which caſe the patent is ſubſcribed in theſe words, "per ipſum regem; by the king himſelf." Otherwiſe the courſe is to carry an extract of the bill to the keeper of the privy ſeal, who makes out a writ or warrant thereupon to the chancery; ſo that the ſign manual is the warrant to the privy ſeal, and the privy ſeal is the warrant to the great ſeal: and in this laſt caſe the patent is ſubſcribed, "per breve de privato ſigillo, by writ of privy ſeal."

It is to be noted, that patents differ from writs: a coroner is made by *writ*, not by patent.

To this office, enacted 18 Jac. I. belongs a clerk, &c.

PATENT, *Letters*, under the royal authority, confer on a perſon the excluſive privilege of making and ſelling any thing, ſo that no perſon be reſtrained in what he had before, or in uſing his lawful trade. The latter part of the definition of letters patent, or of a monopoly conferred by letters patent, will apply only to ſuch as have been granted ſince the ſtatute of the 21ſt of James, c. 2, commonly called the ſtatute of Monopolies; prior to that period, letters patent conferred ſuch a monopoly as interfered with the rights of other people, and reſtricted the freedom of trade.

Monopoly, in the latter acceptation of the word, has already been conſidered under its proper head: it exiſted in this kingdom unreſtrained till the time of king John, who firſt granted municipal franchiſes. In the 25th year of the reign of Edward III. a ſtatute was paſſed, which granted a free trade equally to foreigners and natives; this ſtatute, however, was afterwards repealed; and monopolies that not only excluded foreigners from the advantages of Engliſh trade, but alſo injured the Engliſh nation at large, in order that the favourites of monarchs might be rewarded, or that the crown might be enriched, were eſtabliſhed. During the reign of queen Elizabeth, they had ſpread ſo widely over the commercial tranſactions of the country, as to threaten the utter ruin of trade; when a liſt of only part of the commodities, which had been appropriated to monopoliſts, was read in the houſe of commons, a member cried, "Is not bread in the number?" "Bread," ſaid every one with aſtoniſhment; "yes, I aſſure you," replied he, "if affairs go on at this rate, we ſhall have bread reduced to a monopoly before next parliament." At this period, moſt extraordinary powers were granted to the patentees; eſpecially to thoſe who held the excluſive privilege of ſelling ſaltpetre; they had the power of entering every houſe, and of committing what havoc they pleaſed in ſtables, cellars, or whereſoever they ſuſpected ſaltpetre might be gathered. Hume.

It might have been ſuppoſed, that ſuch a ſagacious princeſs as Elizabeth would have perceived the evil conſequences of granting monopolies; but either the reduced ſtate of the royal funds, or her fondneſs for favourites, blinded her to the true intereſts of her people. Towards the end of her reign, however, the clamour of the country was ſo loud and general, that ſhe ſent a meſſage to parliament, that ſhe would immediately cancel the moſt oppreſſive of the excluſive privileges ſhe had granted.

Before proceeding to the conſideration of the ſtatute of James I. already alluded to, it may be proper very briefly to take a view of the ſtatute law, as it reſpects patents prior to that period. Monopolies are expreſsly contrary to Magna Charta, (29, 30.) The ſtatute of Edward III. declared all grants by monopolies void; and when Philip and Mary granted by letters patent, to the mayor, bailiffs, and burgeſſes of Southampton, the excluſive privilege of importing Malmſey wine at that place, the judges were unanimous in their opinion, that the ſtatute was void, as being againſt the freedom of trade. The principal ſtatutes relating to patents in the 16th, and in the beginning of the 17th century, were in the 6th of Henry VIII., the 4th of Edward VI., and the 13th and 43d of Elizabeth.

The 21ſt of James I. ch. 3, is regarded as the declaration ſtatute, by which the law on this ſubject is determined, and the 6th ſection of this ſtatute particularly relates to patents for new inventions: this ſection contains the exception to the general law of the ſtatute; the general law is, that all monopolies, and all commiſſions, grants, licences, letters patent, &c. for the ſole buying, ſelling, making, uſing, &c. of any thing, ſhall be void; the excepting clauſe declares, that the law of the ſtatute ſhall not extend to any letters patent, for the term of 14 years or under, granted to the true and firſt inventor, or inventors of manufactures, &c. which others, at the time of making ſuch letters patent, ſhall not uſe. Sir Edward Coke, in his explication of this ſtatute, gives it as his opinion, that the new manufacture, to which letters patent may be granted, muſt not be generally inconvenient; and this conſtruction ſeems to have been adopted in his time, as he ſays, that a patent for a fulling-mill to thicken bonnets and caps, was ſet aſide, on the ground, that it was holden inconvenient to turn labouring men to idleneſs. But this conſtruction does not prevail now, and, indeed, if it did, it would effectually defeat the object of the ſixth ſection of the ſtatute of monopolies.

In the letters patent which are granted for new inventions, the improvements or inventions are firſt ſtated; the prayer of the petitioner to have the excluſive benefit for himſelf, or his aſſigns, for fourteen years, is next given; and this prayer is declared to be complied with, according to the ſtatute. After commanding all ſubjects not to interfere with the patent right, and iſſuing a mandate to all officers not to moleſt the patentee in the exerciſe of it, the letters patent declare the patent void, if it appear that the grant is contrary to law, or prejudicial to the ſubject; or if the thing invented have been in uſe before the date of the grant; or if the patentee be not the inventor; or if it interfere with prior letters patent; or if the patent be transferred to more than five perſons, or to any who act as a corporate body; or finally, if the nature of the invention be not deſcribed, or the deſcription be not enrolled within one calendar month after the date of the letters patent. The letters patent conclude with a declaration, that they ſhall be conſtrued in the moſt beneficial ſenſe for the patentee.

A writ of *ſcire facias*, to repeal letters patent, lies in three caſes; 1ſt, when the king grants the ſame thing to two or more perſons; 2dly, when the king is deceived in his grant; and 3dly, when the grant is againſt law. The following rules are laid down by chief juſtice Lee, reſpecting the caſes in which miſtakes do not vitiate the grant: 1. If the king's intention is manifeſt, a falſe recital in a thing not material, will not vitiate the grant. 2. It is not vitiated in caſes where the king is deceived, not by the falſe ſuggeſtion of the party, but by his own miſtake, upon the ſurmiſe and information of the party. And 3. Although the king is miſtaken in point of law, or matter of fact, if that is not part of the conſideration of the grant, it will not vitiate it.

Patents for new inventions are granted for a term of fourteen years; and any royal grant for ſuch purpoſe beyond that term is void. The fourteen years are accounted to commence from the date of the firſt letters patent. The patent right, however, may be extended by act of parliament.

A patent may be granted for an improvement on an old manufacture; but the improvement muſt be material and uſeful; and the patent extends to the improvement only. The ſtatute conſiders a manufacture brought from abroad into the kingdom (provided it has not been practiſed before) as a new manufacture, and entitled to letters patent. No old manufacture in uſe before, can be prohibited by the grant of the ſole uſe of a new invention; nor can a patent be granted for a method, or principle; its object muſt be ſome ſubſtantial thing produced.

The following rules are laid down by judge Butler, reſpecting the deſcription required in the ſpecification, which by the patent grant, the patentee is to cauſe to be enrolled in the high court of chancery. The invention or improvement muſt be diſcloſed, and deſcribed in ſuch a manner, that others of the ſame trade may be taught to do the ſame thing for which the patent is granted: 2. He muſt deſcribe it in ſuch a manner, that the public, after the expiration of the term, may have the uſe of the invention in as cheap and beneficial way as the patentee himſelf; and therefore, if the ſpecification deſcribes many parts of a machine, &c., and the patentee uſes only a few of them, or does not ſtate how they are to be put together, the patent is void. 3. If the ſpecification be in any part materially falſe or defective, the patent is againſt law, and cannot be ſupported.

The enrolment of the ſpecification in the high court of chancery, where it is open to the inſpection of every one, enables thoſe who are inclined to purchaſe the machine, invention, &c., to become acquainted with its nature and merits; and, at the ſame time, prevents ſuch as are employing their ſkill, time, and money on improvements, or inventions of a ſimilar nature, from merely doing what has been done before.

With reſpect to the form of the ſpecification, it muſt be under the hand and ſeal of the inventor; the enrolment muſt take place within one calendar month after the date of the letters patent; if the patentee paſſes over this time, it cannot be enlarged without an act of parliament for that expreſs purpoſe.

When a patentee brings an action againſt any perſon for infringing his patent, it is incumbent on him to ſhew, that the invention was new, and that the ſpecification is full and complete.

It is frequently for the convenience or intereſt of a perſon, who has invented or improved a machine, &c. to delay taking out a patent for it; in this caſe, he may enter a *caveat*. A *caveat* will protect his invention or improvement for the ſpace of one year, after which, if he have not brought his contrivance to maturity, he may renew it again for an equal period, and ſo on for any ſucceſſive number of years. The caveat muſt be delivered at the chambers of the attorney and ſolicitor-general; and if an application be made for a patent for an invention of the ſame nature, notice is given to the perſon who has entered the caveat: if he requires it, the attorney-general gives a ſeparate audience to each of the rival inventors, and makes his report to the king, according to his opinion reſpecting the priority of invention. A petition to the king, ſtating the nature of the invention, and praying letters patent, accompanied by an oath taken before a maſter in chancery, that the invention is new, are the ſteps preparatory to taking out a patent. Separate patents muſt be taken out for England, Scotland, and Ireland; but in a patent for England, the patentee may, on the payment of a ſmall additional ſum, have the colonies and plantations abroad included. The petition and oath are referred by the ſecretary of ſtate for the home department to the attorney-general, and on his report, recommending letters patent, his majeſty iſſues his warrant, in conſequence of which the bill is made out, which is the grant of his majeſty, and of this the patent is the tranſcript; the nature of the ſpecification, and the enrolment of it, have been already noticed.

Having thus conſidered letters patent in a legal light, we ſhall conclude with a few remarks on them, as a ſubject of political economy. It is plain from what we have ſtated, that they are the remains of that ſyſtem of monopoly, which formerly prevailed in this and all the other countries of Europe; and ſo far, at firſt ſight, they may appear objectionable. But when we conſider the object for which they are granted, we ſhall probably be of opinion, that it takes them completely out of the force of thoſe objections, which are ſo juſtly brought againſt all monopolies.

It is evident, that no man will beſtow his time, ingenuity, and money, in endeavouring to invent or improve any thing, unleſs, when he has ſucceeded, he is ſecure in being rewarded. This reward can be ſecured to him, only by granting him, for a certain number of years, the excluſive privilege of his invention or improvement; or by government purchaſing it from him. In the former caſe, while his patent right laſt, he has a monopoly; he may put what prices on his invention he pleaſes; or he may execute it in a careleſs or improper manner; but, on the other hand, the public will in a great meaſure be protected from too high a price, by the alternative they have, of following the old methods; and if they gain by purchaſing the new invention, the price put upon it by the inventor can hardly be ſaid to be exorbitant. With reſpect to his doing his work in a careleſs manner, the public are equally guarded againſt this; for by ſuch conduct, he would act againſt his own intereſt, and the ſale of his invention.

If, indeed, we could ſuppoſe that government would examine, in all caſes, thoroughly, impartially, and ſcientifically, into the merits of every invention, it might be better for them to throw it open to the public, by rewarding the inventor, though in this caſe, the nation at large would pay for what directly and materially benefited only certain claſſes, whereas, by letters patent, thoſe reward the inventor, whoſe intereſt it is to reward him. On the whole, therefore, the preſent mode is the beſt, with perhaps this alteration, that the letters patent ſhould vary in their duration, according to the importance of the invention, and the money and time expended by the inventor.

Patent *of Peerage*. See Peer.

Patent *of Precedence*. See Precedence.

Patent *Rolls*. See Rolls.

Patent *Writs*. See Writs.

Patent *Leaf*, in *Botany*. See Leaf.

PATENTEE, is he to whom the king grants letters patent.

PATEQUEMADE, in *Geography*, a town of the iſland of Cuba; 20 miles E. of Vella del Principa.

PATER, or Pader, a river of Germany, which riſes near Paderborn, and runs into the Lippe, about one mile E. of Neuhans.

Pater *Patratus*, among the Romans, the firſt and principal perſon of the college of heralds, which formed a kind of board or council, to examine the differences that aroſe between neighbouring ſtates, and endeavour amicably to accommodate the ſame.

PATERA, among *Antiquaries*, a goblet, or veſſel, uſed by the Romans in their ſacrifices, in which they received the blood of their victims, offered their conſecrated meats to the gods, and with which they made libations.

The word is formed from *pateo*, *I am open*, *quod pateat*, becauſe it had a great aperture; in contradiſtinction to bottles, &c.

On medals, the patera is ſeen in the hands of ſeveral deities; and frequently in the hands of princes, to mark the ſacerdotal authority joined with the imperial, &c.

Hence F. Joubert obſerves, that beſides the patera, there is frequently an altar, upon which the patera ſeems to be pouring its contents.

The patera was of gold, ſilver, marble, braſs, glaſs, or earth; and they uſed to encloſe it in urns with the aſhes of the deceaſed, after it had ſerved for the libations of wine and liquors at the funeral. See PATRA.

The patera is an ornament in architecture, frequently introduced in friezes, faſcias, and impoſts, over which are hung feſtoons of huſks or flowers; and they are ſometimes uſed by themſelves, to ornament a ſpace; and in this caſe it is common to hang a ſtring of huſks or drapery over them: ſometimes they are much inriched with foliage, and have a maſk or a head in the centre.

PATERA, in *Geography*, a town of Aſiatic Turkey, in Natolia. This town, originally called "Patara," was a city of Lycia, and famous for a temple of Apollo, ſaid to have been equal to that of Delphos, for its oracle, magnificence, and riches, and this god is ſaid to have divided his perſon between them, being ſix ſummer months at Delphos, and the ſix winter months at Patera. Ptolemy Philadelphus ordered it to be called "Arſinoe," but it recovered its former name, and is celebrated as the place of the martyrdom of St. Leo and St. Gregory, It was once the ſee of a biſhop, but is now a mean place; 8 miles E. of Ekſenide.

PATERCULUS, VELLEIUS, in *Biography*, a Roman hiſtorian, was deſcended from an ancient family in Campania, which had borne various important offices in the ſtate. He was himſelf a military tribune; and ſerved under Tiberius in Germany as commander of the cavalry, and accompanied him in all his expeditions during nine years. After having been quæſtor he was nominated prætor. Theſe are all the facts relating to the perſonal hiſtory of Paterculus that have come down to us. As he was the friend to Sejanus, it has been conjectured that he was involved in the ruin of that miniſter. Paterculus is known principally by his abridgment of the Roman Hiſtory, addreſſed to the conſul M. Vinicius, but of this work the greater part has periſhed, and what remains is extremely deficient, only one MS. having been diſcovered. The ſtyle of this author is pure and elegant. In chronology he is more exact than was cuſtomary with moſt ancient writers, and he has introduced many brief but curious notices of the foundation of cities and ſtates. Few writers excel him in drawing characters, ſketching, with few ſtrokes, a ſtriking and maſterly likeneſs. He was the friend and adulator of Tiberius and Sejanus, and his attachment to monarchical power has biaſſed him in his repreſentation of the actions and characters of the republican party. The beſt editions of his hiſtory are thoſe of Burmann 1719, 1744, and of Ruhnmann in 1779.

PATERERO. See PADRERO.

PATERNA, in *Geography*, a town of Spain, in New Caſtile; three miles E. of Alcaraz.

PATERNITY, the quality of a father.

PATERNO, in *Geography*, a town of Sicily, in the valley of Demona, built on the ruins of Hybla, ſo celebrated for its honey. Hybla was ruined by the Saracens, who built a caſtle there, upon an ancient crater. The Normans erected a new building on the foundation of this ruined caſtle, which ſerves as a priſon. The ruins of many baths erected here are ſtill viſible. The waters of different qualities which ſupplied theſe baths are now loſt and ſo intermingled, as to cauſe the peſtilential air of Paterno, which, nevertheleſs, contains a population of from 10 to 12,000 perſons; 15 miles W. of Catania.—Alſo, a town of Naples, in Principato Ultra, three miles N. of Monte Marano.

PATER-NOSTER, the Lord's prayer, a form ſo called from the two initial words thereof in Latin.

PATER-NOSTER is alſo uſed for a chaplet or ſtring of beads; becauſe ſerving to number the rehearſals of that prayer.

PATER-NOSTERS, in *Architecture*, a ſort of ornaments cut in form of beads, either round, or oval; uſed on baguettes, aſtragals, &c.

PATER-NOSTERS, in *Geography*, rocks in the Atlantic, on the S. ſide of the entrance into the bay of St. Helena. S. lat. 32° 20′.—Alſo, rocks near the N. coaſt of the iſland of Jerſey.

PATER-NOSTERS, *Little*, a cluſter of thirteen rocks in the Eaſt Indian ſea, between the iſlands of Borneo and Celebes, called by the Malays, "Pulo Balabataken." They are covered with trees, and have navigable channels between them.

PATER-NOSTERS, *Great*, a cluſter of ſhoals and iſlets in the Eaſt Indian ſea, about 120 miles long from N.E. to S.W. and 30 broad. S. lat. 6° 30′ to 7° 42′. E. long. 117° 10′ to 119° 10′.

PATER-NOSTRE′, in *Heraldry*. A croſs pater-noſtré is a croſs made of beads. This croſs is to be ſo ſhadowed in drawing, as that the ſphericity of the beads may appear, to diſtinguiſh them from beſants.

PATERSONIA, in *Botany*, very deſervedly named by Mr. R. Brown in honour of his friend colonel William Paterſon, a gentleman to whoſe reſearches at the Cape of Good Hope many years ago, and more recently in Norfolk Iſland, as well as New South Wales, of which laſt ſettlement he has long been lieutenant-governor, botany is much indebted. Brown Prodr. Nov. Holl. v. 1. 303. Ker in Curt. Mag. v. 26. 1041. Ait. Hort. Kew. ed. 2. v. 4. (Genoſiris; Labill. Nov. Holl. v. 1. 9?)—Claſs and order, *Monadelphia Triandria*. Nat. Ord. *Enſatæ*, Linn. *Irides*, Juſſ.

Gen. Ch. *Cal.* Sheath many-flowered, of two compreſſed, keeled, rigid leaves, embracing each other, with numerous inner membranous ſcales, ſeparating the flowers. *Cor.* of one petal, ſalver-ſhaped, regular; tube very ſlender, about as long as the ſheath; limb in ſix deep ſegments, three of them very large, ovate, horizontal, the three alternate ones very ſmall, erect. *Stam.* Filaments three, united into a tube nearly all the way up, longer than the ſhorter ſegments of the corolla; anthers erect, oblong. *Piſt.* Germen within the ſheath, below the corolla, angular; ſtyle capillary, about as long as the ſtamens, generally ſwelling towards the top, contracted at the apex; ſtigmas three, dilated, ſomewhat hooded, undivided. *Peric.* Capſule membranous, priſmatic, with three blunt angles, three cells and three valves. *Seeds* numerous, roundiſh.

Eſſ. Ch. Sheath of two leaves. Three inner ſegments of the corolla equal, minute, erect. Filaments diſtinct at the top. Stigmas dilated, undivided.

Obſ. There can ſcarcely be a doubt that this is the ſame genus which Labillardiere calls *Genoſiris*, however incorrectly he may have deſcribed it; happily however his name for it is exceptionable, being compounded of an eſtabliſhed one, *Iris*.

The ſpecies known are ſeven, all perennial herbaceous fibrous-rooted plants, with either none, or a ſhort, moſtly ſimple, *ſtem*. *Leaves* ſword-ſhaped, narrow and compact. *Flower-ſtalk* either radical, or terminal, ſimple, naked. *Flowers* coming out in ſucceſſion, handſome, but very ſhort-lived, blue, without ſpots. *Anthers* and *ſtigmas* yellow. *Capſules* nearly ſeſſile, inveſted with the ſheaths. *Seeds* uſually inſerted into the inner angle of the cell; ſometimes into a central column.—The ſpecies, as far as known, are all natives of New Holland, moſtly without the tropic, growing in open, barren, ſtony or ſandy places, near the ſhore; rarely in moiſt meadows.

1. P. *ſericea*. Silky Paterſonia. Curt. Mag. t. 1041.—Stigmas deflexed. Sheath, and upper part of the ſtalk, ſilky. Leaves ſtraight, finely fringed, doubly ſtriated, woolly at the baſe of their keel.—Native of the country about Port Jackſon, as well as of the tropical part of New Holland. It was one of the firſt plants of which ſpecimens were ſent to England by the ſettlers. Meſſrs. Lee and Kennedy raiſed it from ſeed, and it flowered with them in 1807, being kept in the greenhouſe. The *leaves* are ſeveral, erect, narrow, rigid, and elaſtic, about a foot high, in two ranks. *Flowers* violet, not unlike *Tradeſcantia virginica* at the firſt glance, but rather larger, without ſcent.

2. P. *lanata*. Woolly Paterſonia.—Stalk round, ſtriated, longitudinally woolly, as well as the ſheath. Leaves ſlightly convex, ſimply ſtriated; woolly at the baſe.—Obſerved by Mr. Brown, in the ſouth part of New Holland. The *ſtigmas* were not remarked.

3. P. *longifolia*. Long-leaved Paterſonia.—Stigmas deflexed. Sheath and ſtalk ſilky. Leaves linear, narrow, many times longer than the ſtalk; fringed below the middle with ſpreading or inflexed hairs.—From Port Jackſon.

4. P. *media*. Intermediate Paterſonia.—Stigmas deflexed. Inner ſegments of the corolla but one-fourth as long as the tube of the ſtamens. Sheath ſilky. Flower-ſtalk ſmooth, longer than the ſtem. Keel of the leaves woolly at the baſe.—From Port Jackſon.

5. P. *glabrata*. Smooth Paterſonia.—Stigmas deflexed. Inner ſegments of the corolla half as long as the tube of the ſtamens. Flower-ſtalk longer than the ſtem, very ſmooth and ſhining, like the ſheath. Keel of the leaves woolly at the baſe.—From the ſame country.

6. P. *glauca*. Glaucous Paterſonia. (Genoſiris fragilis; Labill. Nov. Holl. v. 1. 13. t. 9.)—Stigma erect. Style ſlightly thickened at the top. Sheath about three-flowered, ſtriated, ſmooth. Leaves linear, rather convex, naked at the edges and baſe, twice as long as the ſlender, thread-ſhaped, ſmooth ſtalk.—Gathered by Labillardiere, in Van Diemen's land; by Mr. Brown near Port Jackſon. The *leaves* are enveloped at the baſe by numerous ſhorter leaf-like ſcales. *Corolla* blue, rather ſmaller than in *P. ſericea*.

7. P. *occidentalis*. Weſt-coaſt Paterſonia.—Stigma erect. Style of equal thickneſs throughout. Sheath about five-flowered, even. Stalk very ſmooth, as long as the ſword-ſhaped leaves, which are naked at the edges and baſe.—Native of the ſouth-weſt coaſt of New Holland, where it was gathered by Mr Brown, to whoſe work we are indebted for the ſpecific diſtinctions of all the ſpecies.

PATETHISÆ Uvæ, a name given by the ancients to grapes which were ſuffered to remain on the vine till they were greatly dried and withered. They were alſo called *patetæ uvæ*, and were ſuffered to hang thus to make a peculiar wine called *paſſum*.

PATGONG, in *Geography*, a town of Hindooſtan, in Bengal; 120 miles W. of Beyhar.

PATH, in *Rural Economy*, a track or road acroſs a field: a path acroſs arable land is as great a loſs as a crooked hedge, and ſhould always be avoided as much as poſſible, both in arable and paſture grounds, in the laying them out at firſt, where they are directed, on the incloſing of waſte or other lands.

Path *of the Vertex*, a term frequently uſed by Mr. Flamſteed, in his doctrine of the ſphere, ſignifying a circle, deſcribed by any point of the earth's ſurface, as the earth turns round its axis.

This point is conſidered as vertical to the earth's centre; and is the ſame with what is called the vertex or zenith in the Ptolemaic projection.

The ſemi-diameter of this path of the vertex is always equal to the complement of the latitude of the point or place that deſcribes it; that is, to the place's diſtance from the pole of the world.

Path *fly*, the name given by us to the fly called in Latin *humiſuga*; it is found in foot-paths, and ſuppoſed to live by ſucking the ground; it is of a grey colour, ſtreaked with duſky white.

PATHETIC, ϖαθητικος, from ϖαθος, *paſſion*, *emotion*, ſomething that relates to the paſſions; and particularly that is proper to awake or excite them.

In *oratory*, pathetic is applied to that part of a diſcourſe, or to that mode of expreſſion, that is immediately addreſſed to the *Paſſions* (which ſee), and which ſeems to render it intereſting and impreſſive. In this part of a diſcourſe, if any where, eloquence reigns, and exerts its power. On the head of the pathetic, Dr. Blair has laid down the following uſeful directions. It ſhould *firſt* be conſidered whether the ſubject admit of the pathetic, and render it proper; and if this be the caſe, in what part of the diſcourſe it ſhould be attempted. An attempt to excite the paſſions in a wrong place, may expoſe an orator to ridicule. He ſhould be careful, in the firſt place, to bring over to his ſide the underſtanding and judgment; otherwiſe he is not likely to produce any beneficial or permanent effect. That the emotion may not only remain, when he ceaſes to ſpeak, moſt writers aſſign the pathetic to the peroration or concluſion, as its natural place; and when all other things are equal, this is the impreſſion that one would chooſe to make laſt, leaving the minds of the hearers warmed with the ſubject, after argument and reaſoning had produced their full effect. But wherever the pathetic is introduced, it is recommended, *ſecondly*, never to ſet apart a head of a diſcourſe, in form, for raiſing any paſſion; never to give warning that you are about to be pathetic, nor to call upon your hearers to follow you in the attempt. This almoſt never fails to prove a refrigerant to paſſion. The indirect method of making an impreſſion is likely to be more ſucceſsful. This may often be done more happily, in a few inſtances inſpired by natural warmth, than in a long and ſtudied addreſs. *Thirdly*, it ſhould be conſidered, that there is a great difference between ſhewing the hearers that they ought to be moved, and actually moving them. To every emotion or paſſion Nature has adapted a ſet of correſponding objects; and without ſetting theſe before the mind, it is not in the power of any orator to raiſe that emotion. The foundation of all ſucceſsful execution in the way of pathetic oratory, is to paint the object of that paſſion which we wiſh to raiſe, in the moſt natural and ſtriking manner; to deſcribe it with ſuch circumſtances as are likely to awaken it in the minds of others. Every paſſion is moſt ſtrongly excited by ſenſation; next to the influence of ſenſe is that of memory; and next to memory is the influence of the imagination. Of this power, therefore, the orator muſt avail himſelf, ſo as to ſtrike the imagination of the hearers with circumſtances, which, in luſtre and ſteadineſs, reſemble thoſe of ſenſation and remembrance. For this purpoſe, *fourthly*, the only effectual method is to be moved yourſelves. The inward emotion of the ſpeaker adds a pathos to his words, his looks, his geſtures, and his whole manner, which exerts a power almoſt irreſiſtible over thoſe who hear him. *Fifthly*, it is neceſſary to attend to the proper language of the paſſions. We ſhould obſerve in what manner any one expreſſes himſelf who is under the power of a real and ſtrong paſſion; and we ſhall always find his language unaffected and ſimple. It may be animated, indeed, with bold and ſtrong figures, but it will have no ornament or finery. He is not at leiſure to follow out the play of the imagination. A perſon who takes time to poliſh and adorn his ſtyle, will infallibly cool his own ardour; and then he will touch the heart no more; his compoſition will become frigid; and it will be the language of one who deſcribes but who does not feel. Although he may amuſe the fancy, he will not reach the heart. In the former caſe, labour may appear; but the latter muſt be the work of nature only. *Sixthly*, nothing of a foreign nature ſhould be interwoven with the pathetic part of a diſcourſe. All digreſſions muſt be avoided; beauties muſt be ſacrificed; compariſons are always dangerous, and generally quite improper, in the midſt of paſſion. Reaſoning is unſeaſonable, eſpecially if it be purſued in a long and ſubtile train, when the principal aim is to excite warm emotions. Laſtly, the pathetic ſhould not be prolonged too much. Warm emotions are too violent to be laſting. Study the proper time and mode of making a tranſition from the paſſionate to the calm, recollecting a maxim, which, though trite, is juſt, that nothing dries up ſooner than a tear. Beware, therefore, of ſtraining paſſion too far, and of raiſing it to unnatural heights, as well as of prolonging its duration. Dr. Blair, to whoſe "Lectures" (vol. ii.) we refer for the illuſtration and application of theſe rules, cloſes with ſetting before his readers the example of Cicero in his laſt oration againſt Verres, wherein he deſcribes the cruelty exerciſed by Verres, when governor of Sicily, againſt one Gavius, a Roman citizen. But our limits forbid our enlarging. See Peroration and Style.

Pathetic, in *Muſic*. The general import of this word, which is purely Engliſh, is ſo well known, as ſeemingly to need no explanation; yet, to render muſic pathetic, ſo many circumſtances muſt concur, that it has been thought neceſſary by Rouſſeau to point them out. The poetry, the muſical compoſition, the figure, countenance, tone of voice, expreſſion, and ſituation of the character repreſented, muſt all combine to produce the full effect of a pathetic air. All are requiſite in dramatic and theatrical muſic, which tend to move and paint the great paſſions, particularly thoſe of grief and ſorrow.

All the expreſſion which the French can give to pathetic airs, is to drag, reinforce the notes, and howl; and in ſo ſlow a movement, that all ſentiment of meaſure is effaced. Hence the French think, that whatever is ſlow is pathetic, and all that is pathetic ought to be ſlow.

They have airs which become gay and playful, or tender and pathetic, as they happen to be ſung quick or ſlow. Such is the advantage of French melody; it ſerves for whatever they pleaſe: *fiet avis, et, cum volet, arbor*.

But Italian muſic has not the ſame advantages. Each ſong, each melody, has its diſtinct character ſo ſtrongly impreſſed on it, that it is impoſſible to deſtroy the pathos of its accent and melody, which is felt in all meaſures, even in thoſe the moſt lively. French airs change their character, as the time is accelerated or retarded. Each Italian air has its movement ſo determined, that it cannot be altered without annihilating the melody. An air thus diſguiſed, does not change its character, it loſes it; it is no longer melody, it is nothing.

If the pathetic character is not in the movement, we cannot ſay that it is in the genus, the melody, or the harmony: as there are pieces equally pathetic in the three genera, the three modes, and all the harmony imaginable. The true pathetic is in the accents of paſſion, which are not to be taught by rule; but let genius find, and the heart *feel*, without applying to art to give the law.

Nieuwentyt tells us of a muſician at Venice, who excelled in the pathetic to that degree, that he was able to play any of his auditors into diſtraction; he adds, that the great means he made uſe of was the variety of motions, &c.

PATHETICUS, in *Anatomy*, a name given by ſome anatomiſts to the nerve of the fourth pair, or nervus trochlearis. See Nerve.

PATHHEAD, in *Geography*, a conſiderable manufacturing town in the pariſh of Dyſart, and county of Fife, Scotland, is ſituated on the acclivity of a hill, looking towards the Frith of Forth, at a ſhort diſtance to the north-eaſtward of the ancient burgh of Kirkcaldy. It is divided into two parts, one called Dunnikier, and the other Sinclair-town, from the eſtates on which they happen to be reſpectively placed. Formerly Pathhead was noted for the number of its nail manufactories; but theſe have now conſiderably declined, and the inhabitants are chiefly engaged in different branches of weaving. There is no regular market held in this town; but it has the privilege of a large annual fair for woollen and linen cloths. According to the parliamentary returns of 1811, it contains 237 houſes, and 1692 inhabitants.

On a free-ſtone rock, which projects into the Frith immediately below Pathhead, ſtand the venerable ruins of Riven's, or Raven's-Craig caſtle, which was granted, with the neighbouring lands, by James III. of Scotland, to William St. Clair, or Sinclair, earl of Orkney, on his reſignation of that title. During the time of the commonwealth it was garriſoned by a party of Cromwell's troops, but is now uninhabitable. Beauties of Scotland, vol. iv. Sinclair's Statiſtical Account, vol. xviii.

PATHOGNOMONIC, in *Medicine*, from παθος, *a diſeaſe*, and γινωσκω, *I know*, an epithet ſinifying that a ſymptom, or concourſe of ſymptoms, to which it is applied, is inſeparable from, or excluſively characteriſtic of, a particular diſeaſe, and found in no other. There is, perhaps, no diſeaſe in which any ſingle ſymptom can be ſtrictly ſaid to be pathognomonic; but the conciſe definitions of diſeaſes given by the noſologiſts, ſhould exhibit the congeries of ſymptoms which are pathognomonic. Thus the *four* ſymptoms, "fever, cough, dyſpnæa, and pain in the cheſt," which conſtitute Dr. Cullen's definition of pneumonia, are the pathognomonic ſymptoms of inflammation of the lungs. See Nosology.

PATHOLOGY, from παθος, *a diſeaſe*, and λογος, *a diſcourſe*, ſignifies the ſcience or doctrine of diſeaſes.

As *Phyſiology* teaches the nature of the functions of the living body in a ſtate of health; ſo *Pathology* relates to the various derangements of theſe functions, which conſtitute diſeaſe. Its objects, therefore, are to aſcertain the various ſymptoms which characteriſe the different diſorders of each organ of the body, and eſpecially the *diagnoſtic* and *pathognomonic* ſymptoms, which afford the means of diſcrimination between diſeaſes that reſemble each other; to determine the cauſes, both prediſpoſing and exciting, by which diſeaſes are induced; to point out the *prognoſis*, or the tendency and probable event of each diſeaſe, from the changes and combination of the ſymptoms; and, laſtly, to teach the *indications of cure*, and the nature and operation of the remedies adapted to the various circumſtances and periods of diſeaſes.

The general doctrines of pathology, however, we have already anticipated, under the head of DISEASE, an article of more popular reference. See alſo CAUSE, in *Medicine;* and NOSOLOGY, under which a claſſification of diſeaſes will be found.

PATHOS, ϖαθος, *paſſion*, a term frequently uſed in ſpeaking of the movements which the orator excites in his audience.

We ſometimes alſo uſe the word for energy, or ſtreſs.

PATI, in *Geography*. See PATTA.

PATIA, a river of South America, which riſes near Popayan, and runs into the Pacific ocean, N. lat. 2° 13′.

PATIALA, a town of Hindooſtan, in the circar of Sirhind; 12 miles S.W. of Sirhind. N. lat. 30° 18′. E. long. 76° 5′.

PATIENCE, in *Botany*, the name by which ſome people call the monk's rhubarb; but the French, from whom we have borrowed the word, mean by it all the ſpecies of the *lapathum* or dock kind.

PATIENCE, in *Ethics*, is that virtue which preſerves the mind firm and unbroken, under the evils of life; ſo that the ſpirits are kept from becoming tumultuous, and precipitating the ſufferer into indecent or repining thoughts, words, or actions; and by which he is diſpoſed to pay calm attention to the reaſons of ſacred philoſophy, and to obſerve them.

PATIENCE, in *Geography*, a ſmall iſland near the coaſt of America, in Naraganſett bay, belonging to the ſtate of Rhode iſland.

PATIENT, among *Phyſicians*, a perſon under the direction of a phyſician, or ſurgeon, to be cured of ſome diſeaſe.

Agent and PATIENT. See AGENT.

PATIENTIA, *Straits of*, in *Geography*, a channel of the Eaſt Indian ſea, between the iſland of Bachian, and the S. coaſt of Gilolo.

PATIENTIÆ MUSCULUS, in *Anatomy*, the levator ſcapulæ, ſo called, becauſe it was ſuppoſed to be principally concerned in ſhrugging up the ſhoulders. See LEVATOR.

PATIMA, in *Botany*, a genus ſo named by Aublet from its Caribean name, *Patima-rana*. Aubl. Guian. v. 1. 197. t. 77. Juſſ. 207. Lamarck Dict. v. 5. 70. Illuſtr. t. 159. —Claſs and order, *Pentandria Monogynia*. Nat. Ord. *Rubiaceæ*, Juſſ.

Gen. Ch. *Cal.* Perianth ſuperior, of one leaf, the limb with about five inciſions. *Cor.* and *Stam.* unknown. *Piſt.* Germen inferior, firmly united to the bottom of the calyx; ſtyle and ſtigma wanting. *Peric.* Berry green, roundiſh, crowned with the margin of the calyx, of four, five, or ſix cells. *Seeds* numerous, very ſmall, imbedded in ſoft pulp.

Obſ. Juſſieu and Lamarck obſerve, that, although Aublet was unacquainted with ſome parts of the flower of this plant, yet he has ſhewn enough to ſatisfy them that it muſt be monopetalous, and of the natural order of *Rubiaceæ*.

Eſſ. Ch. Calyx ſuperior, almoſt entire, of ſix obtuſe angles. Berry crowned by the calyx, moſtly five-celled, many-ſeeded.

1. P. *guianenſis*. Aubl. Guian. t. 77.—Native of low marſhy places in Guiana, bearing fruit in May.—*Root* perennial. *Stems* numerous, ſhrubby, erect, three feet high, tubular, cylindrical. *Leaves* oppoſite, on long ſtalks, very large, ovate-oblong, acute, ſmooth, entire. *Stipulas* intrafoliaceous, in pairs, ſhort, acute, permanent, at the baſe of the footſtalk. *Fruit* axillary, conſiſting of green berries, on longiſh ſolitary ſtalks.

PATIN, GUY, in *Biography*, a phyſician diſtinguiſhed for his wit and learning, was born at Hodenc, in Bray, near Beauvais, in Auguſt, 1601. His parents being in humble life, though reſpectable, his firſt views were not very elevated. He was employed for ſome time in a printing-office at Paris, as corrector of the preſs, where his abilities gained him the eſteem and friendſhip of Riolan, a celebrated phyſician. In conſequence of this connection, he was led to turn his attention to medicine, and took the degree of doctor in that faculty in 1627, and was admitted a member of the Pariſian body. He continued to reſide as a practitioner in that metropolis, where he was more eſteemed, however, for his learning, and the ſatirical vivacity of his converſation, than for his medical ſkill. Indeed, he was too much attached to perſonal independence to puſh his way at court or among the great, yet he had many perſons of diſtinction among his friends, particularly the preſident de Lamoignon, who enjoyed his ſociety as the greateſt relaxation from the labour of public buſineſs. Patin was, however, very zealous for the maintenance of the honours and privileges of his faculty, and was elected dean in the two ſucceſſive years 1650 and 1651; and, ſoon afterwards, was appointed ſucceſſor to Riolan the younger, in the chair of medicine at the College Royal. He expreſſed himſelf in Latin with ſo much fluency and elegance, that his theſes became the centre of attraction to the faſhionable idlers of Paris. He was a great opponent of all innovations in medicine, but more eſpecially of the doctrines and drugs introduced by the chemical phyſicians; and he purſued a violent courſe in the diſpute, which at that time agitated the phyſicians of Paris, reſpecting the virtues of antimony. He was even profuſe in his perſonalities againſt all who defended that medicine, and drew up a long regiſter of the unſucceſsful caſes in which it had been employed, which he called the *Antimonial Martyrology*. He derided, however, the complicated and coſtly compounds and ſpecifics, which the generality of practitioners were in the habit of preſcribing; and was of opinion, that by means of the lancet and purgatives, and a few ſimple expedients, every thing within the power of the healing art might be accompliſhed; a rational and juſt view of the ſubject, if it had not been perverted by other falſe theories, and by ſtrong prejudices with reſpect to bloodletting, and ſome particular articles of medicine.

This learned phyſician died in 1672, in the ſeventy-firſt year of his age. He had read much, and had collected an extenſive and valuable library, with the contents of which he was well acquainted: but he wrote few works in his own profeſſion, and theſe of little importance. He had projected a hiſtory of celebrated phyſicians, but this he never accompliſhed. After his death a great number of his letters were publiſhed, which have been the chief means of preſerving his memory. Of theſe there are two collections; one addreſſed to various friends, printed in 1685 and 1692, two volumes 12mo; the other all written to his friend Charles Spon, of Geneva, and publiſhed by that family in 1718, two volumes 12mo. Patin's letters are an amuſing miſcellany of political and literary intelligence, biographical anecdotes, free opinions, medical hiſtory and criticiſm, with a plentiful mixture of ſpleen and ſarcaſm. It is difficult to ſay whether he laſhes moſt ſeverely the court and miniſtry, the clergy, or the chemical doctors; but the pictures which he gives of the manners and ſentiments of the time are in moſt reſpects equally juſt and lively. Eloy Dict. Hiſt. Gen. Biog.

Patin, Charles, a phyſician and diſtinguiſhed antiquary, was the ſecond ſon of the preceding, and was born at Paris, in February, 1633. His father educated him with great care, and he made a very extraordinary progreſs in learning, having, at the age of fourteen, ſuſtained theſes on philoſophy in Greek and Latin, before a large and ſplendid audience, at which there were thirty-four biſhops preſent, beſides many other perſons of diſtinction. He was intended to be brought up to the bar, and even became a licentiate in law at Poictiers, and afterwards an advocate in the parliament of Paris: but he afterwards abandoned the profeſſion of the law, and choſe that of phyſic, in which he took the degree of doctor in 1656. He had not only begun to practiſe with reputation and ſucceſs, but had alſo taught in the ſchools of the faculty of Paris, when he was obliged to quit France, from the fear of impriſonment. The cauſe of this diſgrace is ſomewhat doubtful. By ſome it has been ſaid, that, having been ſent into Holland by a great prince, in order to buy up all the copies of a work of court ſcandal, and burn them on the ſpot, he ſaved a number of them, and diſperſed them among his friends. His father, however, in one of his letters, lamenting his ſon's misfortune, gives no hint of ſuch a fact, but mentions the diſcovery of ſome obnoxious books in his library. After ſpending a few years in travelling through Holland, England, Germany, and Switzerland, to Italy, he at length ſettled with his family at Padua, where he ſoon acquired the public eſteem. In 1676, he was appointed to an extraordinary profeſſorſhip of medicine in that univerſity; and in 1681, he was transferred to the firſt chair of ſurgery; and ultimately, in 1683, to that of medicine. He fulfilled the duties of theſe ſtations with ſo much diſtinction, that the republic of Venice conferred on him the dignity of a knighthood of St. Mark. He was alſo elected a member of the Academiæ Naturæ Curioſorum, and he was for a long time chief and director of the Academy of the Ricovrati. He died at Padua, on the ſecond of October, 1693. He left a conſiderable number of learned works, amounting to nearly 40, in the Latin, French, and Italian languages. Few of theſe relate to medicine, and thoſe only in the form of detached orations; ſuch as "Oratio Inauguralis de optima Medicorum Sectâ." "Oratio de Febribus,"—"De Avicenna,"—"De Scorbuto," &c. The works by which he is beſt known, relate to the numiſmatic, or medallic ſcience, in which he was a great proficient. The following are upon that ſubject. "Familiæ Romanæ ex antiquis numiſmatibus ab urbe condita ad tempora D. Auguſti," 1663, folio. This is chiefly founded on the work of Fulvius Urſinus. "Introduction à l'Hiſtoire par la Connoiſſance des Medailles," 1665, 12mo. "Imperatorum Romanorum Numiſmata," 1671, folio. "Theſaurus Numiſmatum," 1672, 4to. "Practica delle Medaglie," 1673, 12mo. "Suetonius ex Numiſmatibus illuſtratus," 1675, 4to.; and ſome other pieces. In the way of medical biography, he publiſhed the lives of the profeſſors of Padua, with the title of "Lycæum Patavinum, ſive Icones et Vitæ Profeſſorum Patavi, anno 1682, docentium." Pat. 1682, 4to.

The wife and two daughters of Charles Patin were learned women, and all members of the Academy of Ricovrati, at Padua, in which they diſtinguiſhed themſelves. Charlotte-Catherine, the eldeſt daughter, pronounced a Latin oration on the raiſing of the ſiege of Vienna, and publiſhed "Tabellæ ſelectæ," which contained an explanation of forty-one engravings from the moſt celebrated painters. Gabrielle-Charlotte, the youngeſt daughter, publiſhed a panegyrical oration on Louis XIV., and a Latin diſſertation on the phœnix on a medal of Caracalla, Venice, 1683. His wife was author of a collection of moral and Chriſtian reflections. Eloy Dict. Hiſt. de la Med. Gen. Biog.

Patin-*Shoe*, in the *Manege*. See **Patten**-*ſhoe*.

PATINA, a name given to the ruſt of medals. See *Conſervation of* **Medals**.

This ruſt, which, when genuine, gives value to medals, is ſometimes counterfeited, and a falſe patina is ſubſtituted for that which is true. The falſe varniſh is black, greaſy, and ſhining, beſides being very tender when touched with a needle or burin; while the ancient has none of theſe qualities, and is as hard as the coin itſelf. Sometimes, ſays Mr. Pinkerton, a light-green coaty-like varniſh is given, ſpotted with a kind of iron marks. It is made of ſulphur, verdigris, and vinegar; and is often diſtinguiſhed, among other marks, by hair-ſtrokes of the bruſh with which it was laid on. Vico, cited by Pinkerton, gives the following hints concerning falſe patina. He ſays it is green, black, ruſſet or brown, grey, and iron-colour. The green is made with verdigris; the black is ſmoke of ſulphur; the grey is formed of chalk ſteeped in urine, in which the coin is left for ſome days. The ruſſet is next to the natural, becauſe it is a kind of froth which the fire forms from ancient coins; but when falſe it is too ſhining. To make it, they often take the large braſs coins of the Ptolemies, becauſe they are frequently corroded, and making them red-hot in the fire, put the coins upon them; and there adheres a fine patina. The proceſs of iron colour Vico does not explain. Sometimes, he adds, they take an old defaced coin, covered with real ancient patina, and ſtamp it anew; but the patina is then too bright in the cavities, and too dull in the protuberances. It may further be obſerved, that the trial of braſs coins with the tongue is not to be deſpiſed; for, if modern, the patina taſtes bitter, or pungent; while, if ancient, it is quite taſteleſs.

PATINO, in *Geography*, an iſland in the Grecian Archipelago, which was the ancient Patmos. See **Patmos**.

PATINOON, a town of Hindooſtan, in Marawar; 72 miles N.W. of Ramanadporum.

PATIOQUA, a town of Mexico, in the province of Guaxaca; 63 miles S. of St. Yago de los Valles.

PATIS, in *Ornithology*, the name of a ſmall ſea-bird, deſcribed by Oviedus, and ſeeming to be the ſame with the ſtormfink, deſcribed by Hoier, in his epiſtle to Cluſius. It is a little larger than our ſparrow, and ſkims the ſurface of the water very nimbly, and is ſuppoſed a forerunner of ſtorms.

PATIXA, or *Grande River*, in *Geography*, a river of Brazil, which runs into the Atlantic, S. lat. 15° 50′.

PATKUL, John Reinhold, in *Biography*, was born of a noble family in Livonia, a northern province belonging to the crown of Sweden. The Livonians having been ſtripped of their privileges, and great part of their eſtates, by Charles XI., Patkul was deputed to make their complaint; which he did with ſuch eloquence and courage, that the king, laying his hand upon his ſhoulder, ſaid, "you have ſpoken in behalf of your country as a brave man, and I eſteem you for it." Charles, however, who added the baſeneſs of hypocriſy to the ferocity of a tyrant, was determined to puniſh the zeal and honeſty which he had juſt before applauded, and in a very few days afterwards cauſed Patkul to be declared guilty of high treaſon, and condemned him to death. The hero, however, found means to eſcape into Poland, where he continued till Charles was dead. He now hoped that his ſentence might have been reverſed, but being diſappointed in this expectation, he applied to Auguſtus, king of Poland, and ſolicited him to attempt the conqueſt of Livonia from the Swedes; which he ſaid might be eaſily effected, as the people were ready to ſhake off their yoke; and the king of Sweden, being a child, was incapable of compelling their ſubjection. Auguſtus took the hint, poſſeſſed himſelf of Livonia, and afterwards, when Charles XII. entered the province to recover it, Patkul commanded in the Saxon army againſt him. Charles was victorious, and Patkul entered into the ſervice of the czar of Ruſſia, with whom Auguſtus was in ſtrict alliance. The czar ſent Patkul, with the title of his ambaſſador, into Saxony, to prevail with Auguſtus to meet him at Grodno, that they might confer on the ſtate of their affairs. This conference took place, and immediately afterwards the czar went from Grodno to quell a rebellion in Aſtracan. As ſoon as the czar was gone, Auguſtus, to the ſurpriſe of all Europe, ordered Patkul, who was then at Dreſden, to be ſeized as a ſtate criminal. The czar claimed him as his ambaſſador, and Charles demanded that he ſhould be put into his hands. The latter obtained his wiſh, and cruelly put him to death, in the year 1707. Charles XII. has been generally cenſured for not extending to him his mercy, but it muſt not be forgotten that Patkul had incited foreign powers to attack his country when the king was a mere child, hoping that, under ſuch circumſtances, it would become an eaſy conqueſt. It has been ſaid alſo in behalf of the king, that this is the only inſtance of his cruelty, and that in ordering the execution of Patkul he thought he was doing his duty. Nothing, however, can palliate the unfeeling barbarity of putting the veteran to the rack. The monarch was one of the credulous philoſophers of the time, who believed in the poſſibility of diſcovering the methods of tranſmuting the baſer metals into gold. Patkul, while under ſentence of death, contrived ſo far to impoſe on the ſenate at Stockholm, as to perſuade them that he had, in their preſence, converted to gold a quantity of leſs precious metal. An account of the experiment was tranſmitted to the king, accompanied with a petition for the life of ſo valuable a ſubject; but Charles, blending magnanimity with ſeverity, replied, that he would not do that for intereſt which he had refuſed at the call of humanity and the intreaties of friendſhip.

PATLADAH, in *Geography*, a circar of Bengal, bounded on the N.E. by Curribarry, on the S. and S.E. by Dacca, and on the W. by Goragot and Iſlamabad; about 30 miles long, and 16 broad. The chief towns are Chilmary and Dewangunge.

PATMOS, in *Ancient Geography*, an iſland in the Grecian archipelago, now denominated by navigators "St. Jean de Patino," celebrated in eccleſiaſtical hiſtory, on account of its being the place of St. John's exile, and ſtill more from the revelations and viſions which he received there, and which form the ſubjects of the Apocalypſe, or Revelation, exhibits little more than arid rocks and numerous capes. Some Caloyers, or Greek monks, who inhabit a monaſtery built on an eminence, ſtill ſhew the grotto where the ſacred writer received his communications and wrote his book. But in this convent there is no library, and, indeed, it would be of little uſe, as among the 80 monks who reſide there, three only were found who could read, and they made little uſe of their ſcanty knowledge. This iſland is little more than ſix leagues in circuit; conſiderably longer than broad, its direction being from N. to S., and its form very irregular. Its coaſts are interſected by a variety of gulfs and coves, and are remarkable for the number of good harbours which they preſent to navigators, among which that of "Scala" is one of the fineſt in the Archipelago. But notwithſtanding the advantages which theſe harbours might afford it as a place of trade, it preſents to the view of the obſerver a very wretched appearance. Vallies, which might inſure abundance, are uncultivated, and from their ſtate of abandonment and nakedneſs, offer, with the hills that ſurround them, only the ſame aſpect of ruggedneſs and miſfortune. Population, which follows in the train of agriculture and induſtry, is here ſingularly diminiſhed, and while the monaſteries ſwarm with ſluggards, the fields become deſerts. In the ſummer few men remain here; they all migrate to a diſtance to ſeek means of ſubſiſtence, or carry on with their caiques, a traffic which feeds, but does not enrich them. The women remain intruſted with domeſtic cares, and to make the moſt of a few pieces of land during the abſence of their fathers or huſbands; and that timid tribe hide or ſhut themſelves up when they ſee ſtrangers land in their iſland. Such is the account given of this deſolate ſpot by Sonnini. Although it is deſtitute of wood and rivers, and almoſt without gardens, its ſpring-water is pure and its air healthy. The inhabitants are chiefly Greek Chriſtians, ſailors or ſhip-builders, who ſail as far as Venice, whither they carry cotton and ſtockings of their own manufacture. The iſland abounds with rabbits, pigeons, partridges, and quails. The abbot of the convent already mentioned is prince of the iſland, and pays annually 1000 crowns to the grand ſeignor, beſides preſents to the captain pacha: 16 miles S.W. of Samos. N. lat. 37° 24′. E. long. 26° 24′.

PATMOUR, in *Geography*, a town of Hindooſtan, in Golconda; 25 miles N.N.E. of Rachore.

PATNA, a very ancient city of Hindooſtan, erected on or near the ſcite of Pataliputra, or Patelpoo'ther, afterwards denominated Palibothra. This is the chief city of Bahar, and is very extenſive and populous; built along the ſouthern bank of the Ganges, about 400 miles from Calcutta, and 500 from the mouth of the river. As it is ſeated on an eminence, it is ſecure againſt the inundations, which, at particular ſeaſons, are prejudicial and dangerous. Having been often the ſeat of war, it is fortified in the Indian manner with a wall and a ſmall citadel. It is a place of very conſiderable trade. Moſt of the ſaltpetre imported by the Eaſt India company is manufactured within the province of Bahar. N. lat. 25° 37′. E. long. 85° 21′.

Patna, a town of the province of Bukovina; 30 miles W. of Sucſava.—Alſo, a river of Moldavia, which runs into the Milebow, at Foedna.

PATNOURA, a town of Hindooſtan, in the circar of Kerieh; 55 miles N.W. of Maltoy.

PATOKA, a town of Hindooſtan, in Dowlatabad; 30 miles N.W. of Darore.

PATOMA, a river of Ruſſia, which runs into the Lena, N. lat. 59° 53′. E. long. 116° 24′.

PATOMACK. See Patowmack.

PATONCE, in *Heraldry*. A croſs patonce is a croſs flory at the ends; from which it only differs in this, that the ends, inſtead of turning down like a fleur-de-lis, are extended ſomewhat in the patee form. He bears gules; a croſs patonce, argent; by the name of Latimer.

PATOOK, or Puttock, in *Geography*, a river of Honduras, which runs into the bay, N. lat. 15° 55′. W. long. 84° 25′.

PATOS, a river of Braſil, which runs into the Atlantic, S. lat. 28° 28′.—Alſo, a town of Mexico, in the province of Zacatecas; 80 miles N. of Zacatecas.

PATOU, a town of Hindooſtan, in the circar of Aurungabad; 45 miles E. of Aurungabad.

PATOUAL, a town of Hindooſtan, in Baglana; 18 miles S.E. of Bahbelgong.

PATOWMACK, a large river of America, which riſes by two branches, the northern and ſouthern, originating in and near the Alleghany mountains, and forms, through its whole courſe, part of the boundary between the ſtates of Virginia and Maryland. It paſſes by many flouriſhing towns, the chief of which are Shepherdſtown, Georgetown, Waſhington city, Alexandria, New Marlborough, and Charleſtown, or Port Tobacco. It is ſeven miles and a half wide at its mouth, and its ſoundings are ſeven fathoms. The diſtance from the capes of Virginia to the termination of the tide-water in this river, is above 300 miles, and it is navigable for ſhips of the greateſt burden through nearly that diſtance; and the inland navigation it affords is much extended by the numerous and long rivers that run into it.

PATQUASHAGAMA Lake, a lake of Canada, 450 miles W. of Quebec. N. lat. 48° 20′. W. long. 82° 5′.

PATRA, a town of Hindooſtan, in Guzerat; 18 miles N.N.E. of Amood.

Patra, a veſſel of capacity among the Hindoos, to which, under a mythological aſpect, a great deal of myſticiſm is attached. It is ſeen in the hand of Parvati, and of ſome other deities of avenging character, in the ſhape of a ſmall baſon or cup, and is ſaid to be for the purpoſe of receiving the blood of her victims, which ſhe is poetically repreſented to quaff. The patra is, however, ſtill more myſtically contemplated in India, as an emblem or type of the world, and is then called Argha-patra. The argha means a cup or diſh, in which fruits or flowers are offered to the deities, and ought to be ſhaped like a boat, as ſome are ſtill ſeen, but more uſually of a round form. A rim round the argha repreſents the myſterious Yoni, and a boſs or convexity in the centre refers to the navel of Viſhnu, whence, according to ſome popular fables, the creative Brahma ſprang on a lotos to perform his great work. We ſhall here notice no farther on this point than the coincidence of wild umbilical myſteries common to the mythologiſts of India, Egypt, and Greece. Such mythological coincidencies are ſtriking and curious, and we ſhall proceed to notice ſome connected with the ſubject of this article. The name, form, and uſe of it as a drinking veſſel, or for oblation, reminds us at once of the patera of the ancients. See Patera.

In vol. xiv. of the Archæologia, a deſcription and plate are given of a Roman patera and vaſe dug up when ſinking a ditch in Eſſex in June 1800. They were found near an ancient Roman road between Camulodunum and Camboritum. "The metal vaſe and patera merit attention, as none ſimilar to the firſt have been figured or deſcribed in the works of the ſociety; nor do I know that any like either have been preſented for their inſpection. The vaſe is of that form which Montfaucon has figured in his 2d vol. pl. 19. fig. 10, and calls a præfericulum, uſed by the Romans at their ſacrifices, for pouring wine into the patera. See p. 88, where he controverts Feſtus's opinion that the præfericula were without handles. Another more nearly reſembling that here preſented is given in his 3d vol. pl. 24. fig. 9, and called by Beger an epichyſis, but not allowed to be ſuch by Montfaucon. The metal patera which belongs to the above, differs from the earthen pateræ, in general, by being boſſed in the centre, a circumſtance not eaſily to be accounted for, unleſs it was for the firmer fixing the præfericulum upon, when placed with the body at the time of interment." With the above Roman antiquities were found ſeveral little cups of Samian ware. "The uſes of theſe elegant little cups have not," the antiquary continues, "that I know of, been aſcertained by any author. The real purpoſes to which they were applied muſt remain at preſent in obſcurity."

The learned author of this communication, Thomas Walford, eſq. F. A. S. earneſtly invites an explanation of theſe ſeveral Roman antiquities. It is, perhaps, no explanation to ſtate that the Hindoos, in their ſacrifices and ceremonies, have immemorially uſed, and ſtill uſe, articles exactly ſimilar to thoſe exhibited, with the above communication, in vol. xiv. of the Archæologia, pl. 4. and 5. But it is curious to ſee how nearly they agree in form. A compariſon of the article in the plates juſt adverted to, with thoſe in plates 83 86. and 105. of the Hindoo Pantheon, will ſtrikingly evince this. The "ſacrificial vaſe," in the latter plate, has the ſame form, though more elaborately ornamented, as the above deſcribed præfericulum; and the others exhibit metallic circular pateræ, and the central emboſſment, which, though "not eaſily accounted for," is found among Hindoo myſtics to have very profound alluſions. The Roman patera has alſo the myſterious rim or Yoni, reſpecting which the reader may conſult the work laſt referred to. Dr. Clarke, in his recently publiſhed "Travels," notices that "the pateras' uſed by prieſteſſes in the rites of Ceres, had this pyramidal node or cone in the centre. A prieſteſs is repreſented holding one of theſe, on a bas-relief, in the veſtibule of Cambridge Univerſity Library." Vol. ii. p. 334. *Greek marbles*, No. xv. p. 37. Similar articles are ſtill uſed in the rites of the Hindoo Ceres; as are alſo the "little cups" deſcribed and exhibited in the Archæol. as above referred to, and in many of the plates of the Hindoo Pantheon. In India they are uſed for holding clarified butter, a common ingredient in the frequent oblations to fire; and unguents, and holy water, in the Sradha or funeral obſequies, and in other rites and ceremonies.

Adverting for a moment to the place near which the Roman patera was found, we may remark, without laying any ſtreſs on it, that Camulodunum might, by a determined etymologiſt, be derived from the Sanſcrit word Kamal, or goddeſs Kamala, ſee that article. And long after this remark was written, we find ſuch a derivation adopted in the 11th vol. of the Aſiatic Reſearches, art. ii. ch. 4.

It is ſhewn under the article Siva of this work, that any objects conical or pyramidal are peculiarly typical of that deity. The myſticiſms connected with that igneous form, he being a perſonification of fire with the Hindoos, are endleſs. Sufficient, probably, thereon will be found under the articles Linga, Meru, Yoni, and others thence referred to; if not, the reader may farther conſult thoſe articles in the Hindoo Pantheon.

PATRÆ, or Patras, in *Ancient Geography*, a town of Achaia, on a promontory, N. of mount Panachaichus. It was more anciently called "Aroé," derived, as it is ſaid, from αϱοω, *I labour*, and applied to it, probably from its being the firſt place of Achaia in which the inhabitants occupied themſelves in labour. Patræus, one of the chiefs of the Achæans who were driven from Lacedæmon on the arrival of the Heraclidæ, enlarged and fortified Aroé, and gave it his own name. Of all the Achæans the inhabitants of Patras were the only perſons who defended the Ætolians, when they were attacked by the Gauls. This incurſion was probably that of the year 278 B.C., and this followed the irruption of this people into Macedonia, in the preceding year, when they were defeated. Auguſtus, allured by the ſituation of Patras, collected the ſcattered inhabitants, and re-eſtabliſhed them. He alſo united ſeveral towns under its dominion, and conferred on the inhabitants all the advantages enjoyed by Roman colonies. In the time of Pauſanias this town was adorned with a ſtatue of Diana Laphria, an odeum, which, next to that of Athens, was the moſt beautiful in Greece, and a fountain near the temple of Ceres, where oracles were iſſued for the relief of bodily maladies. Pauſanias ſays, that Patras contained more women than men, and that they employed themſelves in ſpinning the ſilk of the country, and in the manufacture of ſtuffs.

PATRAS, in *Geography*, a ſea-port town of the Morea, ſituated on the S. coaſt of the entrance into the gulf of Lepanto. (See the preceding article.) This town is the ſee of a Greek archbiſhop, and contains about 80 Chriſtian families, 250 of Turks, and 108 of Jews. Conſuls from England, Holland, and Venice, have been accuſtomed to reſide here. The principal articles of trade are coarſe oil, ſilk, honey, wheat, manna, &c. In the year 1447 this place made a brave defence againſt ſultan Murat, and held out till peace was concluded, when the Morea was ſurrendered to the Turks. The port is choaked with mud, and the road for veſſels is very indifferent; 28 miles N.E. of Chiarenza. N. lat. 38° 33′. E. long. 21° 43′.

PATREE, a town of Hindooſtan, in Guzerat; 70 miles W. of Amedabad.

PATRES Conscripti, in *Antiquity*, a denomination given to the ſenators of Rome.

The firſt hundred ſenators, appointed by Romulus, were called ſimply *patres*, *fathers*; another hundred being added by Romulus and Tatius, upon the union of the two people, theſe latter were called *patres minorum gentium*, and the former *majorum gentium*.

At length Tarquinius Priſcus, making up the number three hundred, the two latter claſſes were called *patres conſcripti*, becauſe *adſcripti*, or written down to the former.

Livy gives a different account of their origin. See Conscript.

Thoſe afterwards choſen from among the knights were called *patres adlecti*.

PATREZ, a name for a ſort of vermicelli, a paſte made of flour and water, and formed into beads. This and all other kinds of vermicelli are often ſtained with ſaffron.

PATRI, Gloria. See Gloria.

PATRIA, in *Geography*, a town of Naples, in Lavora, near a lake to which it gives name; 13 miles N.W. of Naples.

PATRIAM, Trial per, in *Law*. See Jury.

PATRIARCH, Patriarcha, formed of πατρια, *family*, and αρχων, *chief*, one of thoſe firſt fathers who lived towards the beginning of the world; and who became famous by a long line of deſcendants.

Abraham, Iſaac, and Jacob, and his twelve ſons, are the patriarchs of the Old Teſtament. Seth, Enoch, &c. were antediluvian patriarchs.

Long life and a number of children were the bleſſings of the patriarchs.

The patriarchal government conſiſted in the fathers of families, and their firſt-born after them, exerciſing all kinds of eccleſiaſtical and civil authority in their reſpective houſholds: and to this government, which continued till the time of the Iſraelites dwelling in Egypt, ſome have aſcribed an abſolute and deſpotic power, extending even to the puniſhment by death. In proof of this, they allege the curſe pronounced by Noah upon Canaan, Gen. ix. 25; but it is replied that in this affair Noah ſeems to have acted rather as a prophet than a patriarch. Another inſtance of ſuppoſed deſpotic power is Abraham's turning Hagar and Iſhmael out of his family, Gen. xxi. 9, &c.; but this furniſhes no evidence of any ſingular authority veſted in the patriarchs as ſuch, and peculiar to thoſe ages. The third inſtance alleged to the ſame purpoſe is that of Jacob's denouncing a curſe upon Simeon and Levi, Gen. xlix. 7, which is maintained by others to be an inſtance of prophetic inſpiration more than of patriarchal authority. The fourth inſtance is that of Judah with regard to Tamar, Gen. xxxviii. 24; concerning which it is obſerved, that Jacob, the father of Judah, was ſtill living, that Tamar was not one of his own family; and that ſhe had been guilty of adultery, the puniſhment of which was death by burning, and that Judah on this occaſion might ſpeak only as a proſecutor. Jennings's Jewiſh Antiq. vol. i. p. 1, &c. Sydney's Diſcourſes concerning Government, chap. i. ſect. 7.

Patriarch is alſo uſed, in Chriſtendom, for the biſhops in poſſeſſion of ſome of the grand ſees, independent of the papal juriſdiction; or for the chief biſhop over ſeveral countries or provinces, as an archbiſhop is of ſeveral dioceſes; who hath ſeveral archbiſhops under him.

The patriarchate has been always eſteemed the ſupreme dignity in the church: ſo that, to riſe by degrees, the biſhop had only under him the territory of the city of which he was biſhop; the metropolitan commanded a province, and had for ſuffragans the biſhops of his province; the primate was the chief of a dioceſe, and had ſeveral metropolitans under him; and the patriarch had under him ſevearl dioceſes, and the primates themſelves were under him. But this order was not always obſerved.

Uſher, Pagi, De Marca, and Morinus, attribute the eſtabliſhment of the grand patriarchates to the apoſtles. They ſuppoſe that the apoſtles, according to the deſcription of the world then given by geographers, pitched on the three principal cities in the three parts of the known world; *viz.* Rome, in Europe; Antioch, in Aſia; and Alexandria, in Africa: and thus formed a trinity of patriarchs.

Others, far from attributing this inſtitution to the apoſtles, maintain that the name patriarch was unknown at the time of the council of Nice; and that, for a long time afterwards, patriarchs and primates were confounded together; as being all equally chiefs of dioceſes, and equally ſuperior to metropolitans, who were only chiefs of provinces. Hence it is that Socrates gives the title patriarch to all the chiefs of dioceſes, and reckons ten of them. In effect, it does not appear, that the dignity of patriarch was appropriated to the five grand ſees of Rome, Conſtantinople, Alexandria, Antioch, and Jeruſalem, till after the council of Chalcedon, in 451. For when the council of Nice regulated the limits and prerogatives of the three patriarchs of Rome, Antioch, and Alexandria, it did not give them the title of patriarchs, though it allowed them the pre-eminence and privileges thereof. Thus, when the council of Conſtantinople adjudged the ſecond place to the biſhop of Conſtantinople, who, till then, was only a ſuffragan of Heraclea, it ſaid nothing of the patriarchate.

Nor is the term patriarch found in the decree of the council of Chalcedon, whereby the fifth place is aſſigned to the biſhop of Jeruſalem; nor did theſe five patriarchs govern all the churches.

There were ſtill many independent chiefs of dioceſes, who, far from owning the juriſdiction of the grand patriarchs, called themſelves patriarchs: ſuch as that of Aquileia: nor was Carthage ever ſubject to the patriarch of Alexandria.

Moſheim ſuppoſes, that thoſe prelates who enjoyed a certain degree of pre-eminence over the reſt of the epiſcopal order, were diſtinguiſhed by the Jewiſh title of patriarchs in the fourth century. Eccl. Hiſt. vol. i.

The authority of the patriarchs grew by inſenſible degrees, till at length we find, that about the cloſe of the fifth century, all affairs of moment, within the compaſs of their patriarchate, came before them; either at firſt hand, or by appeals from the metropolitans.

They conſecrated biſhops, aſſembled yearly in council the clergy of their reſpective diſtricts; pronounced a deciſive judgment in thoſe caſes where accuſations were brought againſt biſhops; and appointed vicars or deputies, clothed with their authority, for the preſervation of order and tranquillity in the remoter provinces.

Nothing, in ſhort, was done without conſulting them; and their decrees were executed with the ſame regularity and reſpect as thoſe of the princes.

It muſt, however, be obſerved, that the authority of the patriarchs was not acknowledged through all the provinces without exception. Several diſtricts, both in the eaſtern and weſtern empires, were exempted from their juriſdiction.

The Latin church was unacquainted with patriarchs till the ſixth century; and the churches of Gaul, Britain, &c. were never ſubject to the authority of the patriarch of Rome, whoſe authority only extended to the ſuburbicary provinces. There was no primacy, no exarchate nor patriarchate, owned here; but the biſhops, with the metropolitans, governed the church in common.

Indeed, after the name patriarch became frequent in the Weſt, it was attributed to the biſhops of Bourges and Lyons; but it was only in the firſt ſignification, *viz.* as heads of dioceſes. Du-Cange adds, that there have been ſome abbots, who have borne the title of patriarchs.

PATRIARCH is alſo applied to the chief of ſeveral churches in the Eaſt, who live out of communion with the Roman church; ſuch are the patriarch of the Armenians, reſiding in the monaſtery of St. Gregory; the patriarch of the Abyſſinians, called *Abuna;* the patriarchs of the Cophti, the Jacobites, &c. See ARMENIANS, COPHTI, JACOBITES, &c. See alſo *Greek* CHURCH.

PATRIARCHAL, in *Heraldry*. A patriarchal croſs is that where the ſhaft is twice croſſed; the lower arms or traverſes being longer, and the upper ſhorter. Such a croſs is ſaid to belong to patriarchs, as the triple croſs does to the pope.

PATRICA, in *Geography*, a town of Italy, in the Campagna di Roma; 13 miles S. of Rome.

PATRICIAN, PATRICIUS, in ancient Rome, a title given to the deſcendants of the hundred, or, according to others, of the two hundred firſt ſenators choſen by Romulus, and by him called *patres, fathers*.

Romulus eſtabliſhed this order in imitation of the Athenians, who were divided into two claſſes, *viz.* the ευπατριδας, *patricios*, and δημοτικους, *populares*.

Patricians, therefore, were originally the ancient nobility; in oppoſition to the plebeians.

They were the only perſons whom Romulus allowed to aſpire after the magiſtracy; and they exerciſed all the functions of the prieſthood till the year of Rome 495.

But the cognizance and character of theſe ancient families being almoſt loſt and extinguiſhed, by a long courſe of years, and frequent changes in the empire; a new kind of patricians were at length ſet on foot, who had no pretenſions from birth, but whoſe title depended wholly on the emperor's favour.

This new patriciate, Zoſimus tells us, was erected by Conſtantine, who conferred the quality on his counſellors, calling them *patricii*, not becauſe deſcended from the ancient fathers of the ſenate, but becauſe they were the fathers of the republic, or of the empire.

This dignity, in time, became the higheſt of the empire. Juſtinian calls it *ſummam dignitatem:* in effect, the patricians ſeem to have had the precedence of the conſulares, and to have taken place before them in the ſenate; though F. Faber aſſerts the contrary. What embroils the queſtion is, that the two dignities often met in the ſame perſon; becauſe the patriciate was only conferred on thoſe who had gone through the firſt offices of the empire, or had been conſuls.

Pope Adrian made Charlemagne take the title of patrician before he aſſumed the quality of emperor; and other popes have given the title to other kings and princes, by reaſon of its eminence.

PATRICIAN, *Patricius*, is alſo a title of honour frequently conferred on men of the firſt quality in the time of our Anglo-Saxon kings. See THANE.

PATRICIAN *Deities*, *Patricii Dii*, in *Mythology*, were Janus, Saturn, the Genius, Pluto, Bacchus, the Sun, the Moon, and the Earth.

PATRICIANS, in *Eccleſiaſtical Writers*, denote ancient ſectaries who diſturbed the church in the beginning of the third century; thus called from their founder Patricius, preceptor of a Marcionite called Symmachus.

His diſtinguiſhing tenet was, that the ſubſtance of the fleſh is not the work of God, but that of the devil; on which account his adherents bore an implacable hatred to their own fleſh; which ſometimes carried them ſo far as to kill themſelves.

They were alſo called Tatianites; and made a branch of the Encratitæ.

PATRICIDE, PATRICIDIUM, the ſame with parricide.

PATRICK, SIMON, in *Biography*, a learned Engliſh prelate, was the ſon of a mercer at Gainſborough, in Lincolnſhire, where he was born in the year 1626. Great care was taken of his education; and having been well grounded in claſſical learning, he was, in 1644, ſent to Queen's college, Cambridge. He took his degree of B.A. in 1647, and in the following year was choſen fellow of his college. In 1651 he took his degree of M.A, and about the ſame time received holy orders from Dr. Joſeph Hall, biſhop of Norwich. He next became domeſtic chaplain to ſir Walter St. John of Batterſea, who preſented him to that living towards the beginning of the year 1658. In 1661 Mr. Patrick was elected maſter of Queen's college by a majority of fellows, notwithſtanding the king's recommendation of Mr. Anthony Sparrow; but the affair being brought before the king and council, judgment was ſpeedily given againſt our author, and ſome, if not all, of the fellows who had voted for him were ejected. Upon the ejection of Dr. Manton from the rectory of St. Paul's, Covent-Garden, in 1662, Mr. Patrick was preſented to that benefice by the earl of Bedford; and he won the affection of the pariſhioners, not only by his preaching and exemplary manners, but particularly by his conſtant reſidence among them, during the time of that awful calamity the plague. In the year 1666, being diſguſted at ſome circumſtances that happened at Cambridge, he entered himſelf of Chriſtchurch college, Oxford, where he was at firſt incorporated bachelor, and ſoon afterwards was admitted doctor of divinity; and about the ſame time, he was appointed chaplain in ordinary to the king. In 1672 Dr. Patrick was made a prebendary of Weſtminſter; and his next promotion was to the deanery of Peterborough, in 1679, where he completed and publiſhed, in the year 1686, "The Hiſtory of the Church of Peterborough," from the manuſcript of Simon Gunton, formerly a prebendary of that church. Dr. Patrick made very conſiderable additions to it, and added a ſupplement, containing a fuller account of the abbots and biſhops of Peterborough than had been drawn up by Mr. Gunton. In 1680 Dr. Patrick had the offer of the valuable living of St. Martin's-in-the-Fields from the lord chancellor Finch; but he declined accepting it, on account of the regard which he felt for his pariſhioners of Covent-Garden; and on this occaſion he recommended Dr. Thomas Tenniſon, who was preſented to that rectory. During the reign of James II., Dr. Patrick, in oppoſition to all his worldly intereſts, ſhewed his zealous attachment to the Proteſtant religion, by writing and preaching againſt the errors of the church of Rome. The ſovereign condeſcended to reaſon with the doctor on the ſubject, but to no purpoſe: he told the king very plainly, "that he could not give up a religion that was ſo well proved as that of the Proteſtants." His zeal went much farther than this: he oppoſed, to the utmoſt of his power, the reading of the king's declaration for liberty of conſcience, which was publiſhed in favour of the Papiſts; and he aſſiſted Dr. Tenniſon in eſtabliſhing a ſchool at St. Martin's, to counteract the influence of the Popiſh one opened at the Savoy, for the purpoſe of making converts of the children of poor Proteſtants. At the revolution, he was called upon to preach before the prince and princeſs of Orange, who paid him particular attention; and in 1689 he was nominated to fill the vacant ſee of Chicheſter. He was next employed, with others of the epiſcopal bench, in ſettling the affairs of the church of Ireland; with which view, they ſent back all the clergy who fled into England for refuge from the tyranny and perſecution of the late reign. In the year 1691 the biſhop was tranſlated to the ſee of Ely, of which he proved himſelf a liberal benefactor, by the improvements which he introduced into its temporalities. At the ſame time he conſecrated his labours to the intereſts of piety and virtue, by many valuable writings. He died at Ely in 1707, in the 81ſt year of his age. His works were numerous, but the moſt important are his "Commentaries" upon the hiſtorical books of the Old Teſtament, and "Paraphraſes" on the books of Job, Pſalms, Proverbs, Eccleſiaſtes, and Solomon's Songs. Theſe were collected into three volumes, folio, and, with Lowth's "Commentaries" upon the Prophets, Arnald's upon the Apocrypha, and Whitby on the New Teſtament, form a complete collection, in high eſtimation. Biog. Brit. Toulmin's Neal.

Patrick, in *Geography*, a county of Virginia, in America, containing 6682 free, and 647 black people.

Patrick's, *St.*, a ſmall iſland in the Iriſh ſea, near the eaſt coaſt of Ireland. N. lat. 53° 36′. W. long. 6° 5′.

Patrick's, *St.*, a ſmall town, the chief of Camden county, Georgia, ſituated on Great Satilla river, about 32 miles from its mouth.

Patrick's, *St.*, *Purgatory*. See *Lough* Derg.

Patrick, *Order of St.*, is an inſtitution which took place in Ireland in the year 1783. It was on the 5th day of February in this year, that his majeſty ordered letters-patent to be paſſed under the great ſeal of the kingdom of Ireland, for creating a ſociety or brotherhood, to be called knights of the illuſtrious order of St. Patrick; of which his majeſty, his heirs, and ſucceſſors, ſhall perpetually be ſovereigns; and his majeſty's lieutenant-general, and general-governor of Ireland, &c. for the time being, ſhall officiate as grand-maſters; and alſo for appointing prince Edward, and ſeveral of the prime nobility of Ireland, knights-companions of the ſaid illuſtrious order.

The badge of this order is a ſaltire red on a field *azure*, ſurrounded with a ſhamrock, or trefoil *vert*, charged with three imperial crowns *or*, within a garter, on which is the motto, QUIS SEPARABIT, "who ſhall ſeparate them," MDCCLXXXIII. The whole is ſurrounded by a ſtar of ſilver, with eight points; all which is embroidered, and worn on the outer garment of the knights of the order. The collar is of fine gold, compoſed of four harps and five roſes, alternately joined or linked together by ten knots enamelled white: the roſe gules, ſurrounded by a border or, and enamelled azure. In the centre before is an imperial crown, to which is pendant an harp, and thereto the jewel of the order, being a croſs ſaltire enamelled red, charged with a ſky-blue enamelled trefoil, ſurmounted with three imperial crowns of gold; the whole ſurrounded with a bordure of gold, on which the motto is enamelled blue. This jewel, except on public days, is worn pendant to a ſky-blue ribbon, and ornamented with jewellery, agreeably to the will of the poſſeſſor.

This order is to conſiſt of the ſovereign, a grand maſter, a prince of the blood royal, and thirteen knights, making in the whole ſixteen; and eight officers, *viz.* the prelate of the order, the chancellor, regiſtrar, ſecretary, genealogiſt, uſher of the black rod, Ulſter king of arms, attendant on the order, and Athlone purſuivant at arms. The lord lieutenant for the time being is the grand maſter. New Ann. Regiſter, 1783. Debrett's Peerage.

PATRII Dii. See Dii.

PATRIMONIA, in *Geography*, a town of the iſland of Corſica; 4 miles W. of Baſtia.

PATRIMONIO, or *Patrimony of St. Peter*, a province of Italy, ſo called, as it is ſaid, becauſe it was granted by the emperor Conſtantine to ſupport a church, which he had built in honour of St. Peter, and for the uſe of the pope. This country is bounded on the north by the Orvietan and part of Umbria, on the eaſt by the Saſina and Campagna di Roma, on the ſouth-weſt by the Mediterranean, and on the north-weſt by the duchy of Caſtro; about 43 miles long, and 32 broad. It is fertile in corn and fruit, and yields a conſiderable quantity of alum. The principal places in it are Viterbo, Monte Fiaſcone, Bolſena, Civita Caſtellana, and Civita Vecchia.

PATRIMONY, Patrimonium, a right or eſtate, which a perſon inherits from his anceſtors.

The name patrimony was alſo anciently given to the effects or revenues, with which a church or religious houſe was endowed. In which ſenſe authors ſtill ſay the patrimony of the church of Rimini, of Milan, &c.

The church of Rome, at the time of the fall of the Roman empire, acquired conſiderable territories, partly by purchaſe, and partly by the generoſity of princes, &c. not only in Italy, but alſo in Sicily, and other remoter parts of Europe. Theſe were called the patrimony of St. Peter, which were afterwards augmented by the benefactions of Pepin, king of France, who added the exarchate of Ravenna; and by Charlemagne, who gave to the pope ſeveral towns and provinces, which belong at this time to the eſtate of the church, over which the pontiff exerciſes ſovereign authority.

To make what belonged to the churches the more reſpected, they uſually gave their patrimonies the names of the ſaints they held in the higheſt veneration.

Thus the church of Ravenna called its inheritance the patrimony of St. Apollinarius; that of Milan the patrimony of St. Ambroſe, as is obſerved by Fra. Paolo.

PATRINGTON, in *Geography*, is a ſmall market-town and pariſh, in the ſouth diviſion of the wapentake of Holderneſs, and eaſt riding of Yorkſhire, England. The town is ſituated 18 miles S.S.E. from Kingſton-upon-Hull, and 193 miles N. by E. from London. It is of great antiquity, and, according to Camden, was the ancient Prætorium of Antoninus; and with his opinion the beſt informed antiquaries coincide, as its diſtance from the neighbouring ſtation of Delgovitia agrees with that mentioned in the Itinerary, whether we place the latter at Loudeſbrough, or at Market-Weighton. The buildings of this town are much diſperſed.

The pariſh church is a large and ſpacious edifice; its tower is ſurmounted by a lofty ſpire. The market is held here on Saturday weekly, and is much frequented by corn dealers. Here are, beſides, three fairs during the year, principally for drapery, millenery goods, ſhoes, and other articles of dreſs. Patrington ſtands within leſs than a mile of the eſtuary of the Humber, which forms here a ſmall creek, capable of affording ſhelter and anchorage to veſſels of ſmall burden. According to the parliamentary returns of 1811, the town and pariſh contain 190 houſes, and a population of 1016 inhabitants.

About a mile and a half to the north-weſt of Patrington is the pleaſant village of Wineſtead, which is adorned with two elegant villas, the ſeats of ſir Robert d'Arcy Hildyard, bart., and of Henry Maiſters, eſq. The ſeat of the former is denominated Wineſtead-hall, and both being ſeated upon gently riſing ground, command a beautiful proſpect of the town of Patrington, the Humber, and Sunk iſland. This iſland has its name from the circumſtance of its having been entirely under water till the reign of Charles I., when it began to appear by the receding of the ocean. At firſt, only a few acres were left dry at low water; but as it increaſed in extent every year, it was at length embanked, and laid down as paſture land. Other embankments, however, were made at ſubſequent periods, in proportion as the waters retired; ſo that the iſland is now of conſiderable extent, and only ſeparated from the Holderneſs marſhes by a ditch a few feet in breadth. The laſt embankment was effected in 1808, and incloſed an area of 4570 acres. Sunk iſland is divided into ſeveral farms, and a church has lately been built upon it, for the accommodation of the inhabitants. The ſoil is peculiarly fertile.

Spurn-head, or Spurn-point, ſituated about ten miles to the ſouth-eaſt of Patrington, conſtitutes the extremity of the noted "Ocellum Promontorium" of Ptolemy, which projects nearly half-way acroſs the entrance into the Humber. Its preſent name of Spurn-head is of Saxon origin; the verb "ſpurien," in that language, ſignifying to explore or ſpy out. A light-houſe is placed here, as a guide to veſſels navigating the eſtuary. Somewhere in this vicinity was anciently the celebrated ſea-port Ravenſpur, or Ravenſer, remarkable in the annals of England as the landing-place of Henry IV., A.D. 1399, and of Edward IV., A.D. 1471, when theſe princes came to contend for the poſſeſſion of the Engliſh ſceptre. This town has long ſince been ſwallowed up, either by the ocean, or by the Humber; ſo that the ſpot on which it ſtood is uncertain. Several other towns and villages hereabouts have experienced a ſimilar fate. Among them are mentioned Friſmerk, Tharlethorpe, Redmayr, Pennyſmerk, Upſal, and Pottenfleet; all of which Dr. Gibſon ſuppoſes were overflowed in the 30th or 38th year of Edward III., when the tides are recorded to have riſen to a moſt extraordinary height. The inundation of Ravenſpur, however, muſt have taken place at a much later period.

Near the village of Halſham, about three miles and a half beyond that of Wineſtead, is a ſuperb mauſoleum, erected by the late William Conſtable, eſq., as a burying-place for that family. The architecture of this building diſplays an union of elegance and ſimplicity, which at once captivates the eye, and is appropriate to the nature of the ſtructure. The poſition of this mauſoleum is lofty, and the ſurrounding grounds are covered with trees. Beauties of England and Wales, vol. xvi. by John Bigland.

PATRINI *and* Matrini, among the Romans, children whoſe father and mother were both living. It was by a certain number of theſe that hymns were ſung to ſupplicate the gods.

PATRIOT is a denomination given to a perſon who, under a free government, loves his country, and exerts all his power for promoting its glory and welfare. Whence patriotiſm is uſed to denote the love of one's country. Rome, Athens, and Lacedæmon, owed their exiſtence and glory to patriotiſm, founded on noble principles, and ſupported by diſtinguiſhing virtues. But the moſt perfect patriotiſm is that which comprehends the rights of mankind in general. The author of the Spirit of Laws ſeems to have been actuated by ſentiments of univerſal patriotiſm.

PATRIPASSIANS, Patripassiani, a name given to the Sabellians, becauſe they did not believe it was the Son, but the Father himſelf that ſuffered and was crucified.

The council of Antioch, held by the Euſebians in 345, ſays, that thoſe whom the Romans call Patripaſſians, the eaſtern people called Sabellians: it adds the reaſon of the name Patripaſſians in their condemnation; *viz.* that by the incarnation of the Father, they rendered him comprehenſible and paſſible.

The Patripaſſian hereſy was firſt broached by Praxeas, who was ſeconded by Victorinus, at the beginning of the third century. They confeſſed Chriſt to be God, and that God ſuffered and died for us; but they confounded the divine perſons, and denied in effect the Trinity; meaning by Father, Son, and Spirit, not three perſons, but one perſon under three names. So that he who ſuffered for us, was according to them as much Father as Son. Tertullian wrote expreſsly againſt Praxeas.

Hermogenes eſpouſed the error of the Patripaſſians, whence they came to be denominated alſo Hermogenians. Afterwards Noetius gave into it, which occaſioned them the name of Noetians. His diſciple Sabellius the Libyan followed, about the year 250, whence they are called Sabellians. Laſtly, becauſe Sabellius was of Pentapolis, and the hereſy ſpread much there, it was called the Pentapolitan doctrine.

PATRIS, *Dower ex Aſſenſu*, in *Law*. See Dower.

Patris, in *Geography*, a town of Hindooſtan, in the circar of Aurungabad; ſix miles S.E. of Aurungabad.

PATRIZI, Francesco, in *Biography*, a philoſopher and man of letters, was born, in 1529, in the iſland of Cherſo, on the coaſt of Dalmatia, but he derived his origin from the family of Patrizi, in Sienna. He was educated at Padua under the moſt eminent maſters of the time. In 1553 he began to appear as an author by ſome miſcellaneous Italian tracts. In 1557, with the view of obtaining the patronage of the duke of Ferrara, he publiſhed a panegyrical poem on the houſe of Eſte, entitled "L'Eridano," in a novel kind of heroic verſe of thirteen ſyllables. After this, for ſeveral years, he paſſed an unſettled kind of life, in which he twice viſited the iſle of Cyprus, where he took up his abode for ſeven years, and which he finally quitted on its reduction by the Turks in 1571. He alſo travelled into France and Spain, and ſpent three years in the latter country, collecting a treaſure of ancient Greek MSS. which he loſt on his return to Italy. In 1578 he was invited to Ferrara by duke Alphonſo II. to teach philoſophy in the univerſity of that city. Afterwards, upon the acceſſion of Clement VIII. to the popedom, he was appointed public profeſſor of the Platonic philoſophy at Rome, an office which he held with high reputation till his death, in 1597. He was chiefly diſtinguiſhed by his attainments in ancient philoſophy. His work entitled "Diſcuſſiones Peripatetică,” is characteriſed as a learned and elegant performance. After having been a defender of the Ariſtotelian philoſophy and its author, he became a violent oppugner of it, and undertook entirely to ſubvert it, in a ſecond work entitled “Nova de Univerſis Philoſophia.” In this he propoſes a new ſyſtem founded on the Platonic philoſophy, with ſuch additions and alterations as ſeemed requiſite. He is highly deſerving of praiſe as having been one of the firſt of the moderns who attentively obſerved the phenomena of nature, and he made uſe of every opportunity, that his travels afforded him, for collecting remarks concerning various points of aſtronomy, meteorology, and natural hiſtory. In one of his “Dialogues on Rhetoric,” he advanced, under the fiction of an Ethiopic tradition, a theory of the earth perfectly ſimilar to that afterwards propoſed by Dr. Thomas Burnet. His other principal works were “Nova Geometria,” 1587; “Paralleli Militari,” 1594, both of which are full of whimſical theories. Patrizi appeared likewiſe as a learned editor of “Oracula Zoroaſtris, Hermetis Triſmegiſti, et aliorum ex ſcriptis Platonicorum collecta, Græce et Latine, prefixa Diſſertatione Hiſtorica,” 1591. Moreri.

PATRO, in *Geography*, a town of France, in the department of Gola (iſland of Corſica) and chief place of a canton, in the diſtrict of Calvi. The canton contains 1455 inhabitants.

PATROCLUS, in *Biography*, a Grecian chief, ſignalized in the Trojan war, was the ſon of Menoetius, by Sthenele, who is named by ſome authors Philomela, or Polymela. The murder of Clyſonymus, the ſon of Amphidamus, by accident, in the time of his youth, obliged him to fly from Opus, where his father reigned. He went to the court of Peleus, king of Pythia, was very cordially received, and contracted the moſt intimate friendſhip with Achilles, the king's ſon. When the Greeks went to the Trojan war, Patroclus went with them at the expreſs deſire of his father, who had viſited the court of Peleus, and he accordingly embarked with ten ſhips from Pythia. He was the conſtant companion of Achilles; lodged in the ſame tent; and when he refuſed to appear in the field of battle, becauſe he had been offended by Agamemnon, Patroclus imitated his example, and by his abſence was the cauſe of much evil to the Greeks. At length, however, Neſtor prevailed upon him to return to the war, and Achilles permitted him to appear in his armour. The bravery of Patroclus, together with the terror which the ſight of the arms of Achilles inſpired, ſoon routed the victorious armies of the Trojans, and obliged them to fly to the city for ſafety. He would have broken down the walls, but Apollo, who intereſted himſelf for the Trojans, oppoſed him, and Hector, at the inſtigation of that god, diſmounted from the chariot to attack him as he attempted to ſtrip one of the Trojans whom he had ſlain. This engagement was obſtinate, but Patroclus was at length overpowered by the valour of Hector, and the interpoſition of Apollo. His arms became the property of the conqueror, and Hector would have beheaded him, had not Ajax and Menelaus prevented it. His body was at laſt recovered, and carried to the Grecian camp, where Achilles received it with the loudeſt lamentations. His funeral obſequies were obſerved with the greateſt ſolemnity. Achilles ſacrificed near the burning pile twelve young Trojans, four of his horſes, and two of his dogs; and the whole was concluded by the exhibition of funeral games, in which the conquerors were liberally rewarded by Achilles. The death of Patroclus gave riſe to new events. Achilles forgot his reſentment againſt Agamemnon, left the field to avenge the fall of his friend; and his anger was aſſuaged only by the ſlaughter of Hector, who had more powerfully kindled his wrath by appearing at the head of the Trojan armies in the armour which had been taken from the body of Patroclus.

PATROL, or PATROUILLE, anciently *Patoul*, in *War*, a round, or march made by the guards, or watch in the night-time, from the beating of the tattoo till the reveille, to obſerve what paſſes in the ſtreets, and to ſecure the peace and tranquillity of a city or camp.

The patrol conſiſts generally of a body of ſix or twelve men, detached from a *corps de guard*, and commanded by a ſerjeant.

When the enemy is near at hand, patrols conſiſt of an officer and thirty or forty men, as well infantry as cavalry.

PATRON, PATRONUS, a term uſed in various acceptations, though all reducible to the relation of a protector, or guardian.

In the church of Rome, a ſaint, whoſe name a perſon bears, or under whoſe protection he is put, and whom he takes particular care to invoke; or a ſaint in whoſe name a church or order is founded; or a perſon who firſt eſtabliſhed it, and who is choſen protector of it; are called the patrons thereof. Thus, St. Peter and St. Paul are the patrons of the church of St. Genevieve, St. Dionyſius the patron of the city of Paris, St. George of England, St. Benedict the patron of the Benedictines, St. Michael of the armourers, St. Ignatius of the Jeſuits, &c.

PATRON, *Patronus*, among the Romans, was an appellation given to a maſter who had freed his ſlave.

Hence, as the right and relation of maſter expired, that of patron commenced.

For the Romans, in giving their ſlaves their freedom, did not deſpoil themſelves of all rights and privileges in them: the law ſtill ſubjected the freed-men to conſiderable ſervices and devoirs toward their patrons, the neglect of which was always very ſeverely puniſhed.

The principal right, which patrons had, was that of being the legal heirs of their freedmen, if they died without lawful iſſue, born after their enfranchiſement, and inteſtate.

By the Papian law it was farther provided, that if the eſtate of the freed-man were one hundred thouſand ſeſterces, and he had three children, the patron ſhould have a child's portion.

PATRON was alſo a name, which the people of Rome gave to a perſon of power, under whoſe protection they put themſelves.

The common people uſually choſe ſome perſon of eminence and authority, to whom they paid all kind of honour and reſpect; denominating themſelves his clients: and the patron on his ſide granted them his credit and protection.

By this reciprocal relation was the patron bound to his client, and the client to his patron.

Hence the appellation of patroni was given to thoſe lawyers, who defended the cauſe of their clients in matters of law, in contradiſtinction to the *procuratores:* they were called *advocati*. See ADVOCATE.

PATRON, in the *Canon* and *Common Law*, denotes a perſon who founds or endows a church or benefice, and reſerves to himſelf the right of patronage.

The king is patron paramount of all eccleſiaſtical benefices in England.

PATRON, in *Navigation*, is a name given in the Mediterranean to a perſon who commands the veſſel, and ſeamen;

ſometimes the perſon who ſteers it; the former, in other places, being called maſter; the ſecond, pilot.

PATRONA, or Padron, in *Geography*, a town of Syria, near the ſea-coaſt, ſaid to have been founded by Itobalus, contemporary and ally of Ahab, king of Iſrael; its ancient name was "Botrys" or "Botryum." Mr. Maundrell found in this place the remains of an old church and monaſtery, which, as well as the town, were in a ſtate of ruin; 20 miles S.W. of Tripoli. N. lat. 44° 12′. E. long. 35° 35′.

PATRONAGE, Patronatus, the right of giving or diſpoſing of a church or benefice, properly belonging to the founder or endower thereof. See Advowson.

The right of patronage was introduced among Chriſtians towards the cloſe of the fourth century, with no other view than to encourage the opulent to erect a great number of churches, by giving them the privilege of appointing the miniſters that were to officiate in them.

Patronage conſiſts in having the nomination, or preſentation to the benefice by him founded or endowed; in having the honourable rights of the church; in being interred in the chancel, &c.

Of patronages, ſome are *lay*, others *eccleſiaſtical.*

Patronage, *Lay*, is a right attached to a perſon, either as founder, or as heir of the founder; or as poſſeſſor of a fee to which the patronage is annexed.

Patronage, *Eccleſiaſtical*, is that which a perſon is intitled to by virtue of ſome benefice which he holds.

If an eccleſiaſtic have a right of patronage on his own account, independent of his eccleſiaſtical capacity; this is ſtill lay patronage. Lay patronage, again, is *real* or *perſonal.*

Patronage, *Real*, is that attached to the glebe, or to certain lands and hereditaments.

Patronage, *Perſonal*, is that belonging immediately to the founder of the church, and tranſmiſſible to his children and family; without being annexed to any fee.

Perſonal patronage cannot be alienated or ſold; real may, together with the glebe to which it is annexed. There muſt ever be ſome body or matter to fix to it, in order to its being transferred to another.

The origin of the right of patronage, we find in the tenth canon of the council of Orange: where it is expreſſed, that a founder may preſent to the dioceſan the clerks he thinks proper for his church. And by a law of Juſtinian it is ordained, that the founders of churches may not put clerks in them on their own authority, but only preſent them to the biſhop.

Some canoniſts look on the right of patronage, as a kind of eccleſiaſtical ſervitude. The right of patronage ſleeps, but is not loſt, while a perſon is out of the communion of the church.

Patronage, *Diſturbance of*, is an hindrance or obſtruction of a patron to preſent his clerk to a benefice. Diſturbers of a right of advowſon may be the pſeudo-patron by preſenting to a church to which he has no right, and thereby making it litigious or diſputable; his clerk, by demanding or obtaining inſtitution; and the ordinary, by refuſing to admit the real patron's clerk, or admitting the clerk of the pretender. Theſe diſturbances are vexatious and injurious to him who hath the right; and, therefore, the law (beſides the writ of the right of advowſon, which is a final and concluſive remedy) hath given him two inferior poſſeſſory actions for his relief; an *aſſiſe of darrein preſentment*, and a writ of *quare impedit*, in which the patron is always the plaintiff, and not the clerk.

Patronage, *Arms of*, in *Heraldry*, are thoſe, at the top of which are ſome marks of ſubjection and dependence. Thus the city of Paris bears three fleurs-de-lis in chief, to ſhew her ſubjection to the king.

The cardinals on the top of their arms bear thoſe of the pope, who gave them the hat, to ſhew that they are his creatures. See Arms.

PATRONYMIC, Πατρωνυμικος, formed from πατηρ, *father*, and ονομα, *name*, among *Grammarians*, is applied to thoſe names which the Greeks gave to the race, or lineage; and which were taken from him who was the founder thereof.

Thus the deſcendants of Æacus were called Æacidæ; and thoſe of Hercules, Heraclidæ.

Theſe patronymic names the Romans called *gentilitia*, which amount to much the ſame with our *ſurnames.*

Thus, thoſe of the late reigning family in France, we call the Bourbons; thoſe of the late in England, the Stuarts, &c.

PATROON Galley. See Galley.

PATROUILLE. See Patrol.

PATROURA, in *Geography*, a town of Hindooſtan, in Boggilcund; 25 miles S.E. of Makoonda.

PATRU, Oliver, in *Biography*, a diſtinguiſhed French writer, was born at Paris in 1604. He was intended by his father for the bar, and he cultivated with great aſſiduity the talent of writing and ſpeaking with purity. He viſited Rome, and on his return his reputation procured him admiſſion into the French academy in 1640. At his reception he delivered an oration of thanks, which pleaſed that body ſo well, that it became thenceforth the rule for every new member to pronounce a ſimilar harangue. Patru was connected with moſt of the eminent literary characters in France of that period, and was conſulted as an oracle upon every queſtion relative to language. Boileau, Racine, and other wits, read their works to him, and profited by his remarks. Racine, it is ſaid, frequently ſhrunk from the ſeverity of his animadverſions, but Boileau was fully ſenſible of their value. Patru fell into a ſtate of indigence, and Boileau purchaſed his library, and generouſly permitted him to retain it during his life. "That a poet," ſays his biographer, "ſhould be the pecuniary benefactor of a celebrated pleader, ſeems contrary to the uſual order of things; but Patru was probably more intent in poliſhing his ſtyle, than in turning over law-books and hunting for clients. He was a man of a philoſophical ſpirit, generous, compaſſionate, and not depreſſed by the frowns of fortune. His opinions were ſceptical, on which account he was viſited by Boſſuet in his laſt illneſs, for the purpoſe of exhorting him to edify the public by ſome demonſtrations of religious conviction. It will more become me, ſaid Patru, to be ſilent, for men in their laſt moments talk only through weakneſs or vanity." On his death-bed he had a viſit from the miniſter Colbert, who brought him a donation of 500 crowns. He died in January 1681, in his 77th year. Patru is chiefly known as an author by his "Plaidoyers;" but he likewiſe wrote harangues, letters, and the lives of ſome friends, which have in a good meaſure loſt their reputation. The beſt edition of his works is that of 1732, in two vols 4to. Moreri.

PATSA, in *Geography*, a town of Hindooſtan, in the circar of Surgooja; 25 miles N.E. of Surgooja.

PATSAAN, a ſmall iſland on the E. ſide of the gulf of Bothnia. N. lat. 60° 48′. E. long. 20° 58′.

PATSCHKAU, a town of Sileſia, in the principality of Neiſſe; 13 miles W. of Neiſſe. N. lat. 50° 18′. E. long. 16° 50′.

PATSHIKAMISTICK, a river of Canada, which runs into the Sable, N. lat. 49° 45′. W. long. 72° 36′.

PATTA, or Pati, an iſland in the Indian ſea, near the coaſt of Africa, about 10 miles in circumference; chiefly inhabited by Arabians, with whom the Engliſh, Portugueſe, and Indians trade for ivory and ſlaves; it is ſituated near the coaſt, at the mouth of a river of the ſame name. S. lat. 1° 56′. E. long. 43° 20′.

PATTALA, in *Ancient Geography*, a town of India, that has been commonly referred to the Delta of the Indus. Alexander arrived at this place about the middle of Auguſt, 326 years B.C., and having made proper arrangements for the ſafety and convenience of his fleet and army, and having viewed alſo the two principal mouths of the Indus, on which he experienced ſome degree of ſurpriſe, if not of terror, from the "bore," or ſudden influx of the tide, he departed by land for Suſa, leaving Nearchus with the fleet to follow as ſoon as the Eteſian winds ſhould ceaſe. Nearchus ſailed in October with the N.E. monſoon, conducting, according to Dr. Gillies, in his elegant Hiſtory of Greece, "the firſt European fleet which navigated the Indian ſeas." Pattala is ſuppoſed to have been the ſcite of the modern city of *Tatta*, which ſee. According to a tradition among the people of Sindy, Pattala ſtood in the ſuperior delta, whereas Patta is placed in the inferior delta. Rennell's Memoir.

PATTALIA, in *Natural Hiſtory*, a word uſed by Ariſtotle and the reſt of the old Greek writers, to expreſs a ſtag or deer of two years old.

PATTALLY, in *Geography*, a town of Hindooſtan, in Bahar; 33 miles E.N.E. of Hajypour.

PATTAN, Lelit, a city of Aſia, in Napal or Napaul, the capital of an independent kingdom, S.W. of Cat'hmanda or Catmanda; containing near 24,000 houſes: the ſouthern boundary of this kingdom is at the diſtance of four days' journey, bordering on the kingdom of Macwanpur. N. lat. 28° 5′. E. long. 85° 10′.

Pattan, a town of Hindooſtan, in Mewat; 16 miles S.W. of Cotputly.—Alſo, a town of Hindooſtan, in Viſiapour; 20 miles N.W. of Sattarah.

PATTANCHERU, a town of Hindooſtan, in Golconda; 20 miles W.N.W. of Hydrabad.

PATTAPOOW-WINEPEE, a lake of North America. N. lat. 54° 50′. W. long. 96°.

PATTEERAH, a river of Thibet, which runs into the Ganges, on the borders of Hindooſtan.

PATTELBACHEES, one of the ſmalleſt Molucca iſlands. N. lat. 0° 3′. E. long. 127° 21′.

PATTEN-Shoe, in the management of horſes' feet, is a term applied to that ſort of ſhoe which has a kind of half ball of iron welded to it underneath, which is hollow within. It is intended for the uſe of ſuch horſes as are lame in the hip, being put upon the ſound foot, in order that the animal, by not being able to ſtand upon that foot without pain, may be under the neceſſity of ſupporting itſelf upon the lame foot, and in that way counteract the diſpoſition in the ſinews to contract or draw up the haunch. It is the method of practice with ſome, where horſes are newly lamed in the ſhoulders, either to peg the other foot, or ſet on a patten-ſhoe, in the view of bringing the lame ſhoulder upon the ſtretch; but with others it is the cuſtom to immediately turn them out to graſs; both of which ſome think very exceptionable modes of proceeding, and the moſt ready ways of rendering them incurably lame; the patten-ſhoe being ſimply neceſſary in long ſtanding lameneſſes, where the tendons of the muſcles have been a long while contracted or drawn up.

Patten's *Creek*, in *Geography*, a river of America, in Kentucky, which runs into the Ohio, N. lat. 38° 22′. W. long. 85° 50′.

PATTENSBURG, a ſmall town of America, in Botetourt county, Virginia, ſituated upon James' river; 26 miles from Lexington.

PATTENSEN, a town of Weſtphalia, in the principality of Calenberg, formerly encompaſſed with walls, moats, and ramparts; 6 miles S. of Hanover.

PATTERGAUT, a town of Hindooſtan, in the Subah of Delhi; 20 miles W. of Coel.

PATTERGOTTA, a town of Hindooſtan, in Bengal; 10 miles E. of Pucculoe.—Alſo, a town of Aſſam; 15 miles E. of Gentiah.—Alſo, a town of Bengal; 22 miles S.W. of Dinagepour.—Alſo, a town of Bengal; 18 miles E. of Boglipour.

PATTERGUR, a town of Hindooſtan, in the circar of Sumbul; 4 miles N.E. of Nidjibabad.

PATTERPURRA, a town of Bengal; 47 miles S.W. of Burdwan.

PATTERRA, a town of Bengal; 5 miles E. of Midnapour.

PATTERSON, a town of America, in Bergen county, New Jerſey, eſtabliſhed in conſequence of an act of the legiſlature of New Jerſey in 1791, incorporating a manufacturing company with peculiar privileges. Its ſituation on the Great Falls of Paſſaic river is healthy and agreeable. It contains about 50 dwelling houſes, beſides the buildings appropriate to the manufactures of all kinds, which it was propoſed to carry on in this place, the moſt convenient for the purpoſe of any on the continent; but they did not ſucceed to the degree that was expected; 19 miles N.E. of Morriſtown. N. lat. 40° 12′. W. long. 74° 57′.

PATTERSOOT, a town of Pruſſia, in the circle of Natangen; 6 miles S.W. of Brandenburg.

PATTERWALDT, a town of Pruſſia, in the circle of Natangen; 24 miles E.S.E. of Königſberg.

PATTES, in *Heraldry*, the paws of a beaſt. See Paw.

PATTI, Pati, or *Piatti*, in *Geography*, a ſea-port town of Sicily, in the valley of Demona, ſituated on the N. coaſt, in a bay or gulf to which it gives name, built on the ruins of Tindaro, by count Roger, after he had vanquiſhed the Saracens: the ſee of a biſhop ſuffragan of Meſſina; 32 miles W. of Meſſina. N. lat. 38° 10′. E. long. 15° 2′.—Alſo, a river of Sicily, which runs into the ſea, one mile E. of Patti.

PATTIAD, a town of Hindooſtan, in Guzerat; 35 miles N.W. of Gogo.

PATTIARY, a town of Hindooſtan, in Oude; 55 miles E.N.E. of Agra. N. lat. 27° 35′. E. long. 79° 26′.

PATTICAUT, a town of Hindooſtan, in Cochin; 38 miles E.N.E. of Cranganore.

PATTIGAM, a town of Hindooſtan, in Oriſſa; 30 miles N. of Oriſſa.

PATTMES, a town of Bavaria; 8 miles N. of Aicha.

PATTSCHOW, or Patzow, a town of Bohemia, in the circle of Bechin; 58 miles S. of Prague. N. lat. 49° 30′. E. long. 14° 50′.

PATTUNGAH, a town of Hindooſtan, in Oriſſa; 18 miles N. of Sonnepour.

PATTYAH, a town of Hindooſtan, in Oude; 22 miles S.S.W. of Canoge.

PATTYPOUR, a town of Hindooſtan, in Bahar; 52 miles S.S.W. of Patna.

PATUCKET, a ſmall village of America, about four miles N.E. of Providence in Rhode iſland, a place of conſiderable trade and manufactures. Through this village runs Patucket or Pawtucket river, which empties into Seekhonk river at this place. The river Patucket, called in its more northerly courſe Blackſtone's river, has a beautiful fall of water, directly over which has been built a bridge on the line, which divides the commonwealth of Maſſachuſetts from the ſtate of Rhode iſland ; diſtant about 40 miles S. by W. from Boſton.

PATURAGES, a town of France, in the department of Jemmape, and chief place of a canton, in the diſtrict of Mons. The place contains 3208, and the canton 14,126 inhabitants, on a territory of 117½ kiliometres, in 17 communes.

PATUXENT, or PATUXET, a navigable river of America, in Maryland, which riſes near the ſource of Patapſco river, and runs into the W. ſide of Cheſapeak bay, between Drum and Hog iſland points ; 15 or 20 miles N. of the mouth of the Patowmack. It admits veſſels of 250 tons to Nottingham, nearly 46 miles from its mouth, and of boats to Queen Anne, 12 miles higher.

PATZLAWITZ, a town of Moravia, in the circle of Olmutz ; 18 miles S. of Olmutz.

PAU, a town of France, and chief place of a diſtrict, in the department of the Lower Pyrenées ; ſituated on a river called the "Gave of Pau." It is divided into the Eaſt and Weſt parts : the former contains 5800, and its canton 9708 inhabitants, on a territory of 52½ kiliometres, in 10 communes ; and the latter 2785, and its canton 12,593 inhabitants, on a territory of 122½ kiliometres, in 11 communes. It was, before the revolution, the capital of Bearn, and the ſeat of a parliament, a governor, a ſeneſchal, &c. and contained an univerſity, an academy of ſciences, two hoſpitals, a college, and ſeveral convents. This place has manufactures, linen, &c. and its hams are highly eſteemed. The environs are planted with vineyards. N. lat. 43° 17′. W. long. 0° 18′.

PAU, *St.* a town of Spain, in the province of Catalonia ; 12 miles N.W. of Gerona.

PAVAGE, PAVAGIUM, in our old *Law Books*, money paid towards the paving of ſtreets, or highways.

PAVAIS, PAVACHE, or *Tallevas*, in *Ancient Armour*, was a large ſhield, or rather a portable mantlet, capable of covering a man from head to foot, and probably of ſufficient thickneſs to reſiſt the miſſive weapons then in uſe. Theſe were, in ſieges, carried by ſervants whoſe buſineſs it was to cover their maſters with them, whilſt they with their bows and arrows ſhot at the enemy on the ramparts. In the liſt of the army that accompanied king Edward III. to Calais, we find many "Paviſors :" theſe were probably men trained to the uſe of the pavais, which muſt have required dexterity as well as courage. Pavaches were ſometimes ſupported by props : they were alſo uſed at ſea to defend the ſides of the veſſels, like the preſent netting of our ſhips of war : this defence was called a "paviſade," and may be ſeen in the repreſentation of ancient ſhips. The pavais was rectangular at top, the ſides being conſequently parallel, but the angle is rounded off at the bottom. Under the protection of the pavaches, workmen alſo approached to the foot of the wall in order to ſap it.

PAVAKA, in *Mythology*, is the Hindoo regent of fire, and is a deity frequently invoked in the variety of ſacrificial ceremonies obſerved by that ſuperſtitious race. The element of fire being of ſuch vital importance in all the operations of nature, and in its evident and hidden phenomena ſo ſtriking and myſterious, it has, of courſe, excited the wonder and invited the reſearch of the vulgar and the wiſe of all ages and nations. The ſun, the ſuppoſed ſource of heat, is naturally joined with his offspring in the awe and adoration with which each is contemplated ; and among the Hindoos, as with other polytheiſts, we find the attributes and characters of the regents of light and heat often coaleſcing. The Hindoos have, however, depicted their fire-king in colours and forms not common to others. He is painted of a deep red ; with two faces, three legs, and ſeven arms, riding on a ram, and bearing a flag with that animal on its field. Few, if any, of the numerous ceremonies of the Brahmans are complete without invocatory oblations to the all-pervading element of fire, or to its perſonification, under the name of Pavaka or Agni ; the latter is indeed his moſt popular and common name. In ſacrificial ceremonies, as ordained by Menu (ſee MENU), Agni is generally the deity primarily invoked. A Brahman is directed in his domeſtic fire for dreſſing the food that he daily offers to the gods, to make an oblation, "Firſt, to Agni, god of fire, and to the lunar god, ſeverally ; then to both of them at once." (C. iii. v. 85.) Again, in offering to the Dii Manes : "The divine manes are always pleaſed with an oblation in empty glaſſes, naturally clean, on the banks of rivers, and in ſolitary ſpots. Firſt, as it is ordained, having ſatisfied Agni, Soma, and Yama, with clarified butter, let him proceed to ſatisfy the manes of his progenitors." Ib. c. iii. v. 207. 211.

The Brahmans ſubdivide the igneous element, firſt, into two, the ſolar and terreſtrial ; or creative and deſtructive fire. Here Agni, as its general perſonification, coaleſces with Brahma and Siva, and hence it has been ſurmiſed his two faces. Terreſtrial fire is again ſubdivided into three, *viz.* the nuptial, the ceremonial or funeral, and the ſacrificial. Agni's three feet may allude to theſe, or to the influence of fire over the three regions of the univerſe. The ſun is preceded by a ſeven-headed horſe, or by ſeven horſes yoked to his car ; alluſive, it is ſuppoſed, to the priſmatic variety of a ray of light ; and fire, like the ſun, is ſuppoſed by the Hindoo philoſophers to emit ſeven rays. This number is myſteriouſly repeated in invocations to Agni and Surya, the latter their Phœbus or Apollo. (See SURYA.) Hence the number of arms beſtowed on Agni.

The following verſes from Menu are illuſtrative of the attributes of Agni connected with the ſacred triad of fires.

Ch. xi. v. 229. "Due reverence to theſe three (the parents and preceptor) is conſidered as the higheſt devotion ; and without their approbation, no man muſt perform any other duty.

230. "Since they alone are held equal to the three worlds ; they alone, to the three principal orders ; they alone, to the three vedas ; they alone, to the three fires.

231. "The natural father is conſidered as the *garhapatra*, or nuptial fire ; the mother, as the *dakſhina*, or ceremonial ; the ſpiritual guide, as the *ahavaniya*, or ſacrificial : this triad of fires is moſt venerable.

232. "By honouring his mother, he gains this terreſtrial world ; by honouring his father, the intermediate, or ethereal ; and by aſſiduous attention to his preceptor, even the celeſtial world of Brahma."

Like other Hindoo deities, Agni has a wife or ſakti, of whom ſome mention is made under the article SWAHA, who appears to have been a form of *Lakſhmi*. (See that article.) In one of the tales of the Puranas, it is related how "Lakſhmi performed tapaſya for 100,000 years, in the flower of the padma or lotos, ſtanding on one foot, (ſee PADMA aud TAPAS), in order to obtain Viſhnu. She then ſaw Sri Kriſhna or Viſhnu, who ſaid, 'Thou ſhalt be my wife when I aſſume the ſhape of Varaha ; but in the mean time be the ſakti of Agni, which ſakti, or energy, burns every thing : be alſo the wife of Siva. Vahni, Agni, or Fire, for an hundred years of the gods, will have no other wiſh but to pleaſe thee.' She conceived by him : the geſtation laſted twelve years, and three beautiful ſons were born unto her; Dakſhinagni, Garhapatya, and Ahavanya, three ſacred fires." (Aſ. Ref. vol. xi. art. 2.) In this manner the theogonical legends of the Puranas run into each other; very confuſedly as would ſeem on partial examination, but connectedly, as it is ſaid, will appear whenever that maſs of romantic fables ſhall have been competently inſpected. See PURANA.

The number ſeven, we have ſeen, is that of the arms of Agni, and of many alluſions to him in his form of fire. In the ceremony called *viſwadeva,* a comprehenſive one to *all the gods,* which is the meaning of the word, including the eſſentials of the whole detail of daily ſacrifice, and practiſed therefore chiefly by Brahmans not excluſively engaged in the prieſthood, the myſtical number frequently occurs in this invocation; for inſtance, to Agni. "Fire! ſeven are thy fuels; ſeven thy tongues; ſeven thy holy ſages; ſeven thy beloved abodes; ſeven ways do ſeven ſacrifices worſhip thee; thy ſources are ſeven; may this oblation be efficacious." An explanation of this myſterious paſſage is given by Mr. Colebroke, in his "Eſſay on the Religious Ceremonies of the Hindoos," in the ſeventh volume of the Aſ. Ref.

We have noticed three of the ſons of Agni or Pavaka, in the three ſacred fires, by Lakſhmi, in her form of his ſakti. He had three other ſons, perhaps by a different wife, named Uttama, Tamaſa, and Riavata, whoſe names occur in the liſt of ſeven Menus, or ſages, under the article MENU. Their names have probably ſome alluſions, direct or inverſe, to fire, or heat, or light. By another wife he had nine ſons. Another ſon is noticed in the form of an ape under the article NILA. He had alſo ſeven brothers, whoſe names are varied ſignifications of *flame.*

The three ſons of Agni above named, are on other occaſions called ſons of Brahma, as mentioned under the article MENU, above referred to. Between Agni or Brahma we ſee here ſome identity: both are alſo painted red. It is in reference to his creative heat that he is connected with Brahma. He is alſo called Vahni, a name likewiſe of Saraſwati, the conſort of Brahma. A paſſage above quoted has ſhewn that the ſpouſe of Agni coaleſces with thoſe of the other two perſons of the Hindoo head: as doth Agni: his igneous property concentrated, connects him with the deſtructive Siva, who is alſo fire; and his light, ſo intimately related to fire, with Viſhnu the conſervator. This triple connection between the deity of heat and the three great powers, is ſimilar to what is remarked of the ſun under the article SURYA.

Sir W. Jones, in his "Diſſertation on the Gods of Greece, Italy, and India," has the following paſſage, applicable to the ſubject of our preſent article.

"The worſhip of ſolar or veſtal fire may be aſcribed, like that of Oſiris and Iſis, to the ſecond ſource of mythology, or an enthuſiaſtic admiration of nature's wonderful powers; and it ſeems, as far as I can yet underſtand the Vedas, to be the principal worſhip recommended in them. We have ſeen that Mahadeva himſelf is perſonified by fire; but ſubordinate to him is the god Agni, often called Pavaka, or the Purifier, who anſwers to the Vulcan of Egypt, where he was a deity of high rank; and Agni's wife, Swaha, reſembles the younger Veſta, or Veſtia, as the Æolians pronounced the Greek word for a *hearth.* Bhavani, or Venus, is the conſort of the ſupreme deſtructive and generative power; but the Greeks and Romans, whoſe ſyſtems are leſs regular than that of the Indians, married her to their divine artiſt, whom they alſo named Hephaiſtos, or Vulcan, and who ſeems to be the Indian Viſwakarma, the forger of arms for the gods, and inventor of the Agniaſter, or fiery ſhaft, in the war between them and the Daityas, or Tritons." Vol. i. art. 9.

We thus find that the Indian Venus, like her of the Greeks and Romans, is the conſort of the fiery god, both as Lakſhmi and Bhavani, or Parvati; for in a former extract from a Purana it was ſhewn that Lakſhmi was beſtowed on Agni by Viſhnu, and became his ſakti, or energy, and mother of his fiery triple offspring, and alſo was bade to become the wife of Siva.

With the Hindoos, purification is reſorted to in divers modes, according to the nature of the ſin; and fire is the moſt efficacious. Hence the name Pavaka means the Purifier. Under the article KARSHAGNI an inſtance is given of its efficacy in the caſe of great enormity, and under SATI ſomething farther will be found on that point. Under KARTIKYA and KRITIKA ſome Puranic fables are noticed, in which Agni bore a part.

To this deity a portion of the Vedas is aſcribed, as having been revealed or promulgated by him. (See VEDA.) Seven books of the Yajurveda he is the reputed author of: and one of the Puranas, which details his hiſtory, is called the Agni Purani. See an outline of its contents under PURANA. He is therein alſo named Agnidhra, Anala, and Jivani: to the latter appellation it is added, "he, who does good to all; from whom ſprung the Vedas." Under the article MARUT it is noticed, that the Hindoos have guardians over the cardinal and intermediate points of the heavens. Among theſe is Pavaka; and he rules or governs the ſouth-eaſt. In the Gita, when Kriſhna deſcribes his own pre-eminence among all things and creatures, he ſays to Arjun, "Among the Vaſus, I am Pavaka." See KRISHNA and VASU.

Among the offspring of Agni may be noticed the commander of the celeſtial armies, named Kartikya, who is hence called Agnija, and Agnibhuva; but he is more commonly reputed the ſon of Siva; the inſtrumentality of the god of fire having been apparently confined to warming or inflaming the frigidity of Siva to a due pitch; the charms of his conſort Parvati appearing, by the Puranic fables, to have been unequal to that effect; and a warlike ſon, being at the then critical period, eſſential to the ſafety of the gods. This fiery parentage of *Kartikya* is noticed under that article, and under MUNI: in the latter, the following correction is neceſſary; ſecond column, third line from the bottom, inſtead of many-mothered for, read many-mothered ſon.

PAVAN, PAVANA, the air of an ancient ſtately dance, which has been long out of uſe. It had its name from the dancer's aſſuming the dignity of the peacock; or, perhaps, from Pavana, an Indian author of a ſyſtem of muſic that goes under his name. In all ſets of leſſons for the virginal, from the time of queen Elizabeth to the reign of Charles I., there was a Pavan, which ſerved as an adagio, or ſlow movement to the galiard, as the ſaraband did afterwards to the courant.

PAVANA, in *Mythology,* is the Hindoo regent of the winds, and of the north-weſt quarter of the heavens; the Hindoos having, as noticed under the article MARUT, a ſeparate ruler or guardian for each cardinal and intermediate point. The name of this deity is uſually pronounced Pavan; and we may herein recognize the Faun-us of ancient Italy; a contraction of Favon-ius, the north-weſt wind of the Mediterranean mythology, derived probably from a faun or antelope, apt emblem of its celerity, and allotted, therefore, in India, as a vehicle for Pavana, who, in pictures, uſually appears ſo mounted. The Puranas contain particular directions to artiſts in reſpect to their delineating the gods.

In the Matſya Purana, the following point out the attributes of the one in queſtion. "Let Pavana be painted young, clothed in robes of many colours, mounted on a fleet antelope, and with a ſtandard in his hand, which the wind waves behind him as he cleaves the air." A farther inſtance of analogy in the European and Indian mythological tales, and connected with this article, will be found under Maruty, a name of Hanuman, a ſimian hero, reputed ſon of Pavana, one of whoſe names is *Marut*, which ſee ; a word, like Pavan, meaning the wind. He is lord or chief of the maruts, or winds. Vayu is another of his names, and Anila and Yah. This deity is honoured by frequent invocation and ſacrifice in the Brahmanical ceremonies. An inſtance is given under Nirriti. One of the Puranas is named after this deity, and feigned to have been promulgated by him ; but as the ſound of Pavana immediately preceding *purana*, would be harſh in the faſtidious ear of the Brahmans, that poetical ſect, to avoid this cacophony, always call it after another of the names of the windy regent Vayupurana. See Purana.

Pavana, in *Botany*, the name of the plant which produces the grana tiglia of the ſhops. It is a ſpecies of ricinus.

Pavana-*Wood*, when freſh, operates very violently, both by vomit and ſtool: when dried, it is much more gentle, never vomiting at all ; but at preſent it is ſcarcely heard of in the ſhops.

PAUCARA, in *Geography*, a town of Peru, in the dioceſe of Guamanga ; 20 miles E. of Guanca Velica.

PAUCARCOTTA, a town of Peru, which gives name to a juriſdiction, in the dioceſe of La Paz ; 32 miles N. of Puno, which is the capital of the juriſdiction. This juriſdiction borders S. on that of Chucuito, and has the ſame temperature ; and is therefore obliged to recur to other provinces for the greateſt part of its grain, and eſculent vegetables ; but abounds in all kinds of cattle, both of the European and American kinds. The Indians of the town weave bags with their wool, and ſell them to great advantage. The mountains in this province contain ſeveral ſilver mines, and among the reſt the famous Laycacota, in which the metal was often cut out of the mine with a chiſſel ; but its prodigious richneſs accelerated the death of its owner, Joſeph Salcedo ; ſoon after which the waters broke into it, nor have any labour and expence been ſufficient for draining it, ſo that it has been abandoned. Few of the other mines are wrought.

PAUCARTAMBO, a juriſdiction of Peru, in the dioceſe of Cuſco, which commences eight leagues E. of Cuſco, and is of conſiderable extent. In the time of the Incas it produced the greateſt quantity of cocoa, with which it carried on a very profitable commerce. But ſince this ſhrub has been planted in other provinces, it has greatly declined. The ſoil is equally fertile in other productions.—Alſo, a river, that riſes about 50 miles S.W. of Cuſco, and after a northerly courſe of about 200 miles, through the juriſdiction to which it gives name, joins the Maranon at 10° 45′ ; but in fact it is the river ſtyled by La Cruz Ynambari.

PAUCTON, Alexis, in *Biography*, a mathematician, was born near Laſſay, in Mayenne, in 1732. He received his education in the mathematical and naval academy at Nantes, after which he went to Paris, where his integrity and talents obtained for him a conſiderable ſhare of patronage. He died in the year 1799. His works are ; 1. "Theory of the Force of Archimedes." 2. "A Treatiſe on the Weights, Meaſures, and Monies of all Countries, ancient and modern." 3. "Theory of the Laws of Nature, with a Diſſertation on the Pyramids of Egypt."

PAVEMENT, a layer or ſtratum of ſtone, or other matter, ſerving to cover and ſtrengthen the ground of divers places, for the more commodious walking on, or for the paſſage of carriages.

The word is formed from the Latin *pavimentum*, of *pavire*, to beat down the earth, in order to make it firm and ſtrong.

In England, the pavements of the grand ſtreets, &c. are uſually of flint or rubble-ſtone ; courts, ſtables, kitchens, halls, churches, &c. are paved with tiles, bricks, flags, or fire-ſtone ; ſometimes with a kind of free-ſtone, and rag-ſtone.

In ſome cities, *e. gr.* of Venice, the ſtreets, &c. are paved with brick ; churches ſometimes are paved with marble, and ſometimes with moſaic work, as the church of St. Mark, at Venice. In France, the public roads, ſtreets, courts, &c. are paved with gres or grit, a kind of free-ſtone.

In Amſterdam, and the chief cities of Holland, they call their brick pavement the *burgher-maſter's* pavement, to diſtinguiſh it from the ſtone or flint pavement, which uſually takes up the middle of the ſtreet, and which ſerves for carriages ; the brick which borders it being deſtined for the paſſage of people on foot.

Pavements of free-ſtone, flint, and flags, in ſtreets, &c. are laid dry, *i. e.* in a bed of ſand ; thoſe of courts, ſtables, ground-rooms, &c. are laid in a mortar of lime and ſand ; or in lime and cement, eſpecially if there be vaults or cellars underneath. Some maſons, after laying a floor dry, eſpecially of brick, ſpread a thin mortar over it ; ſweeping it backwards and forwards to fill up the joints. The ſeveral kinds of pavement are as various as the materials of which they are compoſed, and whence they derive the name by which they are diſtinguiſhed : as, 1. *Pebble-paving*, which is done with ſtones collected from the ſea-beach, moſtly brought from the iſlands of Guernſey and Jerſey ; they are very durable, indeed the moſt ſo of any ſtone uſed for this purpoſe. They are uſed of various ſizes, but thoſe which are from ſix to nine inches deep, are eſteemed the moſt ſerviceable. When they are about three inches deep they are denominated bolders, or bowlers ; theſe are uſed for paving court-yards, and other places not accuſtomed to receive carriages with heavy weights ; when laid in geometrical figures they have a very pleaſing appearance.

2. *Rag paving* was formerly much uſed in London, but is very inferior to the pebbles ; it is dug in the vicinity of Maidſtone, in Kent, from whence it has the name of Kentiſh ragſtone ; there are ſquared ſtones of this material for paving coach-tracks and footways.

3. *Purbeck pitchens* ; ſquared ſtones uſed in footways ; they are brought from the iſland of Purbeck, and alſo frequently uſed in court-yards ; they are in general from ſix to ten inches ſquare, and about five inches deep.

4. *Squared paving*, for diſtinction by ſome called *Scotch paving*, becauſe the firſt of the kind paved in the manner that has been and continues to be paved, came from Scotland ; the firſt was a clear cloſe ſtone, called blue wynn, which is now diſuſed, becauſe it has been found inferior to others ſince introduced in the order they are hereafter placed.

5. *Granite*, a hard material, brought alſo from Scotland, of a reddiſh colour, very ſuperior to the blue wynn quarry.

6. *Guernſey*, which is the beſt, and now almoſt the only ſtone in uſe ; it is the ſame ſtone with the pebble before ſpoken of, but broken with iron hammers, and ſquared to any dimenſions required of a priſmoidical figure, ſet with its ſmalleſt baſe downwards. The whole of the foregoing paving ſhould be bedded and paved in ſmall gravel.

7. *Purbeck paving*, for footways, is in general got in large ſurfaces, about two inches and a half thick; the blue ſort is the hardeſt and the beſt of this kind of paving.

8. *Yorkſhire paving*, is an exceeding good material for the ſame purpoſe, and is got of almoſt any dimenſions of the ſame thickneſs of the Purbeck; this ſtone will not admit the wet to paſs through it, nor is it affected by the froſt.

9. *Ryegate*, or *fire-ſtone paving*, is uſed for hearths, ſtoves, ovens, and ſuch places as are liable to great heat, which does not affect this ſtone, if kept dry.

10. *Newcaſtle flags*, are ſtones about two feet ſquare, and one and a half, or two inches thick; they anſwer very well for paving out-offices; they are ſomewhat like the Yorkſhire.

11. *Portland paving*, with ſtone from the iſland of Portland; this is ſometimes ornamented with black marble dots.

12. *Sweedland paving*, is a black ſlate dug in Leiceſterſhire, and looks well for paving halls, or in parti-coloured paving.

13. *Marble paving*, is moſtly variegated with different marbles, ſometimes inlaid in moſaic.

14. *Flat brick paving*, done with brick laid in ſand, mortar, or groute, as when liquid lime is poured into the joints.

15. *Brick on edge paving*, done with brick laid edgeways in the ſame manner.

16. Bricks are alſo laid flat or edgeways in herring-bone.

17. Bricks are alſo ſometimes ſet endways in ſand, mortar, or groute.

18. Paving is alſo performed with paving bricks.

19. With ten-inch tiles.

20. With foot-tiles.

21. With clinkers for ſtables and out-offices.

22. With the bones of animals, for gardens, &c. And

23. We have knob-paving, with large gravel-ſtones for porticoes, garden-ſeats, &c.

Pavers' work is done by the ſquare yard: and the content is found by multiplying the length by the breadth.

Pavements of churches, &c. frequently conſiſt of ſtones of ſeveral colours; chiefly black and white, and of ſeveral forms; but chiefly ſquare, and lozenges, artfully diſpoſed. Indeed, there needs no great variety of colours to make a ſurpriſing diverſity of figures and arrangements. M. Truchet, in the Memoirs of the French Academy, has ſhewn by the rules of combination, that two ſquare ſtones, divided diagonally into two colours, may be joined together chequerwiſe ſixty-four different ways: which appears ſurprizing enough; ſince two letters, or figures, can only be combined two ways.

The reaſon is, that letters only change their ſituation with regard to the firſt and ſecond; the top and bottom remaining the ſame: but in the arrangement of theſe ſtones, each admits of four ſeveral ſituations, in each of which the other ſquare may be changed ſixteen times, which gives ſixty-four combinations.

Indeed, from a farther examination of theſe ſixty-four combinations, he found there were only thirty-two different figures; each figure being repeated twice in the ſame ſituation, though in a different combination; ſo that the two only differed from each other by the tranſpoſition of the dark and light parts.

The paving of ſtreets is one of the moſt beneficial regulations of police that have been tranſmitted to us from our anceſtors. Several cities had paved ſtreets before the commencement of the Chriſtian era; nevertheleſs thoſe which are at preſent the ornament of Europe, Rome excepted, were deſtitute of this great advantage till almoſt the 12th or 13th century. It is probable that thoſe people who firſt carried on the greateſt trade, were the firſt who paid attention to have good ſtreets and highways, in order to facilitate that intercourſe which is ſo neceſſary to keep up the ſpirit of commerce. Accordingly we are told by Iſidorus (Origin. l. xv. c. 16.) that the Carthaginians had the firſt paved ſtreets, and that their example was ſoon copied by the Romans. Long before that period, however, Semiramis paved highways, as appears by the vain-glorious inſcription which ſhe herſelf cauſed to be put up. (Strabo, l. xvi. Diod. Sicul. l. ii. v. 13. Polyæni Stratagem. l. viii. c. 26.) The ſtreets of Thebes, and probably thoſe of Jeruſalem, were paved. But neither the ſtreets of Rome, nor the roads around it, were paved during the time of its kings. In the year 188, after the abolition of the monarchical form of government, Appius Claudius, being then cenſor, conſtructed the firſt real highway, called after him the Appian way, and on account of its excellence, the queen of roads. The time when the ſtreets were firſt paved cannot be preciſely aſcertained; ſome have referred this improvement to the year 578, after the building of the city; others to 584; and others to 459; at which ſeveral periods ſome parts of the city and ſuburbs might have been paved. That ſtreets paved with lava, having deep ruts made by the wheels of carriages, and raiſed banks on each ſide, for the accommodation of foot-paſſengers, were found both at Herculaneum and Pompeii, is well known.

Of modern cities, the oldeſt pavement is commonly aſcribed to that of Paris; but it is certain that Cordova in Spain was paved ſo early as the middle of the 9th century, or about the year 850. The capital of France was not paved in the 12th century, but the orders for this purpoſe were iſſued by the government in the year 1184, on which occaſion it is ſaid that the name of Lutetia, deduced from its dirtineſs, was changed into that of Paris. Nevertheleſs, in the year 1641, the ſtreets in many quarters of Paris were not paved. That the ſtreets of London were not paved at the end of the 11th century, is aſſerted by all hiſtorians. It does not appear when paving was firſt introduced; but it was gradually extended as trade and opulence increaſed. Several of the principal ſtreets, ſuch as Holborn, which are at preſent in the middle of the city, were paved for the firſt time by royal command in the year 1417; others were paved under Henry VIII., ſome in the ſuburbs in 1544, others in 1571 and 1605, and the great market of Smithfield, in 1614.

Pavement *of Terrace*, is that which ſerves for covering in manner of a platform; whether it be over a vault or a wooden floor.

Thoſe over vaults are uſually ſtones ſquared, and bedded in lead. Thoſe on wood, called by the Latins *pavimenta contignata*, are either ſtones with beds for bridges, tiles for cieling of rooms, or lays of mortar made of cement and lime, with flints or bricks laid flat: as is ſtill practiſed by the eaſtern and ſouthern people a-top of their houſes.

All thoſe pavements which lie open were called by the Latins *pavimenta ſubdialia*.

Pavement, *Moſaic*. See Mosaic *Work*.

Pavement, *Teſſellated*. See Tessellated.

PAVENTIA, in *Mythology*, the tutelary goddeſs of children. Among the Romans this goddeſs was invoked to avert from them frightful objects.

PAVETTA, in *Botany*, the Malabar name, retained by Rheede and adopted by Linnæus and others, contrary to rule, except as far as it is well-founding. Linn. Gen. 54. Schreb. 71. Willd. Sp. Pl. v. 1. 610. Mart. Mill. Dict. v. 3.

v. 3. Ait. Hort. Kew. ed. 2. v. 1. 244. Juſſ. 203. Gærtn. t. 25. Claſs and order, *Tetrandria Monogynia*. Nat. Ord. *Stellatæ*, Linn. *Rubiaceæ*, Juſſ.

Gen. Ch. *Cal.* Perianth ſuperior, very ſmall, bell-ſhaped, four-toothed, crowning the germen, permanent. *Cor.* of one petal, funnel-ſhaped; tube uſually long, ſlender, cylindrical; limb in four deep, lanceolate, ſpreading ſegments. *Stam.* Filaments four, very ſhort, above the mouth of the corolla; anthers awl-ſhaped, ſpreading, the length of the limb. *Piſt.* Germen inferior, roundiſh; ſtyle thread-ſhaped, twice as long as the corolla; ſtigma oblong, club-ſhaped, oblique. *Peric.* Berry roundiſh, of two cells, one of them often abortive. *Seeds* ſolitary, roundiſh, cartilaginous, convex on one ſide.

Eſſ. Ch. Calyx bell-ſhaped, four-toothed, ſuperior. Corolla of one petal; tube cylindrical; limb four-cleft, ſpreading. Stamens riſing above the mouth. Style longer than the ſtamens. Stigma club-ſhaped, curved. Berry of two cells. Seeds ſolitary, cartilaginous.

Obſ. We have already hinted the difficulty of eſtabliſhing a certain diſtinctive character between this genus and Ixora; ſee that article. Whether the greater length of the ſtyle, more entire ſtigma, and leſs deeply divided calyx of *Pavetta* be of any great weight, a compariſon of all the ſpecies of both genera together can alone determine.

1. P. *indica*. Linn. Sp. Pl. 160. Suppl. 121? Willd. n. 1. Ait. n. 1. (P. ſeu Malleamothe; Rheede Hort. Mal. v. 5. 19. t. 10.)—Leaves elliptic-lanceolate, ſmooth, as well as the flower-ſtalks. Calyx very ſlightly toothed. Style twice the length of the corolla. Found in many parts of the Malabar coaſt, from whence Dr. Roxburgh ſent us ſpecimens. A humble ſpreading ever-green ſhrub. *Leaves* oppoſite, ſtalked, thin, ſmooth and ſhining, with many ſtraight tranſverſe ribs. *Stipulas* broad, triangular, firmly combined with the footſtalks, quite ſmooth. *Flowers* very numerous, white, fragrant, in ſmooth, ſlender, repeatedly forked, cymoſe panicles. Burmann's Ind. t. 13. f. 3, accords in no reſpect with our plant. The plant of Rumphius, v. 4. t. 47, cited by Willdenow, after Linn. Mant. 331, is ſurely our *Ixora flammea*, and has neither the form nor colour of *Pavetta*.

2. P. *tomentoſa*. Roxb. MSS.—Leaves elliptical, downy, as well as the flower-ſtalks. Calyx cloven half way down. Style twice as long as the corolla.—Sent from India by Dr. Roxburgh, along with the former, from which it ſeems to differ chiefly in its broader *leaves*, which, like the *flower-ſtalks* and *calyx* are downy, eſpecially when young. The teeth of the *calyx* are much more conſpicuous than in *P. indica*, and this character appears of conſequence, from the conſideration of other ſpecies.

3. P. *villoſa*. "Vahl. Symb. v. 3. 12." Willd. n. 2.—"Branches and calyx villous and hoary. Leaves lanceolate-elliptical. Flowers in tufts."—Native of Arabia Felix. We know nothing of this but from Willdenow. The *infloreſcence* is probably like *P. indica*, as Vahl uſes the ſame term for both.

4. P. *longiflora*. "Vahl Symb. v. 3. 12." Willd. n. 3.—"Branches ſmooth. Leaves lanceolate-elliptical. Stipulas hairy on the inſide. Calyx four-cleft. Flowers in tufts."—Native of Arabia Felix, where it was gathered by Forſkall, as well as the laſt. The *calyx* appears to be more deeply divided than in the firſt ſpecies, or perhaps the laſt.

5. P. *caffra*. Linn. Suppl. 121. Thunb. Prodr. 29. Willd. n. 4. (Crinita capenſis; Houttuyn Linn. Pfl. Syſt. v. 5. 357. t. 40. f. 1. *Willd.*)—Leaves obovate, ſmooth. Flowers in terminal heads. Teeth of the calyx awl-ſhaped, above half the length of the tube of the corolla.—Gathered by Sparrmann and Thunberg at the Cape of Good Hope. The length of the *calyx* is very remarkable, as well as the long white denſe hairs, clothing the common *receptacle*, or inner ſide of the *bracteas*. The *ſtyle* is twice as long as the *corolla*.

6. P. *barbata*. Leaves lanceolate-oblong, pointed, ſmooth. Panicles forked, divaricated, ſmooth. Tube of the corolla but half the length of the five-cleft limb, briſtly at the mouth.—Gathered by the late Mr. Chriſtopher Smith, at Honimoa, or Honimao, April 2, 1797. He ſuſpected it to be a *Pavetta*, and we can only preſume it to be ſo. The whole appearance agrees with the figure of the next, and the *flowers*, as in that, are five-cleft; but their ſhort tube diſtinguiſhes them from every other ſpecies. The *anthers* are very long, equal to the *corolla*; nor does the *ſtigma*, which is cylindrical and acute, though curved, project beyond them. The *calyx* is a little hairy, ſlightly toothed, decidedly bell-ſhaped. The *leaves* are coriaceous, a foot long, two inches broad, with taper points. *Panicles* axillary, many-flowered.

7. P. *pentandra*. Swartz Ind. Occ. 233. Willd. n. 5. (Jaſminum arboreſcens, ſolani foliis, baccis nigro-violaceis; Plum. Ic. 149. t. 156. f. 1. Ceraſo affinis arbor baccifera racemoſa, fructu cæruleo, monopyreno, teſticulato; Sloane Jam. v. 2. 95. t. 202. f. 2.)—Leaves elliptic-lanceolate, pointed, ſmooth. Panicles forked, divaricated, ſmooth. Tube of the corolla twice as long as the five-cleft limb, naked at the mouth.—Native of uncultivated hills in Jamaica, where it is called Wild Coffee. The *leaves* appear to be broader, and leſs coriaceous, than in the laſt. The *ſtem* is the height of a man, or much more. *Flowers* white, highly fragrant, produced in the vernal months.

Swartz conſiders the Siderodendrum of Schreber, ſee that article, akin to this plant, which he ſays is, in a manner, intermediate between the three very cloſely allied genera of *Pſychotria*, *Coffea* and *Pavetta*. We cannot help adverting to Willdenow's continuing the erroneous reference to Sloane, from Swartz's Prodromus, though he quotes the page in that author's Flora Ind. Occ., where the miſtake is expreſsly pointed out and rectified.

PAUGANARY, in *Geography*, a town of Hindooſtan, in Marawar; 10 miles S. of Tripatore.

PAVIA, in *Botany*, ſo called by Boerhaave in honour of Peter Pavius, who was profeſſor of Phyſic at Leyden, and to whom the care of the Botanic Garden there was confided in May 1592. The botanical Profeſſorſhip being conferred upon Cluſius two months afterwards, Bontius and Pavius were aſſociated with him in this charge for ſeveral years. In 1609 the whole devolved upon Pavius, and he continued to enrich and improve the garden till his death in 1617. He does not appear to have publiſhed any thing, not even a catalogue of the garden. The preſent plant is now referred by botaniſts to another genus, ſee Æsculus, in which it bears the ſpecific name of *Pavia*, and is well known in our gardens as the Scarlet Horſe-cheſnut.

Pavia, in *Geography*, a city of Italy, and capital of the department of the Teſino, ſituated on a beautiful plain, on the river Teſino. It was once the capital of Lombardy, but few evidences remain of its having been once thus diſtinguiſhed. The fortifications of the citadel have been neglected; the ſtreets are broad and ſtraight, and have ſome good buildings. Pavia is the ſee of a biſhop, and beſides the cathedral, contains 18 pariſh churches, and 38 convents. The univerſity was founded by Charlemagne, and re-eſtabliſhed by Charles IV. It is ſtill in good repute, its profeſſors having diſtinguiſhed themſelves in natural hiſtory, and is regarded as the firſt in Italy. This city was founded by the Gauls; but they were expelled by the Romans, and the

Romans by the Goths, about the middle of the fifth century. In 476 or 477, Odoacer granted the inhabitants an exemption from taxes for five years, in order to enable them to rebuild the town, which had been ruined, and which till that time had been denominated Tiſinum; and when it was rebuilt, it was called Papia or Pavia. In 568 it was taken by the Lombards, and became their capital; but this diſtinction terminated with Didier, who was taken priſoner by Charlemagne in the year 774, afterwards it became the prey of ſeveral tyrants, till it fell under the dominion of the dukes of Milan. After ſeveral diſaſters, this town was taken in 1800 by the French, who found in it immenſe ſtores belonging to the Auſtrians; 17 miles S. of Milan. N. lat. 45° 10′. E. long. 9° 9′.

Pavia, *Duchy of*, or the *Paveſe*, is now part of the department of the Teſino, and is bounded on the N. by the Milaneſe, on the E. by the Lodeſan and Placentia, on the S. by the territory of Genoa, and on the W. by the Lumellin and Tortoneſe.

PAVICULA, among the Romans, a rammer, or inſtrument for beating down and levelling a ſpot of ground.

It conſiſted of a block of wood one foot long and half a foot thick, with a long handle.

PAVIGNANO, in *Geography*, a town of Italy, in the department of the Mela; 10 miles E.N.E. of Breſcia.

PAVILION, in *Architecture*, ſignifies a kind of turret, or building uſually inſulated, and contained under a ſingle roof; ſometimes ſquare, and ſometimes in form of a dome; thus called from the reſemblance of its roof to a tent.

The word comes from the Italian *padiglione*, *tent*; and that from the Latin *papilio*.

Pavilions are ſometimes alſo projecting pieces, in the front of a building, marking the middle of them. Sometimes the pavilion flanks a corner, in which caſe it is called an *angular* pavilion. The Louvre is flanked with four pavilions. The pavilions are uſually higher than the reſt of the building.

There are pavilions built in gardens, popularly called ſummer-houſes, pleaſure-houſes, &c. Some caſtles or forts conſiſt only of a ſingle pavilion.

Pavilion, in *Heraldry*, denotes a covering in form of a tent, which inveſts, or wraps up, the armories of divers kings and ſovereigns depending only on God, and their ſword.

The French heralds hold, that none but ſovereign monarchs may bear the pavilion entire, and in all its parts.

The pavilion conſiſts of two parts: the top, which is the chapeau, or coronet; and the curtain, which makes the mantle. Thoſe who are elective, or have any dependence, ſay the heralds, muſt take off the head, and retain nothing but the curtains.

The uſe of pavilions and mantles in armories are derived from the ancient lambrequins, which are ſometimes found ſtretched out in form of coverings; and tucked back on either ſide.

Others will have it derived from the ancient tournaments, wherein were expoſed the arms of the knight, in rich tapeſtry-work, on tents and pavilions, with the chiefs of the quadrils planted to ſhelter themſelves in, till the time of entering the liſts.

Pavilion, in *War*, denotes a tent raiſed on poſts to lodge under in the ſummer time. See Tent.

Pavilion is alſo ſometimes applied to flags, colours, enſigns, ſtandards, banners, &c. all which authors uſually confound with one another.

The cuſtom of bearing pointed pavilions, as at preſent, firſt came from the Mahometan Arabs, at the time when they conquered Spain. Till then, all colours were ſtretched on croſs pieces like church-banners; whence they were called in Latin, *vexilla quaſi velilla*, a diminutive of *vela*, *ſails*.

The pirates all along the coaſts of the Atlantic, and Barbary, bear hexagonal pavilions, gules, charged with a little Turk, dreſſed in his turban; though contrary to their law, which prohibits the making any image of a man; from an opinion that thoſe who make the figure here will be obliged to furniſh a ſoul for it at the day of judgment, or, in default thereof, be damned.

But this portrait, it ſeems, is that of Hali Sulficar, Mahomet's ſon-in-law, to whoſe party the Africans adhere: and who appointed his picture to be repreſented on their banners; imagining himſelf ſo terrible to the Chriſtians, that the mere ſight of his image would put them to flight; as we are told by Leunclavius.

Pavilions, among *Jewellers*, the under ſides and corners of the brilliants, lying between the girdle and the collet.

PAUILLAC, in *Geography*, a town of France, in the department of the Gironde; and chief place of a canton, in the diſtrict of Leſparre; 10 miles S.E. of Leſparre. The place contains 1443, and the canton 6941 inhabitants, on a territory of 165 kiliometres, in ſix communes.

PAVILLON, Stephen, in *Biography*, a man of letters, was born at Paris in 1632. He was educated for the law, and obtained the poſt of advocate-general of Metz, but a delicate conſtitution, and a love of ſtudy and refinement, cauſed him to reſign that office, and devote himſelf to literature. The mildneſs of his manners, and the charms of his converſation, procured him many diſtinguiſhed friends, and during the fits of the gout, to which he was a martyr, his chair was ſurrounded by perſons of rank and eminence. He refuſed the office of preceptor to a young prince, though it ſeemed to open the way to a good fortune. Lewis XIV. gave him a penſion of 2000 livres. He died in 1705, at the age of 73. He was a member both of the French academy, and that of Inſcriptions, without having ſolicited a ſeat in either. His literary reputation was chiefly founded on his poems, which were characterized by eaſe, gaiety, and great delicacy. The moſt complete edition of his works was printed at Paris in two vols. 12mo. 1747. Moreri.

PAVILLY, in *Geography*, a town of France, in the department of the Lower Seine, and chief place of a canton, in the diſtrict of Rouen; nine miles N.W. of Rouen. The place contains 2245, and the canton 14,584 inhabitants, on a territory of 155 kiliometres, in 25 communes.

PAVISADE, and Paviſors. See Pavais.

PAUKATUCK, in *Geography*, a ſmall river of America, which runs into Stonington harbour, and forms a part of the diviſion line between Connecticut and Rhode iſland.

PAUL, St., called alſo Saul, in *Sacred Biography*, an eminent apoſtle of Jeſus Chriſt, was a deſcendant of the patriarch Abraham, of the tribe of Benjamin, and a native of Tarſus, then the chief city of Cilicia. He was alſo by birth a citizen of Rome. (Acts, xvi. 37, 38. xxii. 25. 29. xxiii. 37.) This privilege he claimed by his birth, and not, as Dr. Lardner has ſhewn, by his nativity at Tarſus, which does not appear to have been a municipium, or town of Roman citizens. The excellent writer juſt named ſuppoſes, that ſome of St. Paul's anceſtors had obtained the privilege of citizenſhip for ſervices performed to the Roman commonwealth in the wars. (Vid. Grotius ad Act. xxii. 28.) His father was a Phariſee, and he himſelf was of the ſame ſect (Acts, xxiii. 6. xxvi. 5. Philip. iii. 5.) His ſiſter's ſon and ſome others of his relations, were Chriſtians, and had been ſo before his converſion; and this circumſtance is alleged as a proof of the virtue and piety of his family. That St. Paul was educated in Greek literature in his early life at Tarſus, may be inferred from the place of his nativity, which was celebrated for polite learning, and alſo from his quotations of ſeveral Greek poets. (Acts, xvii. 28. 1 Cor. xv. 33. Titus, i. 12.) It appears that he was likewiſe for ſome time under the inſtructions of Gamaliel, a celebrated Jewiſh rabbi, at Jeruſalem, and that he had made great proficiency in the ſtudy of the law, and the traditions, much eſteemed by that people. (Acts, xxii. 3. xxvi. 5. Gal. i. 14.) He ſeems to have been a perſon of great natural abilities, of quick apprehenſion, ſtrong paſſions, and firm reſolution, and thus qualified for ſignal ſervice, as a teacher of ſuch principles as he ſhould embrace, whatever they were. He appears likewiſe to have been always unblameable in his life, and ſtrictly faithful to the dictates of his conſcience, according to the knowledge which he had. This appears from his appeals to the Jews, (Acts, xxiii. 1. xxvi. 4, 5.) and from the undiſſembled ſatisfaction which he expreſſes upon a ſerious recollection of his former and later conduct. (Philip. iii. 6. 1 Tim. i. 13. 2 Tim. i. 3.) For ſome time after the firſt appearance of Chriſtianity in the world, he was a bitter enemy, and furious oppoſer of all who made profeſſion of it. Nevertheleſs he did not long perſiſt in that courſe; but was converted, in an extraordinary manner, to that faith himſelf; and ever after he was a ſteady friend, and zealous advocate for it, and very ſucceſsful in defending and propagating it, diligently improving the gifts and qualifications extraordinarily vouchſafed for that purpoſe. Theſe particulars are recorded in thoſe writings which are in the higheſt eſteem, and reckoned ſacred among Chriſtians, and indeed well known to all the world.

Dr. Lardner has taken great pains to ſettle the time of his converſion; and this has been thought the more neceſſary, as various opinions have been entertained among ancient writers, cited by Valeſius in his Annotations upon Euſebius's Eccl. Hiſt. and alſo among the moderns. Cave thought that Stephen was ſtoned and Paul converted in the year of our Lord's aſcenſion, A. D. 33, or the beginning of the year following. Pearſon ſuppoſes, that Stephen was ſtoned in 34, and Paul converted in 35, near the end of the year. Frederic Spanheim, after diligent inquiry, fixes the converſion of Paul in the year 40, the laſt of Caius Caligula; and inclines to defer it to the firſt of Claudius, or the year 41. Witſius and J. A. Fabricius adopt the ſame opinion. Lenfant and Beauſobre place his converſion in the year 36, and his firſt coming to Jeruſalem after it in 39; and this opinion is thought by Dr. Lardner to be nearer the truth than any of the foregoing. Upon the whole Lardner concludes that Paul was converted in 37, or poſſibly, before the end of the year 36; and Stephen was ſtoned in the beginning of the ſame year, or, at the ſooneſt, near the end of the year 35. The firſt notice we have of Paul is in the account of St. Stephen's martyrdom; and it is probable, that he had not long before made his appearance in the world. If we advert to his ſituation and circumſtances, we ſhall diſcern the proper vindication of his moral character. It is probable, that he had not ſeen Jeſus during his abode on earth; and it is poſſible that he did not come from Tarſus to Judea, till after the cloſe of our Lord's miniſtry; nor is it any unfair ſuppoſition, that he had not any acquaintance with any of Chriſt's apoſtles, and that he had not ſeen any miracles wrought by them, before he became a perſecutor; and afterwards, he would not admit of inſtruction from the followers of Jeſus. Whilſt he was under the tuition of Gamaliel, we may reaſonably imagine, that he knew little of the public affairs of Judea, though he was in that country; but when he came from the ſchools, animated with a high degree of zeal for the law of Moſes, and for the traditions of its elders, and found a number of men, called followers of Jeſus, who ſpoke of him as the Meſſiah, and as raiſed from the dead, repreſenting him as greater than Moſes himſelf, he was filled with indignation, and thought that it was his duty to oppoſe them to the utmoſt, which he did till Jeſus met him and reclaimed him. Although he ſpeaks of himſelf as *injurious* (1 Tim. i. 13. Acts, xxvi. 10.), yet we may ſuppoſe that, even then, he would not have injured any man, in his perſon or property, from worldly conſiderations. The moving principle by which he was actuated was not envy, malice, covetouſneſs, or any worldly view, but a falſe zeal for God and religion; and this induced him to be a perſecutor, which is a character, in certain circumſtances, not inconſiſtent with integrity. This might have been the caſe, with reſpect to Paul, who was a young man, little acquainted with the world, and juſt emerging from a Jewiſh ſchool, where he had been engaged in the ſtudy of the law, and the Rabbinical interpretations of it. To this purpoſe Chryſoſtom diſtinguiſhes between Paul and the Jews; obſerving that he had a ſincere zeal for religion, according to his knowledge at that time, and that they had no concern for Jeruſalem, and aimed at nothing but their own honour. But although Paul was ſincere, and did not act contrary to conviction, his conduct cannot be juſtified. He ſhould have examined; he ſhould have taken care to be well informed: if, upon his firſt coming out into the world, he had purſued this courſe, he might have received ſatisfaction, and conſequently might have been prevented from acting that part againſt Jeſus, and his diſciples, which he afterwards bewailed. His prejudices, however, were ſtrong; and they were not to be overcome in an ordinary way. But though he was prejudiced, he was not obſtinate. Our bleſſed Lord knew him to be tractable, and open to conviction; and he knew, that the meaſures which he adopted for this purpoſe would change his heart, and melt him down to ready obedience. The event correſponded to expectation. Although he ſat out for Damaſcus under the full influence of enmity againſt the diſciples of Jeſus, he was ſoon changed, as the hiſtory (Acts, ix. 3—6) relates. He trembles and acquieſces, all his rage was ſubdued, and he became a diſciple of Jeſus.

Satisfied in his own mind, he imagined that others would manifeſt a diſpoſition ſimilar to his own, and that an account of his converſion, with all the reaſons and circumſtances of it, which he was prepared to lay before his countrymen, the Jews, muſt perſuade them. Jeſus better knew the diſpoſition and character of the people, whom he thought of convincing and reclaiming; and therefore, inſtead of permitting him to labour unprofitably among them, renewed his orders to Paul, to proceed, without delay, in the work of preaching to the Gentiles, on which he had already entered. The event proved that the over-ruling providence of God diſpoſed of his perſon and concerns more wiſely and more beneficially than he was capable of judging and acting for himſelf. It was a very happy and favourable circumſtance, that he did not return to Judea immediately after his converſion; becauſe the violent perſecution, which commenced about the time of Stephen's death, had continued at leaſt three years after Paul left Judea to go to Damaſcus.

Dr. Lardner has taken pains to ſettle Paul's age at the time of his converſion. Witſius ſuppoſes that he was born near the end of Herod's reign, about the ſame time with our Saviour. In the epiſtle to Philemon, (v. 9.) written about the year of the vulgar era 62, he calls himſelf Paul the aged; and this muſt lead us to ſuppoſe, that he was then 60 years of age, or not much leſs. In the account of the martyrdom of Stephen, he is called a young man (Acts, vii. 58.); but among the ancients the term youth is uſed with latitude: and from ſome circumſtances related of him at that time (Acts, xxvi. 10—12.) we have reaſon to conclude, that he was arrived to years of maturity, or diſcretion; and that at the time of his converſion he was of an age at which men are able to judge concerning the evidence of things, and to form a reaſonable determination with regard to their future conduct.

It has been generally ſuppoſed, that Paul was called to the apoſtleſhip at the time of his converſion, or very ſoon after it. Spanheim, Witſius, Cave, Pearſon, Baſnage, and Hallet are of this opinion. The requiſite qualification of an apoſtle appears to have been, that he ſhould ſee Chriſt in perſon, and that after his reſurrection. (See Acts, i. 21, 22.) Accordingly Paul, when he claims the character of an apoſtle, ſpeaks of his having ſeen Chriſt, as a fact well-known and unconteſted. (1 Cor. ix. 1. 8, 9.) In his way to Damaſcus, Chriſt had perſonally appeared to him. (Acts, ix. 3—6.) The learned author, of whoſe reſearch we are availing ourſelves in the compilation of this article, thinks it highly probable, from all the accounts which we have of Paul's wonderful converſion, (Acts, ix. xxii. and xxvi.) that he received his apoſtolical commiſſion from the mouth of Chriſt in perſon, when he called to him from heaven, and ſpoke to him in the way to Damaſcus. As he was, from the beginning, called, and appointed to be an apoſtle, he was by degrees qualified for it as his commiſſion opened; and in time he was called out by divine providence to the full execution of it.

Paul, having been baptized by Ananias at Damaſcus, ſtayed for a ſhort time with the diſciples there, and then went into Arabia, where he probably might meet with ſome believers. (Acts, ii. 11. 41.) Whilſt he remained in Arabia, he was fully inſtructed, as we may reaſonably think, by ſpecial revelation, in the doctrines preached by Jeſus Chriſt, when on earth, and all the things ſaid and done by him, and his ſufferings, crucifixion, reſurrection, and aſcenſion, the fulfilment of the ancient prophecies in Jeſus, the Chriſt, the ſon of David, and the ſon of Abraham; and received alſo the holy ghoſt, in a meaſure equal to that of other apoſtles. He was thus qualified to preach the goſpel, and to teſtify the reſurrection of Jeſus, and to prove him to be the Chriſt, without receiving either inſtruction or gifts from other apoſtles. Having been ſome time in Arabia, he returned to Damaſcus; but here a deſign being formed againſt his life, he removed to Jeruſalem. (Acts, ix. 20. 25.) The period of three years, or three years and ſomewhat more, which elapſed from Paul's converſion to his coming to Jeruſalem, reaches, according to Lardner's computation, from near the end of the year 36 to near the end of 39, or the beginning of the year 40, or from the beginning of the year 37 to the former part of the year 40. Paul travelled through the countries of Cilicia and Syria, during the remainder of the year 40, and the whole of 41, and 42, or the greateſt part of the laſt-mentioned year, till about the beginning of the year 43, preaching, undoubtedly, in the name of Jeſus, to native Jews, and to proſelytes of the Jewiſh religion. Afterwards he went to Antioch, and began to preach to Gentiles. Here he probably had the rapture, mentioned by him (2 Cor. xii.) Having fulfilled the commiſſion, mentioned Acts, xi. 27—30, by a journey to Jeruſalem, where, in the year 44 he had the trance taken notice of in his ſpeech to the Jewiſh people (Acts, xxii. 17—21), Paul, and alſo Barnabas, who had accompanied him, ſoon after this, left Antioch, and made a farther progreſs in preaching the goſpel to Gentile people. For this journey Pearſon allots three years, *viz.* 45, 46, 47, and ſomewhat more. Tillemont thinks, it might have been performed in two years, from 44 to 46; or from the beginning of the year 45 to the former part of the year 47, which is Lardner's opinion. Having made ſome ſtay at Antioch after their return, they attended a council at Jeruſalem, held in the year of Chriſt 49, or in the beginning of the year 50, and afterwards returned to Antioch. In the beginning of the year 50, St. Paul and Barnabas ſet out from Antioch; and having gone through Syria and Cilicia, they came to Phrygia; and it is very probable, that Paul preached in the chief cities of that country, Hierapolis, Laodicea, and Coloſſe. St. Paul alſo went to Galatia, and there founded many churches; but they were forbidden to preach in Aſia, properly ſo called. After paſſing through ſeveral countries and cities, mentioned in the book of Acts, ch. xvi. xvii. xviii. St. Paul went to Corinth, where he might have been before the end of the year 51. Here he tarried a year and ſix months, *i. e.* as Lardner ſuppoſes, the remainder of the year 51, the whole of 52, and part of 53. Having paſſed through Galatia and Phrygia, he came to Epheſus, before the end of the year 53, in October or November; and here he remained till the year 56, about pentecoſt. As the emperor Claudius died Oct. 13, in the year 54, the tidings of his death, and the acceſſion of Nero, might not have reached Epheſus before the beginning of the year 55. Soon after St. Paul determined to viſit Rome, propoſing firſt to go to Macedonia, Greece, and Jeruſalem. (Acts, xix, xx.) Some time before pentecoſt, or about that ſeaſon, in the year 56, Paul left Epheſus to go into Macedonia. Here he ſtaid about a year; at Corinth he ſtaid three months; and there muſt have elapſed an interval of two years, or nearly as much, between Paul's leaving Epheſus and coming to Troas, in his way to Jeruſalem. At this time Paul was in Illyrium and Crete. He arrived in Jeruſalem at the pentecoſt in the year 58. From Jeruſalem he was ſent away to Rome near the end of the year 60. (See Acts, xxi. 17. ch. xxvi. 1—32.) In ch. xxvii and xxviii. 1—16. we have a very diſtinct relation of Paul's voyage to Rome; where he arrived in the ſpring of the year 61; and he was releaſed from his confinement in the former part of the year 63. It has been a ſubject of debate, whither Paul went after he had obtained his liberty. Some think that he went from Rome to Spain; but Lardner is of opinion that he came from Rome to Jeruſalem, as ſoon and as directly as he could. Here he made a ſhort ſtay, and from Judea he went to Epheſus; from Epheſus he might go to Laodicea and Coloſſe; and, poſſibly, he returned to Rome by Troas, Philippi, and Corinth. It is the opinion of Pagi and Baſnage, that Peter and Paul ſuffered martyrdom in the year of Chriſt 65. Oroſius, they ſay, having given an account of Nero's perſecution of the Chriſtians, and of the death of the two apoſtles in it, adds, that it was followed by a peſtilence in the city, and other diſaſters. Sulpicius Severus has given an account of the fire at Rome, and Nero's perſecution of the Chriſtians, and alſo of the martyrdom of Peter and Paul therein; adding, that while theſe things were doing at Rome, the Jews, being uneaſy under the oppreſſions of their governor Geſſius Florus, began to rebel; upon which paſſage Baſnage obſerves, the Jewiſh war began in May 66; and therefore the martyrdoms of the apoſtles happened in the year before, that is, 65. Epiphanius places the death of Peter and Paul in the 12th year of Nero, part of which, as he ſays, fell in the year 65. Dr. Lardner does not preſume to aſſign poſitively the year of the martyrdom of theſe two apoſtles; he is of opinion that they did not ſurvive the year 65; but he cannot ſay whether their martyrdoms happened in the year 64 or 65. If Peter and Paul were come to Rome before the city was ſet on fire, and before the perſecution of the Chriſtians began, which is not improbable, they might be taken up and ſoon put to death before the end of the year 64. Lardner's Works, vol. vi.

For an account of the undeſigned and caſual, but very remarkable, coincidence or correſpondence, between the circumſtances that are recorded in the hiſtory of St. Paul's preaching and travels, and others, ſimilar to them, which are either explicitly ſtated, or obviouſly implied, in the epiſtles of the ſame apoſtle; and of the concluſion that reſults from this coincidence in favour of the truth of the hiſtory, and the genuineneſs of the epiſtles, we refer to archdeacon Paley's excellent work, entitled "Horæ Paulinæ." See Acts *of the Apoſtles*, and Paley.

Lord Lyttelton, in his "Letter to Gilbert Weſt, eſq.," has deduced from the converſion and apoſtleſhip of St. Paul, an argument, which, duly conſidered, amounts of itſelf to a demonſtration ſufficient to prove Chriſtianity to be a divine revelation. Although within our limits we cannot do full juſtice to the admirable reaſoning of this diſtinguiſhed advocate for our holy religion, we ſhall endeavour to give ſuch an abſtract of it as may teſtify our own conviction of the truth of Chriſtianity, and promote ſimilar ſentiments concerning it in the minds of our readers. Our noble author, having cited from the book of the *Acts* (ch. ix. 12. 18. xx. 6. 13. 14. xxii. 10—16. xxvi. xxvii. 1, &c.) the account which St. Paul himſelf gives of his converſion and preaching, and which is recorded in his hiſtory by a contemporary author, and a companion of the apoſtle, compares theſe records with the manner in which St. Paul ſpeaks of himſelf in the epiſtles written by him to the ſeveral churches which he planted, and the authenticity of which cannot be doubted without overturning all rules, by which the authority and genuineneſs of any writings can be proved or confirmed. (See Galat. i. 11—16. Philip. iii. 4—8. 1 Tim. i. 12, 13. 2 Cor. i. 1. Col. i. 1. 1 Tim. i. 1. Gal. i. 1. 1 Cor. xv 2.) He then ſtates, that the perſon who atteſts theſe things of himſelf, and of whom they are related in ſo authentic a manner, either was an impoſtor, who ſaid what he knew to be falſe with an intent to deceive, or an enthuſiaſt, who, by the force of an overheated imagination, impoſed upon himſelf; or, he was deceived by the fraud of others, and all that he ſaid muſt be imputed to the power of that deceit; or what he declared to have been the cauſe of his converſion, and to have happened in conſequence of it, did all really happen; and therefore the Chriſtian religion is a divine revelation.

That the apoſtle was not an impoſtor, who ſaid what he *knew* to be *falſe* with an intent to deceive, our author undertakes to prove, by ſhewing that he could have *no* rational motives to engage in ſuch an impoſture, nor could have poſſibly carried it on with any ſucceſs by the means which we know he employed. His inducement to ſuch an impoſture muſt have been one of theſe two, either the hope of advancing himſelf by it in his temporal intereſt, credit, or power, or the gratification of ſome of his paſſions under the authority of it, and by the means it afforded. From the circumſtances in which St. Paul declared his converſion to the faith of Chriſt, and which our author has recited, it appears to every reaſonable perſon's ſatisfaction, that he could have had no hope of increaſing his *wealth*. The certain conſequence of his taking the part he did, was not only the loſs of *all* that he had, but of all *hopes* of acquiring *more*. Thoſe whom he left were the diſpoſers of wealth, of dignity, and of power, in Judea; thoſe with whom he united were indigent men, oppreſſed, and deprived of all means of improving their fortunes. Thoſe among them, who had more than the reſt, ſhared what they had with their brethren; and even with this aſſiſtance, the whole community was hardly ſupplied with the neceſſaries of life, and even in churches which he afterwards planted himſelf, which were much more wealthy than that of Jeruſalem, St. Paul was ſo far from availing himſelf of their charity, in order to draw that wealth to himſelf, that he often refuſed to take any *part* of it for the *neceſſaries* of life. (See 1 Cor. xv. 8. 2 Cor. xii. 14. 1 Theſſ. ii. 4, 5, 6. 9. 2 Theſſ. iii. 8. Acts, xx. 33, 34,) As to *credit* or *reputation*, that alſo lay altogether on the ſide he forſook. The ſect he embraced was under the greateſt and moſt univerſal contempt of any then in the world; the chiefs and leaders of it were men of the loweſt birth, education, and rank; they had not a ſingle advantage of parts or learning, or other human endowments to recommend them; the doctrines they taught were contrary to thoſe which they, who were accounted the wiſeſt and the moſt knowing of their nation, profeſſed; the wonderful works they did were imputed either to magic or to impoſture; the very author and head of their faith had been condemned as a criminal, and died on the croſs between two thieves. Could the diſciple of Gamaliel think he ſhould gain any credit or reputation by becoming a teacher in a college of *fiſhermen?* Could he flatter himſelf, that, either in or out of Judea, the doctrines he taught could do him any honour? He knew and profeſſed the contrary. Experience ſoon convinced him that, in all parts of the world, contempt was the portion of any one who engaged in teaching a myſtery ſo unpalatable to all mankind, to all their paſſions and prejudices, and ſo irreconcileable to the pride of human reaſon, as "Chriſt crucified," which was "a ſtumbling block to the Jews, and to the Greeks fooliſhneſs." "We are made (ſays he to the Corinthians) as the filth of the world, the off-ſcouring of all things unto this day." Yet he went on as zealouſly as he ſet out, and was "not aſhamed of the goſpel of Chriſt." The deſire of glory, or the ambition of "making to himſelf a great name," was, therefore, not his motive to embrace Chriſtianity. But was it the love of *power?* Power! over whom? over a *flock* of *ſheep* driven to the *ſlaughter*, whoſe ſhepherd himſelf had been murdered a little before. All he could hope from that power, was to be marked out in a particular manner for the ſame knife, which he had ſeen ſo bloodily drawn againſt them. Could he expect more mercy from the chief prieſts and the rulers, than they had ſhewn to Jesus himſelf? Would not their anger be probably fiercer againſt the *deſerter* and *betrayer* of their cauſe than againſt any other of the apoſtles? Was power over ſo mean and deſpiſed a claſs of men worth the attempting with ſo much danger? But let it be conſidered, what power St. Paul actually aſſumed and exerciſed over the Chriſtians. Did he pretend to any ſuperiority over the other apoſtles? So far from it, that he declared himſelf *the leaſt of them* (Epheſ. iii. 8.) and *leſs than the leaſt of all ſaints*. (1 Cor. xv. 9.) In the churches which he himſelf planted, he never pretended to any primacy or power above the other apoſtles. (See 1 Cor. i. 12, 13. 1 Cor. iii. 5. 2 Cor. iv. 5.) The authority which St. Paul exerciſed over Chriſtians was purely of a ſpiritual nature, tending to their inſtruction and edification, without any mixture of that civil dominion in which alone an impoſtor can find his account. In this reſpect his authority was very different from the dominion acquired and exerciſed under a pretence of divine inſpiration, by many ancient legiſlators; by Minos, Rhadamanthus, Triptolemus, Lycurgus. Numa, Zaleucus, Zoroaſter, Xamolxis: nay, even by Pythagoras, who joined legiſlation to his philoſophy, and, like the others, pretended to miracles and revelations from God, to give a more venerable ſanction to the laws which he preſcribed. Such, in later times, was attained by Odin among the Goths, by Mahomet among the Arabians, by Mango Capac among the Peruvians, by the Sofi family among the Perſians, and that of the Zeriffs among the Moors: and to ſuch a dominion did many falſe Meſſiahs among the Jews aſpire. In ſuch and ſimilar inſtances, a *ſpiritual* authority was only deſired as a foundation for *temporal* power, or as a ſupport of it. How different were the views and conduct of St. Paul! He made no innovation in government or civil affairs: he meddled not in legiſlation, he formed no commonwealths, he raiſed no ſeditions, he affected no temporal power. He both taught and practiſed obedience to civil rulers; nor did he practiſe any of thoſe ſoothing arts by which ambitious and cunning men recommend themſelves to the favour of thoſe whom they endeavour to ſubject to their power. What was wrong in his diſciples he reproved in a manner becoming a teacher from God; and as were his diſcourſes when preſent with them, ſo were likewiſe his writings, when abſent. (See Phil. iii. 15, 16, 17.) If it be ſaid that he affected an *abſolute* ſpiritual power over the churches which he formed, it may be replied, that *he preached* CHRIST JESUS, *and not himſelf.* He even renounced any advantage which a higher education, ſuperior learning, and more uſe of the world might have afforded him for claiming to himſelf any ſuperiority over the other apoſtles. (See 1 Cor. ii. 1, 2-5.) An impoſtor, on the contrary, would have availed himſelf of theſe advantages for ſecuring pre-eminence and influence to himſelf.

As St. Paul had nothing to *gain* by his new profeſſion, let us conſider what he *gave* up, and what he had reaſon to *fear.* He gave up a *fortune* which he had a fair opportunity of advancing: he gave up that *reputation* which he had acquired by the labours and ſtudies of his whole life, and by a behaviour, which had been *blameleſs, touching the righteouſneſs which is in the law* (Phil. iii. 6.); he gave up his *friends,* his *relations,* and *family,* from whom he eſtranged himſelf for life; he gave up that RELIGION, *in which he had profited above many of his equals in his own nation,* and thoſe TRADITIONS *of his fathers, which he had been more exceedingly zealous of.* (Gal. i. 14.) Such were the ſacrifices which he made in becoming a Chriſtian. The inconveniences he had to *fear* were, the implacable *vengeance* of thoſe whom he deſerted; that ſort of *contempt,* which is hardeſt to bear, the contempt of thoſe whoſe good opinion he had moſt eagerly ſought: and thoſe other complicated *evils,* which he deſcribes in the 11th chapter of the ſecond epiſtle to the Corinthians; evils, the *leaſt* of which were ſufficient to have frightened any impoſtor even from the moſt hopeful and profitable cheat.

The next object of enquiry is, whether the gratification of any other paſſion, beſides the deſire of wealth, fame, or power, under the authority of the religion to the profeſſion and ſervice of which he was devoted, or by the means which it afforded, could be his inducement to becoming a diſciple and apoſtle of CHRIST. His writings and his conduct furniſh the moſt ſatisfactory anſwer to this enquiry. The former breathe nothing but the ſtricteſt morality, obedience to the order and government of magiſtrates, with the utmoſt abhorrence of all licentiouſneſs, idleneſs, or looſe behaviour, under the cloak of religion (Rom. xi. xiii. Col. iii.): and the latter, both before and after his converſion to Chriſtianity, does not bear any mark of a licentious diſpoſition. See his appeal to the Theſſalonians, (1 Theſſ. ii. 10. See alſo 2 Cor. i. 12. iv. 2. vii. 2.) If it ſhould be again ſaid, that although St. Paul could have no ſelfiſh or intereſted view in undertaking ſuch an impoſture, yet for the ſake of its moral doctrines, he might be inclined to ſupport the Chriſtian faith, and make uſe of ſome pious frauds to advance a religion, which, though erroneous and falſe in its theological tenets, and in the facts upon which it was founded, was in its precepts and influence beneficial to mankind. In diſcuſſing this ſubject, it ſhould be recollected, that the circumſtances of St. Paul were very different from thoſe of ſome good men in the Heathen world, who pretended to divine revelation, and introduced or ſupported doctrines and forms of religion which they knew to be falſe, under a notion of public utility. They not only did it to ſerve good ends, but were ſecure of its doing no harm. Thus when Lycurgus perſuaded the Spartans, or Numa the Romans, that the laws of the one were inſpired by Apollo, and thoſe of the other by Egeria; when they taught their people to put great faith in oracles, or in augury, no temporal miſchief, either to them or to their people, could attend the reception of that belief. It drew on no perſecutions, no enmity with the world. But at the time when St. Paul undertook the preaching of the goſpel, to perſuade any man to be a Chriſtian, was to perſuade him to expoſe himſelf to all the calamities human nature could ſuffer. This St. Paul knew. (See Theſſ. iii. 4. 2 Cor. vi. 4, 5. Eph. vi. 10—16. Phil. i. 28—30. Col. i. 9—11. Rom. viii. 35, 36.) Could any man who had in his nature the leaſt ſpark of humanity ſubject his fellow-creatures to ſo many miſeries, as were juſtly to be expected, and even actually announced? or could one that had in his mind the leaſt ray of reaſon, expoſe himſelf to ſhare them with thoſe he deceived, in order to advance a religion which he knew to be falſe, merely for the ſake of its moral doctrines? Such an extravagance is too abſurd to be even ſuppoſed. The caſe of St Paul was, in one reſpect, different from that of the other apoſtles. To them it may be objected, by thoſe who are reſolved not to credit their teſtimony, that having been deeply engaged with JESUS, during his life, they were obliged to continue the ſame profeſſions after his death, for the ſupport of their own credit, or from having gone too far to recede. This can by no means be ſaid of St. Paul. If there can be any force in this reaſoning, it tends to convince us, that St. Paul muſt actually have continued a Jew, and an enemy of CHRIST JESUS. If they were engaged on one ſide, he was as ſtrongly engaged on the other. If ſhame withheld them from changing ſides, much more ought it to have reſtrained him, who, being of a much higher education and rank in life than they, had more credit to loſe, and muſt be ſuppoſed to have been much more ſenſible to that ſort of ſhame. The only difference was, that they, by quitting their maſter after his death, might have preſerved themſelves; whereas he, by quitting the Jews and taking up the croſs of CHRIST, certainly brought on his own deſtruction. Upon the whole we may very juſtly conclude, that when a man of St. Paul's underſtanding embraced the faith of CHRIST, he was in reality convinced of the truth of it, and that, conſequently, he was not an impoſtor, who ſaid what he knew to be falſe, with an intent to deceive.

If it be again ſaid, that St. Paul might have been capricious, and might have acted without any rational motive; to this kind of argument it may be replied, that if he had been ſo unaccountably wild and abſurd as to undertake an impoſture ſo unprofitable and dangerous both to himſelf and to thoſe who were deceived by it, he could not poſſibly have carried it on with any ſucceſs by the means which he is known to have employed. His impoſture was ſuch, that it could not have been carried on by one man alone. He could not have acted as he did, but in confederacy at leaſt with the apoſtles; but till he came to Damaſcus, he had no communication with the apoſtles; he acted in no concert with them, and learnt nothing from them.

them, except the doctrines which they had publicly taught to all the world. When he came there, he told the Jews, to whom he had brought letters from the high-prieſt and the ſynagogue againſt the diſciples of CHRIST, of his having ſeen, in the way, a light from heaven, and heard CHRIST JESUS reproaching him with his perſecution, and commanding him to go into the city, where it ſhould be told him what he was to do. But to account for his chooſing this method of declaring himſelf a convert to CHRIST, we muſt ſuppoſe that all who came with him, when he pretended he had his viſion, were his accomplices: and yet, how can we ſuppoſe, that all theſe men ſhould be willing to join in this impoſture? They were either officers of juſtice, employed in executing the orders of the high-prieſt and the rulers againſt the Chriſtians; or they were perſons choſen for this expedition becauſe they might be truſted for their zeal in promoting its object. The inſtructor at Damaſcus, to whom he was referred, muſt alſo have been his accomplice; and yet they appear to be abſolute ſtrangers to one another. But how could this man venture to act ſuch a dangerous part, without the conſent of the other diſciples, eſpecially of the apoſtles, or by what means could he obtain their conſent? But would it not have been much more eaſy to have made Saul be preſent at ſome pretended miracle wrought by the diſciples, or by Ananias himſelf, when none were able to diſcover the fraud, and have imputed his converſion to that, or to the arguments uſed by ſome of his priſoners whom he might have diſcourſed with, and queſtioned about their faith, and the grounds of it, in order to colour his intended converſion? This would have been the ſafeſt, and alſo the moſt natural method of bringing about ſuch a change, inſtead of aſcribing it to an event which lay ſo open to detection. If this ſtory had been an impoſture, and Ananias had joined with Paul in carrying it on, is it not ſtrange, that, after their meeting at Damaſcus, we ſhould never hear of their conſorting together, or acting in concert? But diſmiſſing this part of the buſineſs; how could Paul get himſelf owned and received as *an* apoſtle by *the* apoſtles? This was neceſſary to be done without delay, but inſtead of attending to this very important, and, indeed, eſſential object, St. Paul went into Arabia, and then returned again to Damaſcus; nor did he go to Jeruſalem till after an interval of three years. (Gal. i. 17, 18.) He had alſo expoſed himſelf to danger, when at Antioch he withſtood Peter to the *face, and reproved him before all the diſciples, becauſe he was to be blamed.* (Gal. ii. 11—14.) Accomplices in a fraud are obliged to ſhew greater regards to each other; ſuch freedom belongs only to truth. Moreover, in the enterpriſe he undertook of going to the Gentiles, making himſelf *their apoſtle*, and converting *them* to the religion of CHRIST, he had many difficulties to encounter among the Gentiles themſelves. In this enterpriſe, he had to contend with the policy and power of the magiſtrates; with the intereſt, credit, and craft of the prieſts; with the prejudices and paſſions of the people; and with the wiſdom and pride of the philoſophers. His ſucceſs againſt this combined oppoſition he aſcribes to the efficacy of divine power. (1 Cor. ii. 4. 1 Theſſ. i. 5.) If that power attended him, it would enable him to overcome all thoſe difficulties that obſtructed his enterpriſe; but *then he was not an impoſtor.* Our enquiry, therefore, muſt be, whether (ſuppoſing him to *have* been an impoſtor) he could, by *pretending to miracles*, have overcome all thoſe difficulties, and carried on his work with ſucceſs? For this purpoſe, two circumſtances were principally neceſſary: *an apt diſpoſition* in thoſe whom miracles are deſigned to impoſe upon, and a *powerful confederacy* to carry on and aſſiſt the cheat. But what prepoſſeſſions could there have been in the minds of the Gentiles, either in favour of Paul or the doctrines he taught? or rather, what prepoſſeſſions could be ſtronger than thoſe, which they undoubtedly had againſt both? Without the advantage of this prediſpoſition, and the aſſiſtance it would have afforded, was there any confederacy ſtrong enough to impoſe his falſe miracles upon the Gentiles, who were both unprepared and indiſpoſed to receive them? The contrary is apparent from the nature of the caſe, and the hiſtory of the apoſtle.

Our illuſtrious author, having proved that St. Paul was not an *impoſtor*, proceeds to conſider whether he was an *enthuſiaſt*, who, by the force of an overheated imagination, impoſed upon himſelf. The ingredients, he ſays, of which *enthuſiaſm* is generally compoſed, are, *great heat of temper, melancholy, ignorance, credulity*, and *vanity* or *ſelf-conceit*. He then ſhews, that none of theſe qualities, which diſpoſe the mind to enthuſiaſm, and which are characteriſtical of it, belonged to St. Paul. His *zeal* indeed was eager and warm, but tempered with prudence, and even with the civilities and decorums of life, as appears by his behaviour to Agrippa, Feſtus, and Felix: not the blind, inconſiderate, indecent zeal of an enthuſiaſt. As to *melancholy*, it neither appears by his writings, nor by any thing told of him in the Acts of the Apoſtles, nor by any other evidence, that St. Paul was inclined to it more than other men. As to *ignorance*, St. Paul was ſo far from it, that he appears to have been maſter, not of the Jewiſh learning alone, but of the Greek. The hiſtory of his life likewiſe ſhews, that St. Paul could not be juſtly chargeable with *credulity*. On the contrary, he ſeems to have been ſlow and hard of belief in the moſt extreme degree, having paid no regard to all the miracles performed by our Saviour, to the fame of which he could not be a ſtranger, as he lived at Jeruſalem; nor to that ſignal one wrought, after his reſurrection, and in his name, by Peter and John, upon the lame man at the beautiful gate of the temple; nor to the evidence given in conſequence of it by Peter, in preſence of the high-prieſt, the rulers, elders, and ſcribes, that CHRIST *was raiſed from the dead.* Other circumſtances are enumerated, which amply vindicate the apoſtle from this charge. From *vanity* or *ſelf-conceit* St. Paul was as free as any man, as we may collect from all that we ſee in his writings, or know of his life. Throughout his epiſtles, there is not one word that ſavours of vanity, nor is any action recorded of him, in which the leaſt mark of it appears. See Eph. iii. 8. 1 Cor. xv. 9. 1 Tim. i. 15, 16. 2 Cor. xii. 12. xi. 1. 16—19. 30. xii. 2. 6. 1 Cor. xv. 10. xiii. 2, 3, 4.

Allowing, for the ſake of argument, that St. Paul was an *enthuſiaſt*, our author ſhews that he could not have impoſed on *himſelf* by any power of enthuſiaſm, either in regard to the miracle that cauſed his converſion, or to the conſequential effects of it, or to ſome other circumſtances to which he bears teſtimony in his epiſtles. Although the power of imagination in enthuſiaſtical minds is very ſtrong, yet it always acts in conformity to the opinions imprinted upon it at the time of its operation, and can no more act againſt them than a rapid river can carry a boat againſt the current of its own ſtream. The mind of St. Paul, in his way to Damaſcus, was ſtrongly prepoſſeſſed with opinions againſt CHRIST and his followers. His paſſions concurred at that time in giving thoſe opinions a more active force: and therefore whatever deluſions his imagination might raiſe to impoſe on his reaſon, muſt at that time have been raiſed agreeably to the notions imprinted upon it, and by which it was heated to a degree of enthuſiaſm, not in direct contradiction to all thoſe notions, while they remained in their full force. With reſpect to the *viſion* that is recorded in this part of his hiſtory, it is plain that it could not have been a phantom of his own creation, becauſe he was not *alone* when he ſaw it: many others were in company, whoſe minds were no better diſpoſed than his to the Chriſtian faith, and it muſt be ſuppoſed, againſt all motive and all poſſibility, that the imaginations of *all* theſe perſons were, at the *ſame* time, ſo ſtrangely affected, as to make them believe that they ſaw and heard what in reality never occurred. But ſuppoſing, that, as Saul and his companions were journeying towards Damaſcus, an extraordinary meteor did actually appear, how ſhall we account for the *diſtinct words* heard by St. Paul, to which he made anſwer, and for what followed, agreeably to theſe words, on his arrival at Damaſcus? That St. Paul ſaw CHRIST, both *now* and *after* this time, appears not only by what he relates Acts, xxii. 17, 18; but by other paſſages in his epiſtles, 1 Cor. ix. 1. xvi. 8. Acts, ix. 17. From him, as he aſſerts in many places of his epiſtles, he learned the goſpel by immediate revelation, and by him he was ſent to the Gentiles: Acts, xii. 31. xxiii. 11. If St. Paul had been a mere *diſtempered enthuſiaſt*, how can we account for the miracles he wrought, and for the progreſs he made in converting the Gentile world? If the difficulties that impeded his efforts for this purpoſe were ſuch as the ableſt impoſtor could not have overcome, how much more inſurmountable were they to a madman? Of all the miracles recorded in ſcripture, none are more clear from any poſſible imputation of being the effect of an enthuſiaſtic imagination than that of perſons ſpeaking languages which they had never learned: and it is a power which has never been pretended to by any enthuſiaſt, ancient or modern.

Having ſhewn that St. Paul could not be an enthuſiaſt, who, by the force of an over-heated imagination, impoſed on himſelf, our noble author proceeds to enquire, whether he was *deceived* by the *fraud* of *others*, and whether all that he ſaid of himſelf can be imputed to the power of that deceit? But this ſuppoſition is ſo palpably abſurd, that we need not enlarge in the confutation of it.

If, then, the apoſtle was not deceived by the fraud of others, and what he ſaid of himſelf cannot be imputed to the power of that deceit, no more than to wilful impoſture or enthuſiaſm, it muſt follow, that what he related to have been the cauſe of his converſion, and to have happened in conſequence of it, did aſſuredly happen, and therefore "the Chriſtian religion is a divine revelation." See two excellent ſermons on the ſubject of this article by Dr. Duchal, in his "Preſumptive Arguments, &c." forming the fourth volume of his ſermons, but publiſhed ſeparately.

PAUL, *Epiſtles of St.* See EPISTLE.

PAUL. *Apocryphal books under the name of St.* See APOCHRYPHA.

PAUL, *Hermits of St.* See HERMIT.

PAUL'S *Art.* See ART.

PAUL of Samoſata, in *Biography*, ſo named from the place of his birth, was a celebrated prelate of the third century, after whom ſuch Chriſtians as entertained the ſame opinions were generally called Paulians, till the council of Nice. In the year 260 he was choſen biſhop of Antioch, and by his talents and character recommended himſelf to the favour of Zenobia, the celebrated conſort of Odenatus. He rendered himſelf obnoxious to the orthodox by denying the doctrine of the pre-exiſtence of Chriſt, and maintaining that he was a mere man, on whom the wiſdom of God deſcended from heaven, and dwelt in him, enabling him to work miracles, and inſtruct nations. A council was aſſembled at Antioch in the year 264, before which Paul was accuſed of a dangerous hereſy, and of a life and converſation unworthy of the epiſcopal character. The reſult of this accuſation was, that Paul was admoniſhed. For this mild ſentence he was probably indebted to the prudence and moderation of Firmilian, biſhop of Cæſarea, who preſided in the council, and prevented thoſe who compoſed it, by his influence, from adopting harſher meaſures. In the year 269 or 270, a ſecond council was aſſembled at Antioch, in order to take into conſideration the principles and conduct of the biſhop. Firmilian was ſummoned to this council, but died on his journey towards Antioch, and it was owing to this event that the enemies of Paul ſucceeded in their deſign, and procured a ſentence which condemned him to be depoſed from his epiſcopal dignity. Paul refuſed ſubmiſſion to the decree of the council, and retained poſſeſſion of the houſe of the church, and was ſupported in this ſtep both by the protection of Zenobia, and the good will of the people. When that princeſs was driven from Antioch, Paul's enemies petitioned the emperor Aurelian to expel him, with whoſe requeſt he complied in the year 272 or 273. What became of Paul after this event is not known; it has been thought by ſome writers, that thoſe who adhered to him were formed into a ſeparate ſociety by Lucian, who ſuffered martyrdom in the year 312. There is no doubt that Paul was author of ſome publications that have not come down to our times, becauſe his adverſaries ſay that there was ſcarcely a page in his works without citations out of the Old and New Teſtament. According to the judicious and candid Lardner, who formed his judgment after much conſideration, Paul had a great mind, with a mixture of haughtineſs, and too much affectation for human applauſe. He was generally well reſpected in his dioceſe, and by the neighbouring biſhops, in eſteem with the great, and beloved by the common people. He preached frequently, and was a good ſpeaker. Lardner's Credibility. Moſheim's Eccl. Hiſt.

PAUL I. pope, was a native of Rome, and brother to his predeceſſor Stephen II. He became deacon of the Roman church, and in the year 752, Stephen ſent him with rich preſents to the king of the Lombards, in order to obtain confirmation of the treaty of peace in which that prince had entered with his predeceſſor pope Zachary. In this object he ſucceeded without much difficulty, and the king granted an extenſion of the term agreed on for forty years longer, that he might divert the pope from interfering with the deſign he had then formed, and ſoon after carried into execution, of ſubjugating the exarchate of Ravenna. Upon the death of Stephen in 757, the Roman people were divided about the choice of a ſucceſſor, ſome declaring for the deacon Paul, and others for the archdeacon Theophylact. At length, after a vacancy of more than a month, the nobility, clergy, and magiſtrates, all zealouſly promoting the intereſts of Paul, the election was carried in his favour, and this is the only inſtance which occurs in the whole hiſtory of the popes, of two brothers being raiſed ſucceſſively to the papal chair. No ſooner had Paul ſecured his election, than he diſpatched a meſſenger to Pepin, king of France, to acquaint him with his promotion, and to entreat his protection, and that of the French nation in general, for the temporal dominions of the church. He had the ſatisfaction of receiving from that prince, in anſwer to the letters by his meſſenger, the moſt friendly congratulations on his exaltation to the papacy, and the ſtrongeſt aſſurances of his reſolution to maintain St. Peter and his ſucceſſors in the full poſſeſſion and quiet enjoyment of what he had given them, and to employ for that purpoſe, if neceſſary, the whole force of the kingdom.

During the pontificate of Stephen II. Pepin had conquered from the Lombards ſome of their dominions, which he had beſtowed on the Roman ſee by an inſtrument of donation, and compelled the king to confirm the grant. This donation raiſed the biſhop of Rome to the rank of prince, and may be conſidered as the foundation of the temporal grandeur of the popes. As, however, the places which were to have been yielded up to the Roman ſee, had not been evacuated by the Lombards before the death of their king; Paul, as ſoon as he was ordained, made a demand of them from his ſucceſſor Deſiderius. This prince profeſſed the utmoſt readineſs to ſatisfy the pope; but alleging that the affairs of his kingdom engroſſed all his attention, he requeſted that till theſe ſhould be ſettled, his holineſs would excuſe him in not complying with his demand. Of this delay the pope complained in a letter to Pepin. Indeed, much of his time, during the whole of his pontificate, was occupied in writing to Pepin, or his two ſons, letters of complaint againſt the emperor, and in endeavouring, by frequent legations, as well as by letters, to keep the French, the Greeks, and the Lombards, ever at variance. To counteract this policy, the emperor and the king of the Lombards made every effort to gain Pepin, and to perſuade him to withdraw his protection from the pope, repreſenting him to be a public incendiary, who, inſtead of ſtriving to unite the Chriſtian princes, made it his ſtudy to create diviſions among them, with no other view than that he might aggrandize himſelf at their expence. Pepin, however, remained the ſteady friend of his holineſs through life. Paul died in 767, after he had preſided over the Roman church ten years and a month. He gave ſufficient evidence of his piety, by founding or repairing numerous churches. Thirty-one of his Letters have come down to our times, of which twelve are inſerted in the ſixth volume of the Collect. Concil. and the whole are in the "Caroline Code," ſo called from Charlemagne, who himſelf formed the collection which was publiſhed by James Gretzer in the year 1613. Moreri. Bower.

Paul II. pope, originally known by the name of Peter Barbo, was deſcended from an ancient family, and born at Venice in the year 1417. He was educated in the mercantile line, and was on the point of embarking with ſome property on board a ſhip, when he received intelligence that his maternal uncle had been promoted to the papacy under the name of Eugenius IV. He now thought there were good proſpects opened to him in the church, immediately quitted his buſineſs for ſtudy, and though he made but little progreſs in literature and the ſciences, he was, in the courſe of a very few years, preferred by his uncle to the archdeaconry of Bologna, the biſhopric of Cervia in the Romagna, the office of apoſtolical prothonotary, and in the year 1440 to the dignity of cardinal. By his addreſs and obliging manners, he recommended himſelf to ſeveral ſucceeding popes, of whom Calixtus III. gave him the appointment of legate in Campania. While he continued a cardinal, men of all ranks and conditions had free acceſs to him, and he made it his ſtudy to gratify, as far as lay in his power, all who applied to him. Upon the death of Pius II. in 1464, Barbo was choſen pope. As he was a handſome man, and extremely proud of his perſon, he intimated his intention of taking at his coronation the name of *Formoſus*, but he was diſſuaded from this deſign by the cardinals, and he choſe the name of Paul II. One of the firſt public meaſures of Paul's government, was a declaration in favour of Ferdinand, king of Naples, againſt the family of Anjou; and as the party of the latter had begun to revive in the kingdom. many of the barons being diſſatisfied with the arbitrary government of Ferdinand, he ſent a conſiderable body of troops to the aſſiſtance of that prince, who was thus enabled ſpeedily to quell the inſurgents, and to reſtore peace to the kingdom. At this period, when a ſenſe of his obligations to Paul was yet freſh in the king's memory, the pope applied to him for the arrears of the tribute due from the kings of Naples to the papal ſee, which had never yet been paid either by himſelf or his father Alphonſo. Ferdinand, however, refuſed, which had nearly cauſed a civil war, but the affair was accommodated, upon the king promiſing to pay what was in juſtice due to the apoſtolic chamber, whenever he conveniently could.

Among the departments of the Roman government one was filled by perſons called abbreviators, whoſe buſineſs it was to abridge the bulls and letters of the pope. This employment Paul conſidered as uſeleſs, and diſcharged the perſons who filled it, though moſt of them were men of great learning and abilities. In this number was the hiſtorian Platina, who repreſented to his holineſs the injuſtice of diſmiſſing them from offices which they had purchaſed, when not chargeable with any neglect of duty, without returning the money. This remonſtrance offended the pope; but Platina went farther, and inſinuated that he and his brethren would appeal to the kings and princes of Chriſtendom, which ſo incenſed the pope that he had him thrown into priſon under charge of high treaſon. His ſufferings were very great, and continued four months, before he could obtain his releaſe; and even then Paul was not contented, and would not forgive the boldneſs with which the hiſtorian had dared to reſiſt his injuſtice. In the year 1466, the pope had the mortification to hear of the ruin of one of his plans for maintaining the authority of the Roman ſee, by puniſhing offenders againſt its injunctions. In Bohemia the principles of John Huſs had obtained a wide diffuſion, and Podiebrad, the king of the country, had, from his acceſſion to the crown, favoured thoſe who eſpouſed them, inſiſting that the ſacrament ſhould be adminiſtered to all communicants in both kinds. The pope, enraged at his conduct, not only excommunicated him, but cauſed a cruſade to be preached all over Germany againſt this Chriſtian prince, while the Turks were purſuing their conqueſts without oppoſition. The indulgences that were granted to thoſe who took the croſs, proved the means of ſpeedily raiſing a numerous army, which, however, Podiebrad ſoon put to flight with great ſlaughter, and returned triumphant to Prague with a number of priſoners, exceeding that of his whole army. After the defeat, the pope contented himſelf with iſſuing his anathemas, declaring the king of Bohemia a rebel to the church, and incapable of holding any dignity whatever. During the following year Paul gave orders for arreſting Platina, under the pretence of his being engaged in a conſpiracy againſt his perſon and government; the hiſtorian nobly vindicated himſelf from the heavy charge, but the mercileſs tyrant, inſtead of releaſing, ordered him to be put to the rack. He was accordingly tortured with the utmoſt cruelty, but it had no effect upon his mind. Many of his known friends, the moſt eminent characters of the time, were alſo arreſted, and expoſed to the ſame kind of treatment, to ſome of whom it proved fatal. Mr. Roſcoe, in ſpeaking upon this ſubject, ſays; "During the pontificate of Paul II., letters and ſcience experienced at Rome a cruel and unrelenting perſecution, and their profeſſors exhibited in their ſufferings a degree of conſtancy and reſolution, which in another cauſe might have advanced them to the rank of martyrs. The impriſonment of Platina, who, on being arbitrarily deprived of a reſpectable office, to which he was appointed by Pius II., had dared to thunder in the ears of the pope the dreaded name of a general council, might, perhaps, admit of ſome juſtification ; but this was only a prelude to the devaſtation which Paul made among the men of learning, who, during his pontificate, had choſen the city of Rome as their reſidence. A number of theſe uniting together, had formed a ſociety for the reſearch of antiquities, chiefly with a view to elucidate the works of ancient authors, from medals, inſcriptions, and other remains of art. As an incitement to, or as characteriſtic of, their ſtudies, they had aſſumed claſſic names, and thereby gave the firſt inſtance of a practice, which has ſince become general among the academicians of Italy. While theſe men were employing themſelves, in a manner that did honour to their age and country, Paul was indulging his folly and vanity in ridiculous and contemptible exhibitions ; and happy had it been if he had confined his attention to theſe amuſements ; but on a pretext of a conſpiracy againſt his perſon, he ſeized upon many members of the academy, which he was pleaſed to conſider as a dangerous and ſeditious aſſembly, accuſing them of having, by the adoption of heathen names, marked their averſion to the Chriſtian religion." In the year 1467, the pope brought about a reconciliation between ſeveral ſtates of Italy, which had taken up arms as auxiliaries to the oppoſite factions in Florence. Soon after this event the emperor Frederic arrived at Rome, in conſequence of a vow, and was entertained with great magnificence by the pope; and they agreed, as a proper expedient to engage the Chriſtian princes in a league againſt the Turks, that letters ſhould be written, in their joint names, to princes and ſtates of Chriſtendom, inviting them to ſend their ambaſſadors to Rome, in order to treat about means for defending ther faith. About the ſame time, Paul was inſtigated by his ambition to obtain poſſeſſion of the city of Rimini, and he called in the Venetians to aid him in the project ; but after an appeal to arms, the forces of the church and its allies were completely defeated, and Paul was at length compelled to accede to ſuch terms as the conquerors thought proper to dictate. In 1471 the pope publiſhed a bull, by which he reduced the jubilee circle to twenty-five years, and thus accelerated the return of a moſt abſurd and ſuperſtitious ceremony. To him, however, it was of little moment, as he died ſuddenly of an apoplexy, in July of the ſame year, after a pontificate of almoſt ſeven years. The hiſtorian Platina, who could ſcarcely be deemed an impartial judge, charges him with avarice and ſimony ; with ſelling even biſhoprics to the higheſt bidders. With reſpect to the former of theſe charges, that there was no ſolid foundation for it is quite clear from Platina's own account, who ſpeaks of him as profuſe in his expences in buildings ; in entertaining diſtinguiſhed perſonages ; in relieving the poor and decayed nobility ; in purchaſing, at any price, jewels and precious ſtones to adorn the papal crown, and in exhibiting public ſhows for the entertainment of the Roman people. Mathieu, the hiſtorian of Lewis XI. ſays, that he was greedy of money, and little cared by what means he acquired it, but was too fond of pomp to hoard it up in his coffers. He created eleven cardinals during his pontificate, among whom were two of his own nephews, although he had, previouſly to his election, taken a ſolemn oath not to increaſe the number of cardinals, or introduce more than one relation to that high dignity. Two of the letters of this pontiff are in the thirteenth volume of the Collect. Concil. and ſeveral others in the fourth volume of d'Archery's " Specilegium," and in Cherubini's " Bullarium Magnum." This pope met with a moſt zealous apologiſt in one of the ableſt men of the laſt century, who publiſhed a work entitled " Pauli II. Vita ex Codice Anglicæ Bibliothecæ deſumpta, præmiſſis ipſius Vindiciis adverſus Platinam, alioſque Obtrectatores," 1740. Moreri. Bower. Roſcoe's Life of Lorenzo de Medici.

Paul III. pope, originally called Alexander Farneſe, was of Roman deſcent, from an ancient and noble family, and born about the year 1467, at Carino in Tuſcany. He purſued his ſtudies under the celebrated profeſſors whom the Medici family had invited to Florence, where he was, at a very early age, diſtinguiſhed by his application to, and proficiency in, the different branches of literature. By pope Innocent VIII. he was appointed apoſtolical prothonotary, and by Alexander VI. he was advanced to the biſhopric of Monte Fiaſcone, by whom he was, in 1493, raiſed to the dignity of cardinal, when he was but twenty-ſix years of age. He was warmly patronized likewiſe by Julius II., Leo X., and Clement VII. By the latter he was ſucceſſively nominated to the biſhoprics of Paleſtrina, Sabina, Porto, and Oſtia. The ſame pope appointed him to the legation of Viterbo, and received important ſervices from him during the time of his impriſonment. So highly did Clement eſtimate the character of Alexander, that when he was ſenſible that his end was approaching, he recommended him to the cardinals as the moſt worthy of the whole college to be his ſucceſſor. The death of Clement happened on the 25th of September 1534, and on the 13th of October following, the thirty-four cardinals preſent in the conclave concurred unanimouſly in voting for the cardinal Farneſe. To this unanimity two circumſtances contributed : one was his having arrived to the advanced age of ſixty-ſeven, and the other the general belief that his conſtitution was broken up.

At the coronation the new pope aſſumed the name of Paul III., and the firſt object to which he directed his attention was to cruſh the progreſs of the Reformation, which he foreſaw was pregnant with ruin to the authority and intereſts of the papal ſee. He was, like his predeceſſor, enraged at the innovations in Germany, and equally averſe from any ſcheme for reforming either the doctrines of the church, or the abuſes of the court of Rome. (See Luther.) At the ſame time he concluded an alliance with the emperor Charles V. and the Venetians againſt the Turks, and is ſaid to have entertained ſuch confidence of ultimate ſucceſs, that he even made a partition of the Turkiſh empire with his allies. This object, as well as the extirpation of hereſy, he had much at heart, but he conſidered peace between the emperor, and the king of France, who were then at war, to be an eſſential preliminary to both. He accordingly propoſed an interview between the two monarchs at Nice, and offered to repair thither in perſon, that he might act as mediator in compoſing all differences. After long negociations, he prevailed upon them to ſign a truce for ten years, and in the mean time to ſend ambaſſadors to Rome to diſcuſs their pretenſions at leiſure. During the private conference of the pope with the emperor at their interview, a marriage treaty, which had been ſome time negociating, was concluded between Octavio Farneſe, the pope's grandſon, and Margaret, the emperor's natural daughter, and the widow of Alexander de Medici, who had been lately murdered by one of his own family. Soon after Paul's return to Italy, he diſpatched cardinal de Medici with a grand retinue to Florence, who conducted the princeſs to this city, where he was received by the pope, the cardinals, and the Roman nobility, and the nuptials were celebrated with extraordinary pomp and magnificence. In the year 1538 the pope thundered out his bull of excommunication againſt king Henry VIII. of England, by which the monarch was deprived of his kingdom, his ſubjects were abſolved from their allegiance, and the whole iſland laid under an interdict. But Henry's power was not to be thus ſhaken, and the inſolence of the pope only ſtimulated the king to imitate his tyranny, by perſecuting all, without diſtinction, who refuſed to renounce the papal ſupremacy, and acknowledge his own. The year 1540 was rendered memorable by the eſtabliſhment of the order of the Jeſuits, and about the ſame time different diets were held in Germany for the purpoſe of terminating the religious diſputes, and the diviſions ariſing from them among the members of the empire, the reſult of which was various conceſſions to the Proteſtants, which ſuſpended all proſecutions carried on againſt them in the imperial chamber, and left them in the full poſſeſſion of the privileges which they had ever enjoyed. Theſe proceedings gave great offence to the pope, who complained of them, during an interview which he had with the emperor at Lucca in 1541, when he ſuggeſted various things relating to the proper method of putting an end to the diſputes about religion, and to the extinguiſhing of thoſe mutual animoſities between that prince and the king of France, which threatened to break out again into open hoſtility. In the year 1542, Paul, finding it impoſſible to avoid any longer calling a general council, ſent John Morone, biſhop of Modena, to announce to the diet of the empire at Spires, his determination of aſſembling ſuch a council without delay, and to propoſe that Trent ſhould be the place of its meeting. This propoſal met with the approbation of the Catholic princes of the diet, but the Proteſtants totally objected to it. Without taking any notice of their oppoſition, Paul immediately publiſhed a bull, nominated three cardinals to preſide as his legates, and fixed the day for opening the council, which was on the firſt of the following November. His legates repaired to Trent at the time appointed, where they remained ſeveral months; but as no perſons appeared there, except a few prelates from the eccleſiaſtical ſtates, the pope recalled them and prorogued the council. Having learnt, about this time, that the principles of Luther met with a favourable reception in many parts of Italy, he appointed a congregation of ſix cardinals, with full power to act as inquiſitors of the faith at Rome. He alſo inſtigated the emperor to attempt the introduction of that tribunal into the kingdom of Naples, but the deſign was fruſtrated by the ſpirited oppoſition of the Neapolitans, of all ranks and conditions, who flew to arms upon the firſt ſtep that was taken towards carrying it into execution, and obliged the viceroy to drive out of Naples all who belonged to that bloody office. During the ſummer of this year, the pope, with a view to the aggrandizement of his family, knowing the emperor's great want of money to carry on his war againſt France, offered him 150,000 ducats, if he would beſtow the duchy of Milan on his grandſon, Octavio Farneſe, which propoſal the emperor rejected. Paul now returned home greatly mortified, and his ill humour was not a little increaſed by the information, that the emperor had courted the Proteſtants, and granted them extraordinary indulgences at the diet of Spires, in order to ſecure their concurrence with the other members of the diet, in declaring war againſt France in the name of the empire, and granting extraordinary aids in troops and money: he alſo learnt that Charles had contracted an alliance with the excommunicated heretic, Henry VIII. of England. In the year 1545 the pope ſummoned the council of Trent to aſſemble anew in the month of November, but before that meeting the emperor gave the Proteſtants reaſon to ſuſpect his hoſtile intentions againſt them; and he and the pope being intent upon one common object, *viz.* the ſuppreſſion of the reformers, they mutually ſacrificed to it their emotions of jealouſy or reſentment, that they might the more effectually purſue what each deemed to be of greater importance. Still, however, Charles contrived to amuſe the Proteſtants with profeſſions of his pacific and favourable intentions towards them, and employed every art to quiet their fears and jealouſies, though events ſoon occurred which convinced them of his perfidy. On the 13th of December 1545, the general council was opened at Trent, though as yet only twenty-five biſhops had arrived, and theſe were Italians or Spaniards. Such was the firſt appearance of an aſſembly of men, who aſſumed authority as repreſentatives of the univerſal church, and proceeded to determine the moſt important points of doctrine in its name. (See TRENT.) The council ſhewed an eagerneſs in condemning the opinions of the Proteſtants, which was ſoon followed by a ſtriking inſtance of the pope's reſolution to puniſh thoſe who embraced them. The appeal of the canons of Cologne againſt their archbiſhop having been carried to Rome, Paul eagerly ſeized that opportunity of diſplaying his zeal for the eſtabliſhed church, and as no perſon appeared in behalf of the archbiſhop, he was held to be convicted of the crime of hereſy, and a papal bull was iſſued, depriving him of his eccleſiaſtical dignity, inflicting on him the ſentence of excommunication, and abſolving his ſubjects from the oath of allegiance, which they had taken to him as their civil ſuperior. Charles now ſaw, that he ſhould be ſoon obliged to declare openly, what part he would take in the buſineſs. At the ſame time, he was ſtrongly urged to commence operations againſt them by the pope. At length he agreed to the propoſals of the pontiff, who proud of having been the author of ſuch a formidable confederacy againſt the Lutheran hereſy, and happy in thinking that the glory of extirpating it was reſerved for his pontificate, publiſhed the articles of his league with the emperor, and publiſhed a bull containing the moſt liberal promiſes to all who ſhould engage in this holy enterpriſe. This war of religion commenced in 1546, and the papal troops, amounting fully to the number which Paul had ſtipulated to furniſh, commanded by Octavio Farneſe, the pope's grandſon, aſſiſted by able officers, formed in the long wars between Charles and Francis, ſeaſonably joined the imperial army. Immediately upon hearing of the rapid ſucceſs of the emperor's troops, the pope ſaw the danger that would reſult to him and his cauſe, from an extenſion of the imperial authority, and ordered his grandſon to return inſtantly to Italy with all the troops under his command, while he recalled, at the ſame time, the licence, which he had granted for the appropriation of church lands in Spain to the emperor's uſe. He alſo foreſaw, that if Charles acquired abſolute power in Germany, he would become maſter of the council, ſhould it continue to meet at Trent; for this reaſon he tranſlated the council to Bologna. Theſe circumſtances occaſioned a breach between the emperor and the pope, which was rendered irreparable by the aſſaſſination of the pope's ſon, Peter Lewis Farneſe, one of the moſt odious tyrants that ever diſgraced the world, and the loſs of the city of Placentia, which had declared for the emperor. The pope inſtantly demanded ſatisfaction of the emperor for both injuries, but Charles eluded all his demands, and reſolved to keep poſſeſſion of the city together with its dependent territories. Paul would willingly have attacked the emperor by force of arms, but having in vain ſolicited the aſſiſtance of France and the republic of Venice, he was obliged to endure the injuries which his own weakneſs would not allow him to revenge. Various other cauſes of diſpute occurred, and at length, in 1548, Charles reſolved to terminate all differences by his famous ſyſtem of doctrine, known by the name of the INTERIM, which ſee. Paul condemned the Interim in the ſtrongeſt terms, and in a ſhort time after he diſſolved the council, the weakneſs of whoſe meaſures had become the object of contempt to all Chriſtendom. As the pope advanced in years, he grew more ſtrongly attached to his family, and more jealous of his authority, but in the midſt of his ſchemes for the aggrandizement of the latter, his grandſon Octavio threatened to join the emperor, which ſo much irritated his holineſs, that he was reſolved to proceed againſt his relation with the utmoſt ſeverity, from which, however, he was prevented by his death, which occurred in 1549, when he was in the eighty-ſecond year of his age, and had held the Roman ſee more than fifteen years. It is difficult to appreciate the character of this pope. Cardinal Quirini has diſplayed much talent in defending his probity and general meaſures, while others repreſent him as a perfidious politician, whoſe great qualities were diſſimulation and fraud; who was wholly intent upon raiſing his family, and ever ready to ſacrifice the good of the church or ſtate to the grandeur and intereſts of his illegitimate offspring. Beſides his natural ſon, Peter Lewis, he had a natural daughter, named Conſtantia, who was married into the *Sforza* family, and their children, Alexander Farneſe, and Guido Aſcanio Sforza, he created cardinals ſoon after his election, when they had ſcarcely arrived to the years of manhood. He is ſaid to have been well verſed in moſt branches of literature, and a generous encourager of learned men. He wrote a commentary upon Cicero's "Epiſtles to Atticus" before his promotion to the pontificate, and after that period ſome to his friend Sadolet and to Eraſmus, which have been applauded for the purity of the Latin ſtyle. Moreri. Bower. Mod. Un. Hiſt.

Paul IV., whoſe former name was John Peter Caraffa, was the ſon of count Montorio, a nobleman of an illuſtrious family in the kingdom of Naples, and born in the year 1476. Being deſtined for the church, he from his early years applied to ſtudy with the greateſt aſſiduity, acquired a profound ſkill in ſcholaſtic theology, and a conſiderable knowledge of the learned languages and of polite literature, the ſtudy of which had lately been revived in Italy. His mind, naturally gloomy and ſevere, was more formed to imbibe the ſpirit of the former, than to receive any tincture of elegance or liberality of ſentiment from the latter; ſo that he acquired rather the qualities and paſſions of a monk, than the talents requiſite for the conduct of the affairs of the world. When he was only eighteen years of age, he was made chamberlain to pope Alexander VI., and in the year 1504, pope Julius II. created him an archbiſhop. After this he was ſent by the ſame pontiff as nuncio to Ferdinand, king of Arragon, when that prince took poſſeſſion of the kingdom of Naples. In 1513 pope Leo. X. ſent him in the ſame character to Henry VIII., king of England, at whoſe court he ſtaid three years. Upon his return, he was appointed to other miſſions, but becoming diſguſted with public life, he languiſhed to be in a ſituation more adapted to his taſte and temper, and having relinquiſhed the paths of ambition, refuſed a valuable archbiſhopric, which was offered him by Charles V., and even reſigned all his eccleſiaſtical preferments in the year 1524. He then retired to mount Pincio, where he inſtituted a new order of regular prieſts, whom he denominated Theatines, and conformed himſelf to the rules which he had laid down for others who entered that body, preferring the ſolitude of a monaſtic life, with the honour of being the founder of a new order, to the higheſt dignities and greateſt grandeur which the court of Rome could offer. In this retreat he continued many years, till pope Paul III., induced by the fame of his ſanctity, called him to Rome, in order to conſult him concerning the moſt proper and effectual means for ſuppreſſing hereſy, and re-eſtabliſhing the ancient authority of the church. In 1536, the pope perſuaded him to accept a cardinal's hat. He now ſhewed himſelf, what he had ever been in his heart, a bitter enemy to all innovation, and a furious zealot againſt Lutheraniſm. Upon the death of pope Marcellus II. in 1555, the conclave united in the choice of cardinal Caraffa, who was then at the advanced age of ſeventy-nine. At his coronation, out of gratitude to Paul III., he took the name of Paul IV. The Roman courtiers, from the known auſterity of his character, anticipated a ſevere and violent pontificate, and that monaſtic manners would be ſubſtituted in the room of the gaiety and magnificence to which they had been accuſtomed. Paul, however, began his government by ordering his coronation to be conducted with greater pomp and ceremony than uſual, and when he was aſked in what manner he choſe to live, he haughtily replied, as becomes a great prince. He uſed great pomp in his firſt conſiſtory, when he allowed audience to the ambaſſadors of Mary, queen of England, who came to tender her obedience to the papal ſee, on which occaſion he gave the title of a kingdom to Ireland. Afterwards, he inſiſted that all eccleſiaſtical poſſeſſions, which had been ſeized by Henry VIII., ſhould be reſtored to the church, and that Peterpence ſhould be immediately collected for the uſe of the Roman ſee. Having now attained to the higheſt dignity to which he could aſpire, his principal object appears to have been the aggrandizement of his nephews; on the eldeſt, count Montorio, he beſtowed the dukedom of Palliano; and on the ſecond he conferred the government of Rome, with the title of marquis de Montebello; and the youngeſt, who had hitherto ſerved as a ſoldier of fortune in the armies of Spain and France, he created a cardinal, and nominated him to the important legation of Bologna. The ambition of Paul's nephews was too great to be ſatiſfied with the dignities to which they had been appointed. Their aims were directed to ſovereign and independent eſtabliſhments, which they had no proſpect of obtaining but by diſpoſſeſſing the emperor of ſome of his Italian dominions, and to attempt ſuch an undertaking both Paul and his nephews were incited by motives of reſentment as well as intereſt. Paul propoſed an alliance offenſive and defenſive with the French king againſt the emperor, in which Henry VIII. joined as a party. Scarcely, however, had the treaty between the pope and the king of France been ſigned two months, before Henry forgot the obligations under which it laid him, and agreed to a truce with the emperor, who was upon the point of reſigning all his hereditary dominions to his ſon Philip, and of retiring from the world. When the news reached Rome, that this truce was actually concluded, and ſworn to by Henry as well as the emperor and his ſon, in Feb. 1556, it excited in the pope and his nephews the utmoſt aſtoniſhment and conſternation. They now began to dread the vengeance, which, they were aware, they fully merited. Paul had recourſe to intrigue and negociation. He affected, as father of the church, to approve highly of the truce, as an happy expedient for putting a ſtop to the effuſion of Chriſtian blood, and he exhorted the rival princes to embrace the favourable opportunity of ſetting on foot a negociation for a definitive peace, offering himſelf to be a mediator between them. Under this pretext he nominated cardinal Rebiba his nuncio to the court of Bruſſels, and his nephew, cardinal Caraffa, to that of Paris. The real deſign of the latter was to ſolicit the French king to renounce the treaty of truce, and to renew his engagements with the holy ſee; and he was commanded by his uncle to ſpare neither intreaties, nor promiſes, nor bribes, to gain his point. By the inſtigation of the pope war was renewed, and the imperial forces ſoon made their way to the gates of Rome. The pope now gladly ſought a truce, which was granted firſt for ten, and then for forty days; during which, various ſchemes of peace were propoſed, without any ſincerity on the part of the pope. He had but one object in view, *viz.* the deſtruction of his enemies; and on the arrival of the French troops, he became more arrogant than ever, and baniſhed all thoughts from his mind but thoſe of war and revenge. Hoſtilities were again renewed, and with ſo much ſucceſs againſt the cauſe of the church, that Paul, proud and obſtinate as he was, found it neceſſary to accommodate himſelf to the exigency of his ſituation. He accordingly employed the mediation of the Venetians, and of Coſmo de Medici, in order to obtain peace; and ſo reaſonable was Philip in his expectations, that though he had the pope at his feet, yet he allowed him to finiſh the war, without any detriment to the papal ſee. The conqueror, owing to his ſuperſtitious attachment to the church, appeared in the abject character of a humble ſuppliant, and acknowledged his error; while he who had been the moſt arrogant hypocrite, though completely vanquiſhed, retained his uſual haughtineſs, and was treated with every mark of ſuperiority. Paul now had leiſure, and he applied that leiſure to render his favourite tribunal of the inquiſition a more efficient inſtrument for the eradication of hereſy. With this view, he directed the inquiſitors to draw up a catalogue of ſuch books as were thought proper to be condemned, as impious and heretical. This *Index Expurgatorius* was publiſhed two years afterwards, and all were prohibited, under pain of excommunication, perpetual infamy, and other arbitrary puniſhments, from poſſeſſing any of the books mentioned in that catalogue. The pope likewiſe ordered the tribunal of the inquiſition to take cognizance of ſeveral crimes, which before had been under the juriſdiction of the other courts; and he deſervedly incurred univerſal odium, by being ſo active and diligent in his inquiry after criminals, that he quickly filled all the priſons of the inquiſition. In the year 1558, the college of the electors of the empire having been aſſembled at Frankfort, the prince of Orange laid before them the inſtrument with which he had been entruſted by Charles V., containing his reſignation of the imperial crown, and the transfer of it to Ferdinand, king of the Romans, which the college accepted and approved, and put Ferdinand in poſſeſſion of all the enſigns of imperial dignity. When the new emperor ſent his chancellor to acquaint the pope with this tranſaction, Paul declared all the proceedings at Frankfort illegal and invalid, as tranſacted without his authority, and refuſed to acknowledge Ferdinand as emperor ſo long as he lived. The ſame pretenſions were maintained by him in the inſtance of queen Elizabeth of England, who announced to him by her ambaſſador that ſhe had acceded to the throne: he haughtily declared that the kingdom was a fief of the holy ſee, and that ſhe had no right to aſſume the crown without his leave. She nobly deſpiſed his claims, threw off the papal yoke, and, after the example of her father and brother, aſſumed, with the concurrence of parliament, the ſupremacy in all matters, eccleſiaſtical as well as temporal, within her dominions. The mortification which this event occaſioned to Paul was increaſed by the intelligence which he received from his nuncio in Germany, that at the diet of Augſburg, in 1558, Ferdinand had confirmed the treaty of Paſſau, which eſtabliſhed the peace of religion, and alſo the decrees of the ſubſequent diets. He was equally diſpleaſed with the peace concluded between France and Spain, ſince, by one of the articles, the reſpective ſovereigns bound themſelves to labour in concert for procuring the convocation of a general council, in order to promote the reformation of the church, and to deviſe expedients for eſtabliſhing unity and concord in the religious world. Shortly after this, the pope was very deſirous of convincing the world, that he had ſincerely at heart a correction of abuſes in the church; and with this view, he ordered all biſhops to proceed to their own dioceſes, and all who had embraced a monaſtic life to return to their monaſteries, admitting of no excuſe whatever with regard to the laſt; and he executed his mandate with ſuch ſeverity, that many of the vagrant monks were impriſoned, and ſome of them ſent to the gallies. Toward the cloſe of life, he exhibited his impartiality in the puniſhment of crimes, by directing his ſeverity againſt his nephews, who had, in many inſtances, abuſed the truſts repoſed in them. He alſo ſuppreſſed ſome new and very unpopular taxes, which he pretended had been impoſed without his knowledge. It was now almoſt too late to act upon a new courſe of practice; he was unable to remedy the evils of his adminiſtration, as he died in Auguſt 1559, in the 84th year of his age, and after a pontificate of little more than four years. Such had been his arrogance, tyranny, and oppreſſions, and he had rendered himſelf ſo univerſally the object of hatred, that when he was upon his death-bed, the Romans roſe tumultuouſly, curſed his name and family, and then flying to the Capitol, ſtruck off the head of a ſtatue erected to him but three months before, which they dragged with a thouſand inſults through the public ſtreets of the city, and at laſt threw it into the Tiber. The populace then crowded to the priſon of the inquiſition, forced open the doors, releaſed ſeveral hundred priſoners, then ſet fire to the building, which was ſoon reduced to aſhes, with all the papers and records of that court. An edict was then publiſhed for aboliſhing the arms of the Caraffa family, and in a ſingle day there was not in all the city a memorial of them left. Paul was the author of a treatiſe, "De Symbolo;" another, "De emendanda Eccleſia ad Paulum III.;" beſides the rules which his monaſtery was governed, entitled "Regulæ Theatinorum." Moreri. Bower. Robertſon's Hiſt. of Charles V. Mod. Un. Hiſt.

PAUL V. pope, formerly called *Camillo Borgheſe*, was deſcended from a family of diſtinction at Sienna, and born at Rome in 1552. He was educated to the profeſſion of the law, took the degree of doctor, and acquired ſuch reputation for his knowledge of it, that he was made refendary of both ſignets. In 1588 pope Gregory XIV. appointed him to fill the important office of auditor of the chamber. By Clement VIII. he was promoted to the college of cardinals, and ſent nuncio to Spain; and on his return, the ſame pontiff nominated him his vicar, which is one of the four principal dignities in the Roman church. Upon the death of Leo XI. in 1605, he was unanimouſly elected pope, his vigorous age of fifty-three being the only objection brought forwards againſt him. At his coronation he took the name of Paul V., and almoſt immediately afterwards diſcovered his ſpirit of nepotiſm, by beſtowing the cardinal's hat on Scipio Caffarelli, his ſiſter's ſon; and by appointing his two brothers, Francis and John Baptiſt, to the important offices of governor of the Vatican, and governor of St. Angelo. No one of his predeceſſors exceeded this pontiff in zeal for advancing the eccleſiaſtical authority and juriſdiction of the papal ſee, or ſhewed himſelf more violent in endeavouring to execute his vengeance upon ſuch as encroached upon his pretended prerogatives. His zeal in defence of the pretended rights and powers of his ſee was particularly diſplayed in the raſh and unſucceſsful conteſt into which he entered with the republic of Venice, in the year 1606. The Venetians had publiſhed ſeveral laws for reſtraining the licentiouſneſs of the clergy, and for other purpoſes neceſſary for the well-being of their ſtate, which the pope ordered to be reſcinded. This they refuſed, and juſtified their conduct with great ſpirit. When Paul found that they oppoſed his demands, his fury was inflamed to the higheſt pitch. Having ſuffered himſelf to be publicly ſtyled "Vice-God upon earth, the monarch of Chriſtendom, and the ſupporter of papal omnipotence," he was reſolved to keep up his character, by pouring down upon the republic the full weight of his vengeance. It was, however, to no purpoſe: the Venetians reſiſted, and carried their point; and, at the ſame time, they baniſhed the Jeſuits and Capuchins, who had thought proper openly to break the laws of the ſtate, by obeying the pope.

About this time, the form of the oath of allegiance, required to be taken by Popiſh recuſants in England, having been ſubmitted to the conſideration of the college of cardinals, they were unanimouſly of opinion that no true Catholic could take it with a ſafe conſcience; upon which the pope diſpatched a brief to this kingdom, prohibiting all Papiſts from ſubmitting to it, and exhorting them patiently to endure all manner of perſecution rather than comply. During the year 1609, an ambaſſador arrived at Rome, from the king of Congo in Africa, to requeſt that the pope would ſend with him, on his return, learned miſſionaries to propagate Chriſtianity in that country; but the death of the ambaſſador, ſoon after his arrival, occaſioned that deſign to be poſtponed to ſome future time. In the ſame year, the pope received letters from the king of Perſia, which were ſoon afterwards followed by an ambaſſador from the prince. Theſe letters and this miniſter were ſuppoſed to have been ſent at the inſtigation of ſome of the king's Armenian ſubjects, who had embraced the Catholic creed, with a view to procure arrangements for their benefit. In the year 1610, Paul was earneſtly ſolicited to enter into a defenſive alliance with the king of France and the princes of Italy, which he declined, leſt he ſhould thereby be involved in war. While the ſubject was in agitation, intelligence arrived at Rome of the aſſaſſination of Henry IV., at which his holineſs expreſſed great ſorrow, and aſſiſted perſonally at his obſequies, which were celebrated with much ſolemnity at Rome. In 1614 the pope received information that a treaty was negociating between the king of Great Britain and the queen-regent of France, for a marriage between the prince of Wales and her ſecond daughter, Chriſtina: he ordered his nuncio at the French court to remonſtrate againſt the propoſed alliance, as prejudicial to the church. Another ſubject on which he ordered his nuncio to remonſtrate was a decree of the parliament of Paris, condemning a treatiſe of Suarez, a Jeſuit, which juſtified the murder of Henry IV., and of heretical kings in general, of which, to his diſgrace, the pope had declared his approbation, to be burnt by the hands of the common hangman. This decree he complained of, as an infringement on the privileges of the holy ſee, which reſerved to itſelf the power of judging and determining concerning the tendency of ſuch works; and he demanded ſatisfaction, by the formal annulling of the decree: but he could obtain no other ſatisfaction than the ſuſpenſion of its execution. He met with a ſimilar mortification, in an unſucceſsful endeavour which he made to prevail with the ſtates of France to order the publication of the decrees of the council of Trent. In the courſe of the following year, Paul's attention was chiefly engaged by the old controverſy between the Franciſcans and Dominicans, concerning the *immaculate conception of the Virgin Mary.* Shortly after this, he was involved in a diſpute with the court of France, which demanded the eſtates of the marſhal d'Ancre at Rome, for the uſe of the French king. A compromiſe was agreed upon between the contending parties: more than half was given to Lewis XIII., and the remainder was allowed to the pope towards the building of St. Peter's church. In the year 1619 the pope publiſhed an univerſal jubilee, in order to implore the aſſiſtance of the Almighty for the defence of the church, which was endangered by a general inſurrection of the Proteſtants of Bohemia, and other countries under the Auſtrian dominions, who had been provoked to fly to arms by the oppreſſions with which they were haraſſed. The pope ſent aſſiſtance in money to the emperor, who, in the courſe of the following year, gained a deciſive victory, which obliged the inſurgents to ſubmit. Paul ſurvived the news of this victory only a few months, and died at Rome in January 1621, in the 69th year of his age, after a pontificate of nearly 16 years. Paul V. was diſtinguiſhed for talents and learning, and would have appeared to great advantage in the page of hiſtory, had he not ſuffered his ambition and furious zeal for the authority of the holy ſee to lead him into meaſures which he could not ſupport, and had he not ſacrificed the wealth of the ſtate to the aggrandizement of his nephew, cardinal Borgheſe. As a friend to literature, he publiſhed a bull, commanding all the religious orders to maintain profeſſors in the Hebrew, Arabic, Greek, and Latin languages. In adorning and beautifying the city with magnificent buildings, he is ſaid to have rivalled Sixtus V. He extended and improved the Vatican palace and library. He built two magnificent palaces for his relations, one in the city, and the other without the walls; and in both he collected the moſt valuable works in ſculpture and painting, and the fineſt monuments of antiquity that he could purchaſe. He brought water to ſeveral parts of the city, by aqueducts and ſubterraneous channels, ſome from places at nearly 40 miles diſtance; and he embelliſhed the ſtreets with a great number of fountains. He was likewiſe liberal in his charitable donations, and in his alms to the poor.

Paul, *Father*, whoſe name, before he entered into monaſtic life, was Peter Sarpi, was born at Venice, Auguſt 14, 1552. His father followed trade, but with ſo little ſucceſs, that on his death his family were extremely ill provided for. Peter was taken under the care of a maternal uncle, who, being himſelf a ſchoolmaſter, cultivated the talents of his nephew with unwearied application. He ſoon ſhewed, by the turn of his mind, that he had a capacity adequate to the moſt difficult departments in literature, and having, at the age of thirteen, made himſelf maſter of ſchool learning, he turned his ſtudies to philoſophy and the mathematics. He entered alſo on the ſtudy of logic under Capella of Cremona, who was of the order of the Servites, and in this order Peter Sarpi, notwithſtanding the remonſtrances of his friends, determined to enter himſelf. In 1566 he took the habit of the order, though at that time only fourteen years of age, a period of life in moſt perſons very improper for engagements of this nature, but in him attended with ſuch maturity of thought, and in ſuch a ſettled temper, that he never ſeemed to regret the choice he then made, and which he confirmed by a ſolemn public profeſſion in 1572. At a general chapter of the Servites, held at Mantua, Paul, for he had now aſſumed that name, being but twenty years of age, diſtinguiſhed himſelf ſo much in a public diſputation by his genius and learning, that William, duke of Mantua, a great patron of letters, ſolicited the conſent of his ſuperiors to retain him at his court, and not only made him public profeſſor of divinity in the cathedral, and reader of divinity and the canon law in that city, but honoured him with many proofs of his eſteem. The honours and buſtle of a court did not accord with his temper and diſpoſition ; he quitted it two years afterwards, and retired to his beloved privacy. He was at this period but twenty-two years of age, and was intimately acquainted not only with the Latin, Greek, Hebrew, and Chaldee languages, but with philoſophy, the mathematics, canon and civil law, and all parts of natural philoſophy and chemiſtry that were then purſued by men of ſcience. He now took prieſt's orders, and was diſtinguiſhed by the illuſtrious cardinal Borromeo with his confidence, and employed by him on many occaſions, which excited the enmity of his contemporaries, who, jealous of his celebrity, and having nothing to urge againſt his conduct, charged him with denying that the Trinity could be proved from the firſt chapter of Geneſis : the Inquiſition, however, before whom the accuſation was brought, thought the charge too ridiculous to be attended to for a moment. After this he paſſed ſucceſſively through the dignities of his order, of which he was choſen provincial for the province of Venice at the age of twenty-ſix years ; and he diſcharged this poſt with ſuch honour, that in 1579 he was appointed, with two others, to draw up new regulations and ſtatutes for his order. He performed this buſineſs with much ſucceſs, and when his office of provincial was expired, he retired for three years to the ſtudy of natural and experimental philoſophy and anatomy, in which he made many important diſcoveries. Aquapendente, the famous anatomiſt, ſays that he was indebted to father Paul for his knowledge of the principles of viſion, and there are pretty good proofs that he was not unacquainted with the circulation of the blood. He was now choſen procurator-general of his order, and during his reſidence at Rome was greatly eſteemed by pope Sixtus V., and contracted an intimacy with cardinal Bellarmine and other eminent perſons.

His enemies were ſtill on the alert, and accuſed him of having written a letter in cyphers, which they explained, and ſaid the true meaning was, that he hated the court of Rome, in which preferment was not to be obtained but by diſhoneſt and corrupt means. This accuſation was paſſed over, but not forgotten, and it made ſuch impreſſion on that court, that he was afterwards denied a biſhopric by Clement VIII. He now retired from public life, and ſpent much of his time in ſtudies devoted to practical piety. The moſt active ſcene of his life began about the year 1615, when pope Paul V. exaſperated by ſome decrees of the ſenate of Venice, that appeared to him to interfere with the rights of the church, laid the whole ſtate under an interdict. Both parties having proceeded to extremities, employed their ableſt writers to defend their meaſures. On the pope's ſide, among others, cardinal Bellarmine entered the liſts, and with his confederate authors, defended the papal claims with great ſcurrility of language, and very ſophiſtical reaſonings. On this occaſion father Paul was moſt eminently diſtinguiſhed by his "Defence of the Rights of the Supreme Magiſtrate ;" his "Treatiſe of Excommunication," and other writings ; for which he was cited before the Inquiſition at Rome, but he thought it prudent not to obey the ſummons. He was ſtill purſued with unceaſing activity by the agents of the pope, and one night, ſix months after a pretended accommodation had taken place, he was attacked by five ruffians armed with ſtillettoes, who gave him no leſs than fifteen ſtabs, three of which wounded him in ſuch a manner, that he was left for dead. The aſſaſſins fled for refuge to the nuncio, and were afterwards received into the pope's dominions. It has been ſaid, on good authority, that they were purſued by the juſtice of heaven, and that all, except one man, who died in priſon, periſhed by a violent death.

On his recovery he retired to his convent, where he employed himſelf in writing the "Hiſtory of the Council of Trent," which biſhop Burnet regards as the completeſt model of hiſtorical writing ever produced. Another writer conſiders it as equivalent to any production of antiquity, in which, he ſays, "the reader will find liberty without licentiouſneſs, piety without hypocriſy, freedom of ſpeech without neglect of decency, ſeverity without rigour, and extenſive learning without oſtentation." In this and other works of leſs importance he ſpent the remainder of his life, till the beginning of the year 1622. when he died. As his end was evidently approaching, the brethren of his convent came to pronounce the laſt prayers, with which he could only join in his thoughts, being able to articulate no more than theſe words, "Eſto perpetua," which were underſtood to be a prayer for the proſperity of his country. At his death he had attained to his 71ſt year, hated by the court of Rome and its adherents as their moſt formidable enemy, and honoured by all the learned for his abilities, and by the good for his integrity. His deteſtation of the corruption of the Roman church appears in all his writings ; but there is a paſſage in one of his lectures frequently referred to on the ſubject, which we ſhall tranſcribe. "There is nothing more eſſential than to ruin the reputation of the Jeſuits. By the ruin of the Jeſuits, Rome will be ruined ; and if Rome be ruined, religion will reform itſelf." Father Paul was buried with great pomp at the public charge, and a magnificent monument was erected to his memory.

Paul, emperor of Ruſſia, ſon of Peter III. and Catharine II. was born in 1754. He was brought up by his mother, and eſtranged by her from all public affairs. In 1773 he was married to the daughter of the landgrave of Heſſe Darmſtadt, who died two years afterwards. In 1776 he took for his ſecond wife a princeſs of Wirtemburg Stutgard, niece to the king of Pruſſia, and in 1780 he made the grand tour of Europe. His deſire of ſerving in the war of 1787 againſt the Turks was thwarted by his mother, and he continued to reſide with his family at his palace with a few favourites. The ſudden death of Catharine, in November 1796, made him maſter of a vaſt empire, for the government of which he was neither fitted by nature nor education. Catharine had never admitted him to any participation of power, and kept him in a ſtate of almoſt total ignorance of the affairs of government. Although by birth he was generaliſſimo of the armies, preſident of the admiralty, and grand admiral of the Baltic, he was never permitted to head even a regiment, and was interdicted from viſiting the fleet at Cronſtadt. From theſe circumſtances, it is evident that the empreſs either had conceived ſome jealouſy of her ſon, or ſaw in him a mental imbecility that appeared to her to diſqualify him for the arduous concerns of government. He was, however, not without qualities valuable in a ſovereign. He had a ſtrong attachment to juſtice, with an openneſs and frankneſs which rendered him acceſſible to truth when properly preſented to him. His general intentions were good, though not unfrequently warped by prejudice and caprice.

It was commonly believed, that a ſhort time before his death, Catharine had taken meaſures to exclude Paul from the ſucceſſion, and to introduce Alexander in his ſtead. The plan, however, did not ſucceed, and Paul, on the day following his mother's death, made his public entry into St. Peterſburgh, amidſt the acclamations of the people. Paul began his reign with breaking the power of the guards.

In many reſpects he ſhewed himſelf hoſtile to the memory of his mother, and it was probably in that ſpirit that he cauſed ſolemn obſequies to be performed for his unfortunate father, compelling the principal agents in his aſſaſſination to aſſiſt in the ceremonial. He aboliſhed many of her inſtitutions, and diſplayed the ſame reſtleſs deſire of change that ſhe herſelf had poſſeſſed. Trifling alterations in the dreſs and accoutrements of the ſoldiery, and the detail of military tactics, continued to occupy his attention. "Every day," ſaid a bye-ſtander, "in the court of the palace, in a plain deep green uniform, great boots, and a large hat, he ſpends his morning in exerciſing his guards. Surrounded by his ſons and aides-des-camps, ſtamping his heels on the pavement to keep himſelf warm, his bald head bare, his ſnub noſe cocked up to the wind, one hand behind his back, and with the other raiſing and falling his cane, in due time, and crying one, two; he prides himſelf in braving a cold of fifteen degrees of Reaumur without furs."

Soon after his acceſſion, he gave an aſylum to Lewis XVIII., and aſſigned him a large tract of land for his maintenance; and in order to prevent the ſpread of free inquiry, or, as he ſaid, the ſpread of revolutionary principles, he laid the preſs under the moſt rigorous reſtrictions, and aboliſhed the ſchools for the inſtruction of the lower claſſes, which Catharine had eſtabliſhed. In 1798 he determined to employ his arms for the reſtoration of the ancient government of France, and in conſequence of a treaty between him and the emperor of Germany, a Ruſſian army of 45,000 men, under field-marſhal Suvaroff, joined the Imperialiſts in the Auſtrian territories in Italy. They penetrated into Switzerland in 1799, and at firſt obtained great ſucceſs, carrying all before them; but want of proper co-operation and plan at length defeated their purpoſe, and Suvaroff, in the autumn of the ſame year, led back the remainder of his army. Paul, in great rage, gave his faithful commander a very ungracious reception, and he threatened to withdraw from a confederacy, which he charged with failure in its engagements. The honour of grand maſter of Malta, conferred upon him, induced him, in the following year, to renew his exertions; but during the courſe of it his politics changed, he refuſed farther ſubſidies from England, and entirely ſeceded from the alliance. Scarcely had he deſerted the allies, when he became out of humour with the Britiſh court, which had taken poſſeſſion of Malta, and his next political object was to form a new maritime confederacy in the north, for the purpoſe of enforcing the claim of neutrals to a free navigation. He engaged Sweden and Denmark in the cauſe, and in the winter of 1800, he laid an embargo upon all Britiſh ſhips in his ports, confining the commanders, and ſending the ſeamen to a diſtance up the country. At this period he ſeemed to have entered into the French intereſt; but deſpotical power, joining with ſtrong paſſions and weak intellects, had now brought him to a ſtate of capricious folly, little removed from inſanity. He was perpetually making regulations of the moſt abſurd and troubleſome kind. Their general ſpirit was the maintenance of abſolute authority in all its rigour, and the profoundeſt reſpect for the imperial dignity; but no one could leſs inſpire it by his perſon and manners. Though not without a degree of generoſity and good nature, the indulgence of his ungoverned caprice was daily converting him into a brutal tyrant, like ſome of the worſt emperors of Rome. While accounts of his ſtrange proceedings were circulating throughout Europe, he himſelf cauſed to be inſerted in the Peterſburgh court gazette, "That the emperor of Ruſſia, finding that the powers of Europe cannot agree among themſelves, and being deſirous to put an end to a war which has deſolated it for eleven years, intends to point out a ſpot, to which he will invite all the other ſovereigns to repair and fight in ſingle combat bringing with them as ſeconds and eſquires, their moſt enlightened miniſters and able generals, ſuch as Thurgot, Pitt, Bernſtorff, and that the emperor himſelf propoſes being attended by generals count Pahlen and Khutoſof." This paragraph was immediately copied or tranſlated into all the public papers, and it was ſaid by many, that it was the compoſition of Paul himſelf, which has ſince been confirmed by Koteſebue, who was employed by the emperor of Ruſſia to tranſlate the original into the German language, for the expreſs purpoſe of its being inſerted in the Hamburgh gazette. This ſally was, in general, regarded as ſo deciſive a proof of derangement, that the public was prepared to expect one of thoſe revolutions to which the throne of Ruſſia is peculiarly liable. Accordingly, on the night of March 22, 1801, Paul was found dead in his bed, and though it was currently reported that he was cut off by a ſtroke of apoplexy, it was ſoon generally known that he had been aſſaſſinated in the dead of the night, and that the perpetrators of the horrid deed had retired from the palace without the leaſt moleſtation, and returned to their reſpective homes. As ſoon as the fact was diſcovered, medical aſſiſtance was called in, with the hope of reſtoring what might be only ſuſpended animation; but theſe attempts proved fruitleſs. At ſeven o'clock, on the morning of the 23d, the intelligence of the death of Paul, and the ſucceſſion of the grand duke Alexander, were announced to the people. By eight o'clock the principal nobility had paid their homage to the new emperor, who was ſolemnly proclaimed. Paul died in the 47th year of his age, and the fifth of his reign, leaving two ſons, of whom Alexander, the eldeſt, ſucceeded him.

Paul Warnefrid, or, as he is often called, Paul the deacon, an eminent hiſtorian of the middle ages, was born of Lombard origin in the eighth century, at Cuidad del Friuli. He was educated in the court of Rachis, king of the Lombards, and afterwards ordained deacon of Aquileia. Deſiderius, the laſt king of the Lombards, invited him to his court, employed him as a notary or ſecretary, and raiſed him to the poſts of counſellor and chancellor. After the kingdom of Deſiderius was overthrown, and the monarch made priſoner by Charlemagne in 774, the private hiſtory of Paul becomes obſcure, and it is very differently related by different biographers. It is generally ſuppoſed that he firſt retired to his native country of Friuli, and that after the overthrow and death of Rodgauſo, duke of that province in 776, he took the monaſtic habit. By ſome means his literary merit became known to Charlemagne, who took him into France, and perhaps employed him in his plans of promoting learning in his dominions. He was well acquainted with the Greek and Latin languages, and inſtructed in the former thoſe clergymen who were ſelected to accompany the emperor's daughter, Rotrude, to Conſtantinople, where ſhe was united to the ſon of the empreſs Irene. A remaining attachment to his ſovereign Deſiderius ſubjected Paul to the ſuſpicions of ſome deſigns in his behalf, on which account he was baniſhed; and he would probably have undergone the loſs of his hands, or of his eyes, had not Charlemagne been unwilling to diſable ſo eloquent a writer. It is farther ſuppoſed that he eſcaped from his baniſhment, and took refuge in the court of Arigiſo, prince of Benevento; and that on the death of that prince in 787, he retired to the celebrated monaſtery of Monte Caſino, where he ended his days, but at what time is not known, though it is thought about the year 799. He was a conſiderable writer: his Latin poetry may rank with the beſt of that period: it conſiſts chiefly of hymns, of panegyrics of ſaints and eminent perſonages, and other ſhort pieces. One of the moſt intereſting is an elegy addreſſed to Charlemagne, in order to obtain the liberty of a brother who was brought priſoner into France after the defeat of Deſiderius. Of his proſe writings the moſt valuable is entitled "De Geſtis Longobardorum," in ſix books, which is the only hiſtory of that nation which we poſſeſs: and it contains facts that can no where elſe be found, and affords ſome curious views of rude ſociety. Several editions of it have been publiſhed, and Muratori has inſerted it in his great collection of the Italian hiſtorians. Paul likewiſe contributed to the Roman hiſtory entitled "Miſcella," in which he was the continuator of Eutropius. He alſo wrote an abridged hiſtory of the firſt biſhops of Metz, and other pieces of eccleſiaſtical biography, and made a collection of homilies by the order of Charlemagne. Gen. Biog.

Paul, *St.*, in *Geography*, a town of France, in the department of the Tarn, and chief place of a canton, in the diſtrict of Lavaur. The place contains 906, and the canton 6070 inhabitants, on a territory of 170 kiliometres, in 14 communes.

Paul, *St.*, a town of Braſil, in the captainſhip of St. Vincent. It is a kind of independent republic, compoſed of the banditti of ſeveral nations, who pay a tribute of gold to the king of Portugal. It is ſurrounded by inacceſſible mountains and thick foreſts. S. lat. 23° 25′. W. long. 45° 52′.—Alſo, a government of the ſame name, ſituated to the W. of Rio Janeiro; the principal productions are grain and cotton. The population is computed at 11,100 whites, 32,170 Indians, and 9000 blacks or mulattoes. (See Paulists.)—Alſo, a town of New Mexico, ſituated at the confluence of the two main head branches of the Rio Bravo.—Alſo, the moſt ſoutherly of the Pearl iſlands, in the gulf of Panama. In a ſafe channel on the N. ſide there is a place for careening of ſhips.

Paul, *St.*, a town of France, and principal place of a diſtrict, in the department of the Var; 7 miles W. of Nice. N. lat. 43° 41′. E. long. 7° 11′.—Alſo, a town of France, in the department of the Upper Vienne; 9 miles S.E. of Limoges.—Alſo, a town of France, in the department of the Leman lake, on the lake of Geneva; 10 miles E. of Thonon.—Alſo, a town of the iſland of Bourbon.—Alſo, a town of France, in the department of the Gard; 10 miles N.E. of Uzes.—Alſo, a town of the iſland of Malta; 6 miles N.W. of Malta.—Alſo, an iſland in the Indian ſea, N. of Amſterdam. It is overſpread with ſhrubs and trees, and is ſaid to abound with freſh water, but affords no good anchorage, nor any place of eaſy landing. S. lat. 37° 51′. E. long. 61° 2′.—Alſo, an iſland in the gulf of St. Lawrence; 9 miles N.E. from the N. cape of the iſland of Cape Breton.—Alſo, a river of Guinea, which runs into the Atlantic; 5 miles N. of Cape Meſurada.

Paul's *Bay*, *St.*, a bay on the N.W. coaſt of Newfoundland. N. lat. 49° 50′. W. long. 57° 35′.—Alſo, a bay on the W. coaſt of Newfoundland; 10 miles N.E. of Bonne bay.—Alſo, a bay on the N.W. ſhore of the river St. Lawrence, about ſix leagues below Cape Torment, where a chain of mountains, 400 leagues in length, terminates from the weſtward.

Paul-*de-Fenouillet*, *St.*, a town of France, in the department of the Eaſt Pyrenées, and chief place of a canton, in the diſtrict of Perpignan; 28 miles W.N.W. of Perpignan.

Paul-*de-Omaguas*, *St.*, a town of Braſil, in the government of Para, on the river Amazons. S. lat. 3° 35′.

Paul *Trois Chateaux*, *St.*, a town of France, in the department of the Drôme, before the revolution the ſee of a biſhop; 12 miles S. of Montelimart.

Paul, an Italian coin, worth almoſt ſixpence Engliſh. See Paolo.

Paul, in *Sea Language*, is a ſhort bar of wood, or iron, fixed cloſe to the capſtern or windlaſs of a ſhip, to prevent thoſe engines from rolling back, or giving way, when they are employed to heave in the cable, or otherwiſe charged with any great effort.

PAULA, in *Geography*, a town of Naples, in Calabria Citra, at a ſmall diſtance from the ſea; 12 miles N.W. of Coſenza.

Paula, *St.*, a ſmall iſland of Ruſſia, in the Frozen ocean. N. lat. 76° 54′. E. long 103° 14′.

Paula *Gumda*, in *Natural Hiſtory*, a name given by the people of the Eaſt Indies to a ſpecies of foſſil of the oſteocolla kind, found in ſome ſprings, the waters of which are loaded with ſpar. Theſe people uſed it in medicine, giving it in milk for gonorrhœas, and that with good ſucceſs.

PAULADADUM, a name given by ſome authors to the medicinal earth of the iſland of Malta, called *terra Melitenſis*, and *gratia ſancti Pauli*. Some have given this name alſo to a ſpecies of white bole found in ſome parts of Italy, which is made into cakes, and ſealed, and ſerves in the place of this and other white earths.

PAULAR, El, in *Geography*, a town of Spain, in Old Caſtile; 11 miles E.S.E. of Segovia.

PAULARAH, a town of Hindooſtan, in Berar; 25 miles N.W. of Chanda.

PAULASTYA, in *Hindoo Mythology*, is one of "ten lords of created beings," frequently alluded to in their ſacred books under the name of Brahmadikas, or children of Brahma. Their names are enumerated under the article Muni of this work, where, and in the articles referred to, ſome particulars will be found reſpecting them. Paulaſtya, or Pulaſtya, is alſo a name of Ravana, the ten-headed tyrant of Lanka, or Ceylon, againſt whom the wars detailed in the Ramayana were waged. See Ravana.

PAULEY's, in *Geography*, a town of America, in South Carolina; 8 miles S. of Kingſton.

PAULHAGUET, a town of France, in the department of the Upper Loire, and chief place of a canton, in the diſtrict of Brioude; 9 miles N.E. of Brioude. The place contains 982, and the canton 10,571 inhabitants, on a territory of 260 kiliometres, in 22 communes.

PAULI, Gregory, in *Biography*, a learned Poliſh divine, of the Proteſtant perſuaſion, was miniſter of the church of Wola, near Cracow, in the year 1555. He afterwards became paſtor and ſenior miniſter of the church of Cracow, and was one of the earlieſt opponents of the doctrine of the Trinity in Poland, in behalf of the Arian hypotheſis. For the freedom with which he avowed and defended his opinions in the pulpit, he was expelled from Cracow, when he retired to Racow, where he died at a great age, about the year 1591. He was author of "An Explanation of the difficult Paſſages of Scripture;" different treatiſes againſt the lawfulneſs of a Chriſtian's undertaking offices of civil magiſtracy, or bearing arms; the firſt impreſſion of the "Catechiſm of Racow," which was afterwards altered by Lœlius Socinus, and Peter Statorius, and various pieces in the Trinitarian controverſy.

PAULIANISTS, Paulianistæ, in *Eccleſiaſtical Hiſtory*, a ſect of heretics, ſo called from their founder, Paulus Samoſatenus, a native of Samoſata, elected biſhop of Antioch in 262.

His doctrine ſeems to have amounted to this: that the Son and the Holy Ghoſt exiſt in God in the ſame manner as the faculties of reaſon and activity do in man; that Chriſt was born a mere man; but that the reaſon or wiſdom of the Father deſcended into him, and by him wrought miracles upon earth, and inſtructed the nations; and finally, that, on account of this union of the divine word with the man Jeſus, Chriſt might, though improperly, be called God. It is alſo ſaid, that he did not baptize in the name of the Father and the Son, &c. For which reaſon the council of Nice ordered thoſe baptized by him to be re-baptized.

Being condemned by Dionyſius Alexandrinus in a council, he abjured his errors, to avoid depoſition; but ſoon after he reſumed them, and was actually depoſed by another council in 269.

PAULICIANS, a branch of the ancient Manichees, ſo called from their chieftain, one Paulus, an Armenian, in the ſeventh century: who with his brother John, both of Samoſatena, formed this ſect; though others are of opinion, that they were thus called from another Paul, an Armenian by birth, who lived under the reign of Juſtinian II. A certain zealot, called Conſtantine, revived, in the ſeventh century, under the government of Conſtans, this drooping faction, which had ſuffered much from the violence of its adverſaries, and was ready to expire under the ſeverity of the imperial edicts, and of thoſe penal laws which were executed againſt its adherents with the utmoſt rigour. However, the Paulicians, by their number, and the countenance of the emperor Nicephorus, became formidable to all the Eaſt.

But the cruel rage of perſecution, which had for ſome years been ſuſpended, broke forth with redoubled violence under the reigns of Michael Curopalates, and Leo the Armenian, who inflicted capital puniſhment on ſuch of the Paulicians as refuſed to return into the boſom of the church.

The empreſs Theodora, tutoreſs of the emperor Michael, in 845, would oblige them either to be converted, or to quit the empire: upon which ſeveral of them were put to death, and more retired among the Saracens; but they were not all exterminated.

Upon this, they entered into a league with the Saracens, and, chooſing for their chief an officer of the greateſt reſolution and valour, whoſe name was Carbeas, they declared againſt the Greeks a war which was carried on during this whole century, with the greateſt vehemence and fury. During theſe commotions, ſome Paulicians, towards the concluſion of this century, ſpread abroad their doctrines among the Bulgarians: many of them, either from a principle of zeal for the propagation of their opinions, or from a deſire of getting rid of the perſecution and oppreſſion they ſuffered under the Grecian yoke, retired, about the cloſe of the eleventh century, from Bulgaria and Thrace, and formed ſettlements in other countries. The firſt migration was into Italy, from whence, in proceſs of time, they ſent colonies into almoſt all the other provinces of Europe, and formed gradually a conſiderable number of religious aſſemblies of perſons, who adhered to their doctrine, and who were afterwards perſecuted with the utmoſt vehemence by the Roman pontiffs. In Italy they were called Patarini, from a certain place called Pataria, being a part of the city of Milan, where they held their aſſemblies; and Cathari or Gazari, from Gazaria, or the Leſſer Tartary. In France they were called Albigenſes. The firſt religious aſſembly the Paulicians had formed in Europe, is ſaid to have been diſcovered at Orleans, in 1017, under the reign of Robert; many of whom were condemned to be burnt alive. The ancient Paulicians, according to Photius, expreſſed the utmoſt abhorrence of Manes and his doctrine. The Greek writers compriſe their errors under the ſix following particulars. 1. They denied that this inferior and viſible world is the production of the Supreme Being, and they diſtinguiſh the Creator of this world, and of human bodies, from the moſt high God, who dwells in the heavens: and hence ſome have been led to conceive, that they were a branch of the Gnoſtics rather than of the Manichæans. 2. They treated contemptuouſly the Virgin Mary, or, according to the uſual manner of ſpeaking among the Greeks, they refuſed to adore and worſhip her. 3. They refuſed to celebrate the inſtitution of the Lord's ſupper. 4. They loaded the croſs of Chriſt with contempt and reproach; by which we are only to underſtand, that they refuſed to follow the abſurd and ſuperſtitious practice of the Greeks, who paid to the pretended wood of the croſs a certain ſort of religious homage. 5. They rejected, after the example of the greateſt part of the Gnoſtics, the books of the Old Teſtament, and looked upon the writers of that ſacred hiſtory, as inſpired by the creator of this world, and not by the ſupreme God. 6. They excluded preſbyters and elders from all part in the adminiſtration of the church. Moſheim's Eccl. Hiſt. vol. ii. 8vo.

PAULIEN, St., in *Geography*, a town of France, in the department of the Upper Loire, and chief place of a canton, in the diſtrict of Le Puy. The place contains 2292, and the canton 5712 inhabitants, on a territory of 112½ kiliometres, in 7 communes.

PAULINGSTOWN, or Pawling, a townſhip of America, in Dutcheſs county, New York, lying on the weſtern boundary of Connecticut; containing 4269 inhabitants, of whom 34 are ſlaves.

PAULINSKILL, a river of America, in New Jerſey, which runs into the Delaware, N. lat. 40° 54′. E. long. 75° 9′.

PAULINUS, Pontius Meropius, or Paulinus Nolanus, in *Biography*, a celebrated prelate and eccleſiaſtical writer in the fifth century, was deſcended from a Roman patrician family, and born at the town now called Bourdeaux, in the year 353. He was a pupil of the celebrated Decius Auſonius, under whom he made a conſiderable progreſs in literature, and cultivated the ſtudy of rhetoric and poetry with ſucceſs. Auſonius being called to Rome, Paulinus quitted his native place and followed him to that city, where he acquired much reputation as a pleader in the forum. He ſoon eſtabliſhed for himſelf a character, and was raiſed while young to the conſular dignity. Having married a Spaniſh lady named Theraſia, he took leave of public affairs, and indulged his inclination for ſeeing foreign countries, viſiting almoſt all the weſtern provinces of the Roman empire. In the courſe of his travels he formed an intimacy with ſeveral Chriſtians of high note, and was baptized by Delphinus, biſhop of Bourdeaux, in the year 391. After this he went to Spain, and took up his reſidence at Barcelona; where he and his wife, having loſt their only child, ſpent their time in devout contemplation and aſcetic exerciſes, applying the greateſt part of their property to benevolent and charitable purpoſes. In 393 he was ordained preſbyter, having had the aſſurance that he ſhould be allowed to go to Italy. During the following year he arrived at Rome, where he was treated with the utmoſt reſpect by all ranks, till perceiving the pope and clergy were growing jealous of his high reputation, he withdrew to a country houſe in the vicinity of Nola, in Campania. In 409, or perhaps ſooner, he was ordained biſhop of Nola. The early part of his epiſcopate was diſturbed by the incurſions of the Goths, who conquered and plundered the city of Nola; but he ſpent the remainder of his life in tranquillity, a bright example of piety, benevolence, and charity, and the object not only of veneration, but of delight, to perſons of all ranks and parties. He died in 431, in the 78th year of his age. His works conſiſt of "Letters" and "Poems," which are partly inſtructive, but chiefly of a lively and entertaining caſt. They are correct, perſpicuous, and elegant. The beſt edition of the works of Paulinus is that publiſhed at Paris in 1684, in two volumes 4to., the firſt of which contains his genuine pieces, the ſecond ſuch as are doubtful. Moreri. Gibbon, vol. v.

PAULINUS, an Engliſh biſhop, who flouriſhed in the early part of the ſeventh century, was called the apoſtle of Yorkſhire, having been the firſt archbiſhop of York, a dignity that was probably conferred upon him about the year 626. He built a church at Almonbury, and dedicated it to St. Alban, where he preached to and converted the Brigantes. Camden mentions a croſs at Dewſborough, which had been erected to him, with this inſcription, "Paulinus hic prædicavit et celebravit." At this period York was ſo ſmall, that there was not ſo much as a church in it in which king Edwin could be baptized. Paulinus, it ſhould ſeem, from Hume and others, was particularly patronized by Ethelburga, Edwin's queen. She is ſaid to have made Chriſtianity faſhionable by her example; and her biſhop, we are told, baptized 10,000 people in the river Swale. In Northumberland he baptized Segbert, king of the Eaſt Saxons. According to Bede, "Paulinus coming with the king and queen to the royal manor called Ad Gebrin, now Yevering, ſtaid there 36 days, employed in the duties of catechizing and baptizing. In all this time he did nothing but inſtruct the people, who flocked to him from all the ſurrounding villages, in the doctrine of Chriſt and ſalvation; and after they were inſtructed, baptizing them in the neighbouring river Glen." He built ſome churches. See our articles LINCOLNSHIRE and NOTTINGHAMSHIRE.

PAULINUS, patriarch of Aquileia in the eighth century, and who is honoured by the Catholics with the title of ſaint, on account of his zeal in behalf of the doctrine of the Trinity, was a native of Germany. He is greatly diſtinguiſhed by his laborious application, and zeal for the advancement of learning and ſcience. By his erudition he recommended himſelf to the patronage of the emperor Charlemagne, who beſtowed on him various ſubſtantial marks of his favour, and, towards the cloſe of the year 776, promoted him to the patriarchate of Aquileia. From this time he became celebrated as a writer in defence of the Trinity. A complete edition of all his works, with learned notes and commentaries, was publiſhed at Venice in 1737, by John Francis Madriſi, a prieſt of the congregation of the Oratory. He died in the year 804.

PAULINZELLA, in *Geography*, a town of Germany, in the county of Schwartzburg-Rudolſtadt; 8 miles W. of Rudolſtadt.

PAULISTS, or as they are quaintly ſtyled, *Mamelucs*, a free-booting ſociety of Brazil. Their town of *St. Paul* ſtands on a hill, about 150 paces is height, whence iſſue two rivulets, one to the S. the other to the W., which afterwards join, and fall into the Harcambu, that paſſes at the diſtance of a league to the N., a river full of fiſh, and capable of receiving large barks, but liable to inundations in the rainy ſeaſon. On the N. of this river the mountains extend E. and W. for more than 40 leagues, while on the S.W. the chain ſeems to wind towards the mountains of Chiquitos in the Spaniſh poſſeſſions: the Parana paſſing with ſtupendous rapids of 12 leagues, the general breadth of the chain being from 12 to 20. In the vicinity of St. Paul, the mountains preſent mines of gold of the purity of 22 carats, which is found in irregular maſſes, and in duſt. The climate is benign, owing to the freſh air from the mountains, but the winter is cold and froſty. United by equal want of religion and morals, the firſt inhabitants of this town formed a republic, like that of robbers in a cavern. Malefactors of all nations and colours, Portugueſe, Spaniards, Negroes, Indians, and all poſſible mixtures of mankind, formed about 100 families, which gradually roſe to 1000. The Pauliſts declared themſelves a free people; and they ſeemed to have merited the title in the worſt ſenſe of it, as they were completely free from all laws, morals, ſentiments, and virtues: but they conſented to pay the Portugueſe a fifth part of the gold which they drew from the mines or ſcours (lavaderos). All ſtrangers who did not bring certificates of having been regular thieves, were refuſed admittance into this hopeful colony; and there was a marked averſion from any multiplication of profeſſions, as they rejected any robber who was at the ſame time a ſpy. The firſt trial of a new citizen, was to make an excurſion, and bring in two Indians priſoners, to be employed in the mines, or in digging the grounds. Virtuous actions were carefully puniſhed with death; and no citizen was permitted to retire from the ſociety. Supplied with fire-arms from unknown quarters, they often deſcended the large rivers, carrying terror and deſtruction into the Spaniſh poſſeſſions in Paraguay; and an army would have been neceſſary ever to reduce them to the Portugueſe domination. Where they ſuſpected that force would not avail, they aſſumed the black gowns of the Jeſuits, and preached with great fervour to the Indians, on the advantages of religion and civilization, and the heinous offences of robbery and murder, eſpecially warning them againſt thoſe devils the Pauliſts, who were accuſtomed to breakfaſt on nuns and little children. When they had catechiſed a ſufficient number, they perſuaded them to follow their teachers to a convenient ſpot, where they would find abundance of all the neceſſaries of life. The poor Indians, accuſtomed to the ſame procedure on the part of the Jeſuits, allowed themſelves to be conducted by theſe wolves in wool, who, when they had led them to the trap, ſeized and carried them off captives. This new mode of preaching began to diſguſt the ſavages; and the Jeſuits found it difficult to avoid the total loſs of their character, by the artifices of theſe new brethren, as the Indians could not poſſibly diſtinguiſh between a Jeſuit and a Pauliſt. To the ſword of the faith they were found to join that of the fleſh, and to arm all their converts, not with patience but with fuſees. The Pauliſts began to loſe their advantages, both as preachers and as pirates; and the bonds of ſociety having began to be broken by the introduction of ſome virtues, the city was yielded to the Portugueſe monarchy, which is ſtill contented to receive a fifth part of the mines. Pinkerton's Geog. vol. iii.

PAULLINI, CHRISTIAN FRANCIS, in *Biography*, a phyſician and naturaliſt, was born at Eiſenach, in Thuringia, in February 1643. He ſtudied at the univerſities of Konigſberg, Copenhagen, Kiel, and Roſtoch, was crowned poet at Hamburgh, made maſter of arts at Wittemberg, and took the degree of doctor of phyſic at Leyden. After his graduation he purſued his travels, viſiting Norway, Sweden, &c., and was prevented from extending his journey to Italy by ſickneſs. He then ſettled in the practice of his profeſſion, which he carried on at Hamburgh, Altona, and in Holſtein. He was honoured with the title of count palatine for his public ſervices; and was appointed by the biſhop of Munſter to the offices of his firſt phyſician and hiſtoriographer. In 1689, however, he returned to Eiſenach, where he died in 1712, after having laboured under a palſy for ſeven years. He was a member of the academies Naturæ Curioſorum, and Ricovrati. He publiſhed a conſiderable number of works, chiefly monographs, or ſeparate diſſertations on ſubjects of natural hiſtory; ſuch as his "Cynographia curioſa, ſeu Canis deſcriptio;" "Bufo breviter deſcriptus;" "Sacra herba, ſeu nobilis Salvia deſcripta;" "Tractatus de Anguilla;" "Talpa deſcripta;" "Lagographia curioſa;" "Lycographia;" "Onographia;" "De Jalappa, Liber ſingularis;" "Nucis Moſchatæ curioſa Deſcriptio," &c. He evinced in theſe papers an admiration of the marvellous, rather than of the uſeful; and the ſame may be ſaid of his "Obſervationes Phyſico-Medicæ," which, however, contain ſome things worthy of attention. He likewiſe wrote "Theatrum illuſtrium Virorum Corbeiæ Saxonicæ," and ſome other works. Eloy Dict. Hiſt. Gen. Biog.

PAULLINIA, in *Botany*, ſo named by Linnæus in the firſt edition of his *Genera Plantarum*, in memory of the old Daniſh profeſſor and phyſician Simon Paulli, who was born at Roſtoch, in 1603, and died, if we miſtake not, at Copenhagen, in 1680. He publiſhed in 1639, a Latin quarto, on Medicinal Plants, entitled Quadripartitum Botanicum; and in 1648 a thicker volume, in Daniſh, with wooden cuts, called Flora Danica, which however embraces the garden plants, as well as the native ones, known in Denmark at the time of its publication. He wrote alſo againſt Tobacco and Tea, and his work was tranſlated into Engliſh by the late Dr. James, in 1746. The moſt remarkable circumſtance attending it is his contending, with the poſitiveneſs uſual to thoſe who are in the wrong, that the Chineſe Tea is no other than our European *Myrica Gale*; an error which Bartholin very cautiouſly and reſpectfully corrects, in his Acta Medica, v. 4. 1, where the true Tea is, not very accurately, figured.—Linn. Gen. 196. Schreb. 265. Willd. Sp. Pl. v. 2. 460. Mart. Mill. Dict. v. 3. Ait. Hort. Kew. ed. 2. v. 2. 422. Juſſ. 247. Lamarck Illuſtr. t. 318. fig. 4, 5. Gærtn. t. 79. (Cururu; Plum. Gen. 34. t. 35.)—Claſs and order, *Octandria Trigynia*. Nat. Ord. *Trihilatæ*, Linn. *Sapindi*, Juſſ.

Gen. Ch. *Cal.* Perianth inferior, of five ovate, concave, ſpreading, permanent, unequal leaves. *Cor.* Petals four, obovate-oblong, twice as large as the calyx, furniſhed with claws; two of them more diſtant than the reſt. Nectaries two; one of four oblong ſcales, inſerted into the claws of the petals; the other of four glands at the baſe of the petals. *Stam.* Filaments eight, ſimple, ſhortiſh, connected at their baſe; anthers ſmall. *Piſt.* Germen ſuperior, turbinate, three-ſided, obtuſe; ſtyles three, thread-ſhaped, ſhort; ſtigmas ſimple, ſpreading. *Peric.* Capſule large, turbinate, three-ſided, of three cells and three keeled valves, the partitions from the central column. *Seeds* ſolitary, nearly ovate, each with a divided ſpongy tunic.

Eſſ. Ch. Calyx of five unequal leaves. Petals four. Nectaries of four ſcales and four glands. Capſule turbinate, of three cells, the partitions from the central column. Seeds ſolitary, with a cloven tunic.

Obſ. Mr. Schumacher, in the third volume of the Copenhagen Tranſactions, has followed Plumier in making two genera of the Linnæan *Paullinia*, and he is followed by Willdenow. (See SERIANA.) He adopts the term *Samaræ* for the fruit of *Seriana*, which conſiſts of three connected capſules, that do not burſt, winged at their baſe, and whoſe nearly globoſe ſeeds do not ſeem to have any tunic. Such is the caſe in the true *Paullinia Seriana* of Linnæus, and ſeveral other ſpecies; but what Gærtner has figured for the laſt-named plant, is no other than the *barbadenſis*, a true *Paullinia*. We know not whether Mr. Schumacher has found out this miſtake, as we have not ſeen his work, but muſt quote it on the authority of Willdenow, to whoſe fourteen ſpecies we add one hitherto nondeſcript, and two from Lamarck's Dictionary.

1. P. *nodoſa*. Willd. n. 1. Jacq. Enum. Amer. 35. Obſ. faſc. 3. 11. t. 62. f. 3.—Leaves ternate, obſcurely toothed; the middle leaflet obovate. Footſtalk without wings. Cluſters longer than the leaves.—Native of South America. Jacquin never ſaw this but in a dried ſtate, nor does it appear to have fallen in the way of any other botaniſt. He deſcribes the *ſtem* as ſhrubby, climbing, round, unarmed, furrowed and ſmooth. *Leaflets* ſmooth on both ſides, more or leſs unequally toothed, nearly ſeſſile on their common ſtalk, which has no wing or border, obtuſe, rather coriaceous, the middlemoſt nearly twice as large as the reſt. *Cluſters* ſix inches long, their common ſtalks woody, here and there tumid and knotty, the upper half bearing many ſcattered, branched, bracteated, many-flowered partial ſtalks; half an inch long.

2. P. *Cururu*. Linn. Sp. Pl. 524. Willd. n. 2. Jacq. ib. t. 61. f. 4. (Cururu ſcandens triphylla; Plum. Ic. 102. t. 111. f. 2.)—Leaves ternate, with tooth-like ſerratures. Footſtalk winged. Cluſters about as long as the leaves. Capſule pear-ſhaped.—Native of South America.—*Stem* climbing, with long, axillary, ſimple or divided *tendrils*. *Footſtalks* two inches long, winged, entire, gradually dilated upwards. *Leaflets* longer, ovate, ſmooth, all nearly equal, with one central and many tranſverſe ribs. *Cluſters* axillary, many-flowered. *Capſule* with three blunt angles, and as many intermediate furrows.

3. P. *denſiflora*.—Leaves ternate, obſcurely ſerrated. Footſtalk winged. Cluſters aggregate, much branched, one-fourth as long as the footſtalks.—Sent by Mutis from New Granada, to Linnæus, who never deſcribed it. The *ſtem* is triangular and furrowed. We perceive no tendrils. *Leaves* like the laſt, but broader and more elliptical, their lateral veins hairy on one ſide at their origin. *Cluſters* hardly an inch long, downy, axillary, aggregate, repeatedly branched. *Calyx* hairy, as is likewiſe, in ſome degree, the obovate pointed *capſule*. *Seeds* large, poliſhed, of a cheſnut brown.

4. P. *carthagenenſis*. Jacq Obſ. faſc. 3. 11. t. 62. f. 6. Willd. n. 3.—Leaves twice ternate, cut. Footſtalks all winged. Stem without prickles.—Gathered by Jacquin about Carthagena in South America. He deſcribes the *leaves* as more deeply cut than in the reſt, almoſt pinnatifid, and very thin, not at all coriaceous. The whole plant is without *prickles*.

5. P. *caribæa*. Jacq. ib. t. 62. f. 7. Willd. n. 4.—Leaves twice ternate, obtuſe, ſlightly ſerrated. Partial footſtalks winged; common one, like the branches, prickly.—Native of the Caribbee iſlands. *Leaves* ſmaller and blunter than thoſe of the laſt, with ſlight and diſtant ſerratures; their common ſtalk beſet with hooked *prickles*, which are alſo plentiful on the *branches*.

6. P. *curaſſavica*. Linn. Sp. Pl. 525. Willd. n. 5. Jacq. ib. 12. t. 61. f. 8. (Cururu ſcandens enneaphylla, fructu racemoſo rubro; Plum. Ic. 101. t. 111. f. 1.)—Leaves twice ternate, pointed, bluntly ſerrated. Partial footſtalks ſlightly winged. Valves of the capſules half-inverſely-heart-ſhaped.—Native of Curaçoa.—The *ſtem* is unarmed, furrowed, with downy ruſty angles, the furrows, in the upper part, as Schumacher well obſerves, marked with ruſty dots. *Leaves* from four to ſix inches long, ſmooth, leſs coriaceous than uſual, diſtantly and coarſely ſerrated, the terminal leaflet largeſt, tapering at each end. We have not ſeen the *fruit*.

7. P. *barbadenſis*. Jacq. Enum. Amer. 36, Obſ. faſc. 3. 12. t. 62. f. 9. Willd. n. 6. (P. Seriana; Gærtn. v. 1.

381.

381. t. 79.)—Leaves twice ternate, obtuſe, coriaceous, nearly entire. Footſtalks ſlightly winged. Valves of the capſule downy, half-ovate.—Native of the Weſt Indies. The *leaves* are highly poliſhed on their upper ſide, paler and opaque beneath, two or three inches long. *Cluſters* on long ſtalks, each accompanied with a pair of tendrils. *Capſules* veiny, downy, of a ruſty red, their valves much compreſſed, equally winged.

8. P. *polyphylla*. Linn. Sp. Pl. ed. 1. 366. (P. foliis ſupra decompoſitis; Linn. Hort. Cliff. 152. Cordis indi folio et facie fruteſcens portoricenſis; Pluk. Phyt. t. 168. f. 5.)—Leaves doubly pinnate, ovate, cut. Footſtalks winged, with hairy ribs. Angles of the ſtem fringed with ſpreading hairs. Flowers at the fork of the tendril.—Native of South America. The *ſtem* climbs by means of axillary tendrils, and has many angles, rough with denſe ſpreading hairs, and ſeparated by ſmooth furrows. The *tendrils* and *footſtalks* are hairy in a ſimilar manner, the latter all winged. *Leaflets* about half an inch long, ovate, more or leſs cut or lobed, ſometimes tapering at the baſe, nearly ſmooth on both ſides, with hairy ribs and edges. *Tendrils* about three inches long before they divide into two ſpiral ſmooth branches, at the baſe of which ſtands a ſmall downy tuft of *flowers*. Of the *fruit* we can diſcover nothing, but Plukenet heard it was of a ſiliquoſe kind, which term rather accords with *Paullinia* than with *Seriana*, and the cloſe affinity of this ſpecies to the following, precludes all doubt of its genus. The great confuſion which envelopes this ſpecies, could be diſpelled only by the original ſpecimen of Linnæus, who in the ſecond edition of his Sp. Pl. confounded with it what is now properly called *Seriana triternata*, Willd. Sp. Pl. v. 2. 466. A leaf of Plumier's figure, which belongs to this laſt, is actually copied by Jacquin, and cited by Willdenow, for *P. polyphylla*, of which Plukenet's plate above quoted is the only genuine repreſentation we can diſcover.

9. P. *bipinnata*. Poiret in Lam. Dict. v. 5. 99. (P. polyphylla; Willd. n. 7?)—Leaves doubly pinnate, obovate, ſlightly notched at the ſummit. Footſtalks downy, winged towards the end. Stem finely downy. Flowers at the fork of the tendril.—Gathered by Commerſon in Braſil. One of his ſpecimens is before us, marked, with a doubt, *P. polyphylla*, Linn. and it appears to be what Schumacher, whom Willdenow copies, has actually deſcribed as ſuch. This plant however differs eſſentially from the laſt, in the denſe pubeſcence of its *ſtem*, as well as of its *footſtalks*, and, though in a leſs degree, of the backs of its *leaves*, whoſe ſhape is obovate and obtuſe, with two or three irregular ſhallow notches. The *tendrils* too are very much ſhorter and thicker, and their ſpiral branches are downy. *Capſule* near an inch long, downy, ſtriated, its valves half-obovate, much compreſſed, abrupt and wavy at the ſummit.

10. P. *tetragona*. Aubl. Guian. v. 1. 355. Willd. n. 8.—Leaves once or twice pinnate, ovate, diſtantly ſerrated, ſmooth. Footſtalks ſcarcely winged. Cluſters compound, axillary, much ſhorter than the leaves. Valves of the capſule wedge-ſhaped, with a blunt terminal tooth.—Obſerved by Aublet at Cayenne. We have a ſpecimen, gathered by Dr. Mærter in the Caraccas, which accords as much as poſſible with our original one of Aublet, except that the former being in flower, the latter in fruit, with only one leaflet, an abſolute deciſion can hardly be made. The *leaves* evidently appear by both ſpecimens to be diſtantly toothed, though Aublet ſays they are entire, and he quotes Rumphius's *Funis quadrifidus*, v. 5. 4. t. 3, which is doubtleſs very different, except that the *ſtem* in both plants ſplits into four portions, ſerving to make baſkets or cordage. The *branches*, *tendrils*, and common *footſtalk*, in Mærter's plant, are hiſpid with prominent rigid hairs. The whole *leaf* is a foot long, of five pair of oppoſite leaflets, with an odd one; the loweſt pair again pinnate, each of five leaflets, of which one is ternate; the ſecond pair ternate, having ſmall lateral leaflets; the reſt all ſimple, full two inches long and one broad; the whole are reticulated with innumerable veins, and of a light green, ſmooth, except the midrib on the upper ſide. *Flowers* in compound, axillary, aggregate, ſlightly hairy *cluſters*, three inches long, accompanied by many broad, ribbed, ſmooth, fringed *bracteas*. *Calyx* downy at the edges and baſe, in both ſpecimens. *Capſule*, in that of Aublet, near an inch long, narrower than in the laſt ſpecies, each valve crowned with a blunt tooth at the outer angle, the inſide, and the central column, finely woolly.

11. P. *meliæfolia*. Poiret in Lam. Dict. v. 5. 99.—Leaves pinnate; leaflets ternate, pointed, toothed, downy beneath. Footſtalks winged. Valves of the capſule ſlightly bordered.—Gathered by Commerſon at Braſil, according to Poiret. We find no ſpecimen that anſwers to his deſcription entirely. He compares the *leaves* to thoſe of *Melia Azedarach*; but they are downy and ruſty beneath. The *cluſters* appear to ſpring from the diviſion of the *tendrils*, as in N° 8 and 9. The *capſules* are pear-ſhaped, a little rounded, ſtalked, marked at each ſuture with a ſhort membrane "which originates from the upper part of the peduncle." This *peduncle* can only mean the ſtalk of the capſule or germen, not of the flower. M. Poiret contends that its border, or wing, is analogous to the remarkable one in *Seriana*, and hence he would keep the two genera united; but the valvular *capſule* is an important difference.

12. P. *Veſpertilio*. Swartz Ind. Occ. v. 2. 695. Schumach. Copenh. Tranſ. v. 3. p. 2. 122. t. 11. f. 1. Willd. n. 9.—Leaves pinnate, ſmooth, ovate, pointed, cut. Footſtalk naked. Capſule with lanceolate horizontal wings.—Gathered by Mr. Maſſon in the iſland of St. Chriſtopher. We have ſeen no ſpecimen. Swartz ſays the *ſtem* is ſhrubby, round and ſmooth, climbing by means of axillary rigid *tendrils*, hardly ſo long as the *leaves*, which are pinnate, of two pair of leaflets with an odd one; their *footſtalks* round, ſtriated, without wings. *Cluſters* axillary, ſimple, erect, ſhorter than the leaves, of many ſmall whitiſh *flowers*. *Capſules* ſtalked, large, ovate, obtuſe, three-ſided, with three valves, terminated by three lanceolate, obtuſe, thick, membranous, horizontal wings.

13. P. *pinnata*. Linn. Sp. Pl. 525. Willd. n. 10. Jacq. Obſ. faſc. 3. 12. t. 62. f. 12. Gærtn. t. 79? (Clematis pentaphylla, pediculis alatis, fructu racemoſo tricocco et coccineo; Plum. Amer. 76. t. 91. Cururu ſcandens pentaphylla; Plum. Gen. 34.)—Leaves pinnate, ſmooth, elliptic-lanceolate, pointed, bluntly ſerrated. Footſtalk winged. Capſule pear-ſhaped, three-lobed.—Native of the Weſt Indies, in dry ſandy places, not unfrequent. The *leaves* are a ſpan long, of two pair of ſhining veiny leaflets, with an odd one; their ſtalk rather broadly winged throughout. *Cluſters* ſolitary between the branches of each tendril, downy; ſometimes ſeſſile and axillary, without a tendril. *Fruit* one inch and a half long, ſcarlet, with three furrows, according to Plumier, but no wings, the ſeeds black and poliſhed, each with a white tender ſweetiſh tunic. Gærtner repreſents it exactly obovate, without lobes or furrows, and the partitions oppoſite to the centre of each valve, which does not agree with Plumier, and we ſuſpect he may have committed an error in this caſe, as well as with regard to *Seriana*; ſee our ſeventh ſpecies. Linnæus received from Browne's herbarium a Jamaica ſpecimen, under the name of *P. pinnata*, which is certainly different from what we have deſcribed, having three pair of much ſmaller leaflets, the wing

of whoſe common ſtalk is greatly dilated at each ſide into a triangular form. For want of fructification, the genus is doubtful, but we take the plant to be a *Weinmannia;* perhaps a luxuriant branch of *W. pinnata*.

14. P. *tomentoſa*. Jacq. Enum. Amer. 37. Obſ. faſc. 1. 19. t. 10. faſc. 3. 12. t. 61. f. 13. Willd. n. 11.—Leaves pinnate, ovate, obtuſe, wavy, downy on both ſides. Footſtalk winged. Capſules downy.—Native of South America, where it was diſcovered by Houſtoun. The whole *plant* is clothed with ſhort denſe ſoft pubeſcence. *Branches* round. *Leaflets* broad-ovate, wavy or partly ſerrated, above an inch long, two pair, with a larger odd one, tapering at the baſe. *Cluſters* from between the forks of the tendrils. *Capſules* turbinate, ſhort, three-lobed. Linnæus had for this a totally different plant in the Upſal garden, with a large leaf, like a *Rhus*, to which his remark in both editions of Syſt. Veg. refers. This has ſix pair of pointed ſerrated *leaflets*, with an odd one, and the upper half only of the common ſtalk is winged. Reſpecting the genus, nothing can be determined.

15. P. *cauliflora*. Jacq. Coll. v. 4. 176. Ic. Rar. t. 458. Willd. n. 12.—Leaves pinnate, ovate-lanceolate, entire, ſmooth; the lowermoſt pair ternate. Footſtalk ſlightly winged. Flowers in denſe axillary tufts.—Native of the Caraccas. It flowered at Vienna, in the ſtove, from October to January, but produced no fruit. The *ſtem* climbs, by means of *tendrils*, as in the other ſpecies. *Leaves* about ſix inches long, compoſed of one pair of ternate leaflets, two pair of ſimple, and an odd one, the latter near two inches long; all pale at the back. *Flowers* numerous, ſmall, white, in ſeſſile, round, denſe tufts, either axillary, along with the cloven *tendrils*, or proceeding from various parts of the old leafleſs *ſtem*.

16. P. *japonica*. Thunb. Japon. 170. Willd. n. 13.—Leaves pinnate, of four pair of three or five-cleft leaflets, with an odd one; the ſecond pair ternate. Footſtalks winged. Panicles oppoſite to the leaves. Stem herbaceous. Gathered by Thunberg in Japan, where it is called *Bak Ren*. "The *ſtem* is herbaceous, climbing, ſmooth, angular, without prickles, ſcarcely ſo thick as a ſtraw. *Leaves* alternate, ſtalked, ſmooth; the loweſt pair of leaflets nearly ſeſſile, ovate, an inch long, cut into two or three entire ſegments; the next pair ternate, with a winged partial ſtalk, their lateral partial leaflets ovate, either undivided or cut, the middlemoſt three-cleft; the reſt of the leaf pinnate, conſiſting of a bordered jointed ſtalk, two pair of oblong leaflets, in three or five ſegments, and a larger terminal one in three ſegments. The common *footſtalk* reſembles the ſtem, and is two inches long. *Flowers* panicled, oppoſite to the leaves. Common *flower-ſtalks* the length of the leaves; *partial* ones very ſhort." Such is Thunberg's account, but as he ſays nothing of the *fruit*, and we have ſeen no ſpecimen, the genus (whether *Paullinia* or *Seriana*) muſt remain in uncertainty.

17. P. *diverſifolia*. Jacq. Enum. Amer. 36. Obſ. faſc. 3. 12. t. 62. f. 14. Willd. n. 14.—Leaves doubly pinnate, obovate, obtuſe, nearly entire. Footſtalks winged. Stem round, nearly ſmooth.—Native of South America. As far as we can judge by Jacquin's deſcription and figure, this ought to have been placed near *polyphylla* and *bipinnata*. The *leaves* are compoſed of obovate obtuſe *leaflets*, about the ſize of the latter, (being ſcarcely, except the terminal ones, half an inch long,) but nearly ſmooth, almoſt always entire and undivided, and all their *footſtalks* are winged, except the baſe of the general one. The firſt pair of diviſions of the *leaf* are pinnate, of five *leaflets*, the ſecond, third, and terminal ones are ternate, the laſt not larger than its neighbours. The *ſtem* is ſhrubby. *Cluſters* accompanied by *tendrils*, or rather, as we preſume, ſpringing from the latter at their diviſion.

It appears to us that this genus, as well as its near relation *Seriana*, requires more accurate attention than either of them has yet received from botanical travellers. In our gardens they are now ſcarcely at all known, though ſome ſpecies of *Paullinia* were cultivated by Miller. S.

PAULMOW, in *Geography*, a town of Bengal; five miles N.W. of Curruckdeah.

PAULO, Marco, in *Biography*, a celebrated traveller, ſon of Nicholas Paulo, a Venetian, who went with his brother Matthew, about the year 1225, to Conſtantinople, in the reign of Baudoin. While they were on this expedition Marco was born. On their return through the deſerts, they arrived at the city where Kublai, grand khan of the Tartars, reſided. This prince was highly entertained with the account which they gave him of the European manners and cuſtoms, and appointed them his ambaſſadors to the pope, in order to demand of his holineſs a hundred miſſionaries. They accordingly came to Italy, obtained from the Roman pontiff two Dominicans, the one an Italian, and the other an Aſiatic, and carried with them young Marco, for whom the Tartar prince expreſſed a ſingular affection. This youth was, at an early period, taught the different dialects of Tartary, and was afterwards employed in embaſſies which gave him the opportunity of traverſing Tartary, China, and other eaſtern countries. After a reſidence of ſeventeen years at the court of the great khan, the three Venetians came back to their own country, in the year 1295, with immenſe wealth. A ſhort time after his return, Marco ſerved his country at ſea againſt the Genoeſe, his galley in a naval engagement was ſunk, and himſelf taken priſoner and carried to Genoa. He remained there many years in confinement; and, as well to amuſe his melancholy, as to gratify thoſe who deſired it of him, ſent for his notes from Venice, and compoſed the hiſtory of his own and his father's voyages in Italian, under this title, "Delle maraviglie del mondo da lui vidute," &c., of which the firſt edition appeared at Venice in 8vo. 1496. This work has been tranſlated into ſeveral foreign languages, and has been inſerted in various collections. The beſt editions are one in Latin, publiſhed by Andrew Müller at Cologne in 1671, and one in French, to be found in the collection of voyages publiſhed by Bergeron, at the Hague in 1735, in two vols. In the narrative there are many things not eaſily believed, but the greater part of his accounts has been verified by ſucceeding travellers. He not only gave better accounts of China than had been before received; but likewiſe furniſhed a deſcription of Japan, of ſeveral iſlands of the Eaſt Indies, of Madagaſcar, and the coaſts of Africa, ſo that from his work it might be eaſily collected that a direct paſſage by ſea to the Eaſt Indies was not only poſſible, but practicable.

Paulo, in *Geography*, a town of South America, in New Granada; 25 miles E.N.E. of Tunja.

PAVLOGRAD, a town of Ruſſia, in the government of Ekaterinoſlav; 32 miles E. of Ekaterinoſlav. N. lat. 47° 10'. E. long. 35° 54'.

PAVLOSK, a Ruſſian fortreſs, in the province of Tauris, conſtructed for defending the ſtraits of Taman, between the Black ſea and the ſea of Azoph; ſix miles S. of Kerch.

PAVLOV, a town of Ruſſia, on the N. coaſt of the Tchudſkoe lake; 20 miles S. of Narva.

PAVLOVA, a town of Ruſſia, in the government of Irkutſk, on the Lena; 16 miles N. of Orlenga.

PAVLOVSK, a town of Ruſſia, in the government of

Voronez, on the Don ; 68 miles S.S.E. of Voronez. N. lat. 50 24′. E. long. 40° 14′.

PAVLOVSKAIA, a town of Ruſſia, in the government of Ekaterinoſlav, on the Dnieper; 32 miles E. of Ekaterinoſlav.

PAULUN, a town of Hindooſtan, in the circar of Kitchwara ; ſix miles S.E. of Raajegur.

PAULUS, Cyrus Florus, called *Paul the Silentiary*, becauſe he was at the head of the royal ſilentaries, officers whoſe buſineſs it was to prevent noiſes in the palace, flouriſhed in the ſixth century, under the emperor Juſtinian. He is ſaid to have been of an illuſtrious family, and poſſeſſed of hereditary opulence, but to have been ſtill more diſtinguiſhed for learning and eloquence. He was author of poems in the Greek language, among which was one giving the hiſtory and deſcription of the church of St. Sophia in Conſtantinople in more than a thouſand hexameter lines. This has come down to our times, and was publiſhed in the collection of Byzantine hiſtorians, with a tranſlation and notes by Ducange. He alſo compoſed a poem on the Pythian Thermæ, and ſome epigrams in the Anthology. See Gibbon, vol. vii. in which is a fine deſcription of St. Sophia, taken partly from the work of Paulus.

Paulus *Hook*, in *Geography*, a fortified poſt of North America, in Bergen county, ſtate of New Jerſey, on the North river, where the river is 2000 yards wide, oppoſite to the city of New York. In 1780 this river was ſo frozen, that carriages with heavy burdens paſſed over it.

PAUNCH, or Panch, on *Ship-board*, a ſort of thick and ſtrong mat, formed by interweaving twiſts of rope-yarn as cloſe as poſſible. See Matts.

PAUNCHWAY, a ſmall boat in Bengal, attendant on the *Budgerows*, which ſee. The paunchways move more expeditiouſly than the budgerows ; but they are nearly of the ſame conſtruction, with this difference, that the greateſt breadth is ſomewhat further aft and the ſtern lower. We ſhall here add that another boat of this country, called "Moorpunkay," is curiouſly conſtructed ; theſe boats are very long and narrow, ſometimes extending to upwards of 100 feet in length, and not more than eight feet in breadth ; they are always paddled, ſometimes by 40 men, and are ſteered by a large paddle from the ſtern, which riſes either in the ſhape of a peacock, a ſnake, or ſome other animal ; the paddlers are directed by a man who ſtands up, and ſometimes makes uſe of a branch of a plant, to regulate their motions, uſing much geſticulation, and telling his ſtory to excite either laughter, or exertion. In one part of the ſtern is a canopy ſupported by pillars, in which are ſeated the owner and his friends, who partake of the refreſhing breezes of the evening. Theſe boats are very expenſive, owing to the beautiful decorations of painted and gilt ornaments, which are highly varniſhed, and exhibit a conſiderable degree of taſte.

PAUNDURA, in *Geography*, a town of Hindooſtan, in Oude ; 12 miles S.W. of Gazypour.

PAUNGARTENBERG, a town of Auſtria ; ſix miles S W. of Grein.

PAUNRAN, a town of Hindooſtan, in Mohurbunge ; 20 miles N. of Harriopour.

PAVO, Peacock, in *Aſtronomy*, a conſtellation of the ſouthern hemiſphere, unknown to the ancients, and not viſible in our northern parts of the world, containing fourteen ſtars. See Constellation.

Pavo, in *Ichthyology*, a ſpecies of *Chætodon*, and alſo of *Labrus* ; which ſee reſpectively.

Pavo, *the Peacock*, in *Ornithology*, a genus of birds of the order Gallinæ, of which there are four ſpecies, according to Linnæus. The generic character is, bill convex, robuſt ; the head is covered with feathers turned back ; the noſtrils are large ; the feathers of the rump long, broad, expanſile, and covered with rich eye-like ſpots.

Species.

Cristatus ; Creſt Peacock. Of this ſpecies there are three varieties, *viz*. 1. Head with a compreſſed creſt ; ſpurs ſolitary. 2. Cheeks, throat, belly, and wing-coverts, white. 3. Body entirely white. This ſpecies inhabits Aſia and Africa, and is domeſticated every where ; is three feet eight inches long ; ſleeps on the higheſt places, and utters a loud and harſh cry ; it is proud and vindictive, and feeds chiefly on grain and inſects ; it lays five or ſix eggs in ſome private place, which are grey-white : the young do not attain all their elegance till the third year. The bill and legs of this beautiful bird are brown ; irids yellow ; creſt gold-green of twenty-four feathers, barbed at the tip, and with white ſhafts ; the line above and beneath the eyes white ; head, neck, breaſt, back and rump green-gold ; feathers of the rump, uſually called tail-feathers, ſometimes five feet long ; the real tail-feathers are eighteen in number, grey-brown, about 18 inches long ; ſcapulars and leſſer wing-coverts reddiſh-brown, varied with black, middle ones blue, with a gloſs of green-gold, greater and ſpurious wings rufous ; quill-feathers rufous, ſome of them varied with rufous, blackiſh and green ; belly and vent greeniſh-black ; thighs yellowiſh. The female has a ſhorter creſt, and has no ſpur ; the feathers of the rump not ſo long or elegant ; the irids are of a lead colour, the bill and fringe on the breaſt white ; the neck is green, the reſt of the body and wings brown-aſh.

The creſt peacock exhibits in India, in its wild ſtate, all the maturity of growth, and glow of colouring. It was an article of importation from that country to Paleſtine, in the reign of Solomon, in thoſe fleets which conveyed, once in three years, to the court of that monarch invaluable treaſures of art and nature. The female of this ſpecies is particularly ſolicitous to conceal her eggs from the male, which not unfrequently deſtroys them. They both feed chiefly on inſects and grain, and prefer elevated ſituations for rooſting, chooſing the tops of houſes and the higheſt trees for this purpoſe. Among the Romans they were regarded as great luxuries, and the young ones are now eſteemed as a delicacy. Their voice is extremely harſh and diſſonant, and in perfect contraſt to that beauty exhibited in their plumage, which ſeems to combine all that delights the eye in the ſoft and delicate tints of the fineſt flowers, all that dazzles in the ſparkling luſtre of the gem, and all that aſtoniſhes in the grand diſplay of the rainbow. See *Plate* III. *Gallinæ* of Ornithology.

Bicalcaratus ; Iris Peacock. Brown ; head ſub-creſted ; ſpurs two. This is found in China, and is larger than a pheaſant. The bill is blackiſh, the upper mandible from the noſtrils to the tip red ; irids yellow ; crown black ; face naked ; temples white ; neck ſhining brown, with black lines ; upper part of the back, ſhoulders, and wing-coverts brown, with yellowiſh ſtripes, the feathers near the tip with a large purple-gold ſpot ; lower part of the back and rump ſpotted with white ; body beneath brown, with tranſverſe black ſtreaks ; quill-feathers duſky ; legs brown. Individuals of this ſpecies have occaſionally been brought to England, but they have not found the climate congenial to their habits.

Tibetanus ; Thibet Peacock, is about the ſize of a pintado, or more than two feet in length. The ſpecific character is cinereous ſtreaked with blackiſh ; head ſub-creſted, and two ſpurs. The head, neck, and under parts, are aſh-coloured, marked with blackiſh lines; the wing-coverts, back and rump are grey, with ſmall white dots; beſides which, on the wing-coverts and back, are large round ſpots of a fine blue, changing in different lights to violet and green-gold. This bird, as its ſpecific name denotes, inhabits the kingdom of Thibet. The Chineſe give it the name of Chintchien-khi.

MUTICUS; Japan Peacock. Head with a ſubulate creſt, and it has no ſpurs. It is found in the Japan iſlands, and is of the ſize of the P. criſtatus. The bill of this ſpecies is large; legs cinereous; area of the eyes red; irids yellow; body blue, mixed with green; head and neck greeniſh, with blue ſpots, and a white ſtreak down the middle; belly, wing-coverts, ſecondary quill-feathers, and thighs cinereous, with black ſpots, the belly with white ſtreaks; primary quill-feathers green, with tranſverſe black lines, and yellowiſh towards the tip, which is black; feathers of the rump bay, with white ſhafts. The belly of the female is black.

PAVOASSAN, in *Geography*, a town of Africa, and capital of the iſland of St. Thomas, with a good harbour; the reſidence of the governor, and of the biſhop.

PAVOISES. See PAVAIS.

PAVONIA, in *Botany*, received that appellation from Cavanilles, in honour of his countryman Joſeph Pavon, who ſhared the labour of various botanical excurſions, through Chili and Peru, with Dombey and Ruiz, and who is named, in conjunction with the latter, as author of the ſplendid Flora Peruviana. Mutis had deſtined for the ſame purpoſe the beautiful flower, figured long ago in various old books, under the denomination of *Flos Tigris*, which has but recently become known in the gardens of Europe. This however Linnæus referred to *Ferraria*; and his ſon, in publiſhing it, ſeems to have thought the ſpecific name alluded to the peacock-like ſpots of the corolla; for he prints it as an adjective, *pavonia*. Many perſons have ſo underſtood it. This plant is ſince reſtored to the rank of a genus; ſee TIGRIDIA.—Cavan. Diſſ. 132. Schreb. 469. Willd. Sp. Pl. v. 3. 833. Swartz Ind. Occ. v 2. 1215. Juſſ. 272. Lamarck Illuſtr. t. 585.—Claſs and order, *Monadelphia Polyandria*. Nat. Ord. *Columniferæ*, Linn. *Malvaceæ*, Juſſ.

Gen. Ch. *Cal.* Perianth inferior, permanent, double; the outer of many linear-lanceolate leaves, rarely combined at the baſe; inner of one leaf, cup-ſhaped, divided half way down, rarely more, into five ſegments. *Cor.* Petals five, roundiſh, tapering at the baſe, a little oblique, ſpreading, united below to the tube of the filaments. *Stam.* Filaments numerous, combined in the form of a tube, about whoſe apex and ſurface they become ſeparate; anthers kidney-ſhaped. *Piſt.* Germen globoſe, furrowed; ſtyle thread-ſhaped, longer than the ſtamens, in ten ſegments at the top; ſtigmas globoſe. *Peric.* Capſules five, angular at the inner ſide, convex at the outer, of one cell and two valves, burſting in the upper part. *Seeds* ſolitary, ovate-oblong, acute.

Eſſ. Ch. Calyx double; the outer of many leaves or ſegments. Stigmas ten. Capſules five, of two valves. Seeds ſolitary.

This genus, ſeparated by Cavanilles from *Hibiſcus*, ſee that article, is rather artificial, there being no difference whatever in habit, and the technical marks of diſtinction not of the moſt deciſive kind. Theſe are the ten ſtigmas, which, in *Hibiſcus*, are only five, and the finally diſtinct bivalve capſules, with ſolitary ſeeds. In *Hibiſcus* the ſeeds are commonly numerous, in each cell of a five-valved five-celled capſule. This laſt-named genus being over-burthened with ſpecies, it is commodious to leſſen their number by any allowable means, and as we preſume the Hortus Kewenſis, which ſo generally follows Willdenow, will adopt *Pavonia*, we do not ſcruple to admit it. This author reckons up fifteen ſpecies.

1. P. *præmorſa*. (P. cuneifolia; Cav. Diſſ. 139. t. 45. f. 1. Hibiſcus præmorſus; Linn. Suppl. 309. Jacq. Ic. Rar. t. 141.)—Leaves roundiſh-wedge-ſhaped, abrupt, toothed, downy. Native of the Cape of Good Hope, cultivated in green-houſes. The peculiar ſhape of the *leaves* at once diſtinguiſhes this ſpecies. The *ſtem* is ſhrubby, as in every other, except the 7th and 15th. Flowers lemon-coloured, one inch and a half wide; the ſegments of their outer *calyx* numerous and ſetaceous.

2. P. *leptocarpa*. Cav. Diſſ. 351. (P. Typhalæa; Cav. Diſſ. t. 197. Urena leptocarpa; Linn. Suppl. 308.)—Leaves lanceolate, ſerrated. Outer calyx of five ovate leaves. Flowers capitate.—Native of Surinam. It is the *Hibiſcus ſalicifolius* of the Pl. Surinam. in Amœn. Acad. v. 8. 260, and is known by the Linnæan herbarium only. The *leaves* are from three to five inches long, pointed, cloſely ſerrated. *Flowers* yellow, in terminal heads. The inner *calyx*, ſmaller than the outer, is rather deeply divided, but not to the baſe, and the latter has but five leaves, which is a ſmaller number than the character requires. The *capſules* are thoſe of a true *Pavonia*, but each is tipped with three points, half its own length, barbed with numerous recurved prickles. This ſpecies is very nearly related to the next, for which Cavanilles has figured it, not very correctly as to the *calyx*, whoſe diviſions he makes not ſufficiently deep, at leaſt in the outer one, whereas Linnæus, on the other hand, errs in ſaying the inner calyx is of five leaves.

3. P. *Typhalæa*. Cav. Diſſ. 134. (Urena Typhalæa; Linn. Mant. 258.)—Leaves oblong-lanceolate, ſerrated. Outer calyx of about ſeven linear leaves. Stem panicled. Flowers ſomewhat umbellate.—Native of the Weſt Indies. This ſpecies, of which a ſpecimen is preſerved in the herbarium of the younger Linnæus, has not been well diſtinguiſhed from the laſt, which has been generally miſtaken for it. The preſent differs eſſentially in its panicled many-flowered *ſtem*, but eſpecially in having the outer *calyx* of ſix or ſeven narrow linear leaves, or deep ſegments; whereas the former has five ovate ones. The barbed points are moreover as long as the *capſules* themſelves, and the *corolla* is ſaid to be white. The *calyx* of the true *Typhalæa* anſwers exactly to the generic character, but the preceding ſpecies is ſo cloſely allied to this, that they cannot be generically disjoined, though the latter has but five ſegments in its outer calyx.

4. P. *haſtata*. Cav. Diſſ. 138. t. 47. f. 2.—Leaves oblong, haſtate, bluntly toothed; denſely downy beneath. Stalks axillary, ſingle-flowered.—Gathered by Commerſon at Monte Video. *Branches* round, ſubdivided. *Leaves* dependent, about an inch long; beſprinkled with ſtarry hairs above; denſely clothed with ſimilar white pubeſcence beneath, as is the inner *calyx* eſpecially. The outer *calyx* is of ſix, rarely only five, ovate leaves, ſhorter than the inner. *Capſules* reticulated, downy, without points or appendages.

5. P. *ſpinifex*. Cav. Diſſ. 133. t. 45. f. 2; and ariſtata, t. 45. f. 3. (Hibiſcus ſpinifex; Linn. Sp. Pl. 978. Jacq. Hort. Vind. v. 2. 46. t. 103.)—Leaves broad-ovate, doubly crenate. Stalks axillary, ſingle-flowered. Capſules with ſpreading ſmooth ſpines.—Native of South America. The *leaves* are two or three inches long, and half as broad, roughiſh to the touch. *Flowers* large, yellow. *Capſules* each tipped with three or four ſpreading, ſmooth, not barbed, awns or ſpines.

6. P. *papilionacea*. Cav. Diſſ. 140. t. 49. f. 2.—Leaves heart-ſhaped, ſerrated. Stalks axillary, ſingle-flowered.

Stamens and ſtyle declining.—Gathered in Otaheite by Sir Joſeph Banks, who communicated it to Cavanilles. *Flowers* large, yellow. Segments of the outer *calyx* very narrow, and longer than in the laſt.

7. P. *cancellata.* Cav. Diſſ. 135. (Hibiſcus cancellatus; Linn. Suppl. 311. Am. Acad. v. 8. 260.)—Leaves heart-ſhaped, ſerrated. Outer calyx of twenty briſtle-ſhaped, very hairy leaves. Stem decumbent.—Native of Surinam. The *ſtem* is herbaceous and trailing, clothed, like the reſt of the plant, with prominent briſtles. *Leaves* nettle-like. *Stalks* axillary, ſingle-flowered. *Calyx* very remarkable for its numerous narrow ſegments, whoſe briſtly hairs form a ſort of net-work.

8. P. *racemoſa.* Swartz Ind. Occ. v. 2. 1215. (P. ſpicata; Cav. Diſſ. 136. t. 46. f. 1. Malache ſcabra; Trew. Ehret. 50. t. 90.)—Leaves ovate, pointed, nearly entire. Flowers in a terminal cluſter. Outer calyx of eight lanceolate leaves.—Native of bogs, amongſt other ſhrubs and trees, in Jamaica. The nearly entire, naked *leaves*, roughiſh to the touch only, and the long terminal folitary *cluſters*, of pale yellow, not very large, *flowers*, readily diſtinguiſh this ſpecies. The *leaves* in our ſpecimens are very nearly entire; Ehret repreſents them ſerrated pretty copiouſly.

9. P. *corymboſa.* Willd. n. 9. (Althæa corymboſa; Swartz Ind. Occ. v. 2. 1213.)—Leaves heart-ſhaped, ſometimes angular, ſmoothiſh. Flowers corymboſe. Stalks and calyx hairy.—Found about the banks of rivers in Hiſpaniola and Jamaica. The habit is compared by Swartz to *Althæa hirſuta* of Linnæus. *Leaves* not quite ſmooth, ſerrated, ſometimes almoſt ſinuated as well as angular. *Flowers* yellow, rather large. Outer *calyx* of ten or twelve linear hairy leaves. *Capſules* rough. We have ſeen neither ſpecimen nor figure.

10. P. *paniculata.* Cav. Diſſ. 135. t. 46. f. 2.—Leaves roundiſh-heart-ſhaped, ſerrated, with one or three points. Cluſters compound, hairy. Stamens and ſtyle declining.—Native of Peru, near the ſource of the river Maragnon. *Dombey.* It ſeems, as Willdenow remarks, nearly akin to the laſt. The *flowers* are yellow, very numerous. *Stamens* drooping. *Style* aſcending at the extremity.

11. P. *odorata.* Willd. n. 11.—Leaves ovate, ſomewhat heart-ſhaped, with three points, ſlightly toothed. Stalks axillary, ſingle-flowered. Outer calyx of about twelve leaves.—Native of the Eaſt Indies.—The whole *plant* is hairy and viſcid. *Leaves* oblong, ſlightly heart-ſhaped at the baſe. *Flower-ſtalks* long, ſometimes aſſembled into a ſort of *cluſter* at the top of the *ſtem*. *Calyx* fringed. *Corolla* rather ſmall, apparently red. *Willd.*

12. P. *coccinea.* Cav. Diſſ. 140. t. 47. f. 1. (Malva folio hederaceo, flore coccineo; Plum. Ic. 162. t. 169. f. 2.)—Leaves heart-ſhaped, three-lobed, ſerrated. Stalks axillary, ſingle-flowered, aſcending. Outer calyx of five linear-lanceolate leaves.—Native of Hiſpaniola, not of Dominica. Linnæus miſquotes the figure of Plumier, for *Hibiſcus* (or rather *Achania*) *Malvaviſcus.* The *flowers* appear to be large, ſtanding erect in an elegant manner, the lower part of the *petals* cohering in the form of a tube, the extremities drooping. Plumier repreſents more than five leaves to the outer *calyx*, but Cavanilles examined a ſpecimen.

13. P. *Columella.* Cav. Diſſ. 138. t. 48. f. 3.—Leaves with five angles, ſerrated, nearly ſmooth; the uppermoſt oblong and undivided. Stalks axillary, ſingle-flowered, ſhorter than the footſtalks. Outer calyx of five linear-lanceolate leaves.—Found by Commerſon in the iſle of Bourbon, growing abundantly by the ſides of the roads cut through the woods. The *leaves* are ſhaped ſomewhat like thoſe of a vine. *Flowers* ſmall, purpliſh, not unlike a common Mallow.

14. P. *urens.* Cav. Diſſ. 137. t. 49. f. 1. Jacq. Ic. Rar. t. 552.—Leaves with ſeven angles, hairy, cut and ſerrated. Flowers axillary, cluſtered, nearly ſeſſile.—Native of the iſland of Mauritius. The *flowers* are of an elegant roſe-colour, deeper in the centre, much reſembling a common Mallow. *Capſules* with three barbed points, or beaks. *Leaves* and *ſtems* rough with pungent hairs.

15. P. *zeylanica.* Cav. Diſſ. 134. t. 48. f. 2. (Hibiſcus zeylanica; Linn. Sp. Pl. 981. Burm. Ind. t. 48. f. 3.)—Leaves roundiſh-heart-ſhaped, cut, lobed, or deeply divided, bluntly toothed. Stalks axillary, ſingle-flowered, equal to the footſtalks. Outer calyx of ten linear briſtly leaves.—Native of Ceylon. *Root* annual. *Stem* herbaceous, downy, ſomewhat branched. The *leaves* vary greatly as to their diviſions, being ſometimes divided to the very baſe into five oblong blunt ſegments. *Flowers* ſmall, red. This ſpecies is now and then ſeen in gardens, but valued rather for the ſake of rarity than beauty. Scopoli has figured the deeply divided variety, under the name of *Hibiſcus arenarius*, Delic. Inſubr. faſc. 3. t. 2, which we do not find quoted.

16. P. *ſpiralis.* Cav. Ic. v. 5. 20. t. 434.—Leaves heart-ſhaped, ſerrated, pointed, ſomewhat lobed. Stalks axillary, ſingle-flowered. Outer calyx of many linear fringed leaves. Petals convoluted, each with a lateral tooth.—Gathered by Louis Née, in the iſland of Tobago, five leagues from Panama, flowering and fruiting in November. The *ſtem* is ſhrubby, ſix feet high. *Leaves* moſt like thoſe of the tenth ſpecies, but it is not ſaid whether they are ſmooth or otherwiſe. Outer *calyx* of nine linear hairy leaves. *Petals* ſcarlet, rolled together like thoſe of *Achania Malvaviſcus*, but larger, the *ſtamens* and *ſtyle* projecting far beyond them. This ſpecies is unnoticed by Willdenow, and might perhaps be introduced between the tenth and eleventh. S.

Pavonia, or *Pavonina*, in *Ornithology*, a ſpecies of Ardea. See Heron.

PAVONIUS Lapis, the *peacock-ſtone*, a name given by Ludovicus Dulcis, and other writers of his time, to a ſtone of which they ſay many idle things, ſuch as its having the virtue of gaining a perſon's love to another, and the like. They have left us no deſcription of it, but probably it was one of the variegated agates.

PAVOOR, in *Geography*, a town of Hindooſtan; 15 miles N.W. of Tinevelly.

PAUPAKELLY, a town of Hindooſtan, in Golconda; 20 miles S. of Byarem.

PAUPANASSUM, a town of Hindooſtan; 20 miles W.S.W. of Tinevelly.

PAUPANASSY, a town of Hindooſtan, in the Carnatic; 12 miles N.E. of Tanjore.

PAUPER, in *Law*. See Forma *Pauperis*, and Poor.

PAURÆDRASTYLÆ, in *Natural Hiſtory*, the name of a genus of cryſtals. The word is derived from the Greek ϖαυρος, *a few*, εδρα, *a ſide*, or *plane*, the privative particle α, *not*, and ϛυλος, *a column*, and expreſſes a foſſil compoſed of but a few ſides or planes, and having no column.

The bodies of this genus are cryſtals, compoſed of two pyramids joined baſe to baſe, without the intervention of a column; theſe being both hexangular, and conſequently the whole body compoſed only of twelve planes; the others of the ſame ſtructure being compoſed of ſixteen. Of this genus there are only four known ſpecies.

PAUREY, in *Geography*, a town of Africa, on the Slave coaſt. N. lat. 6° 10′. E. long. 0° 15′.

PAURWITZ. See Bauerwitz.

PAUSA, a town of Saxony, in the Vogtland ; 72 miles W.S.W. of Dreſden. N. lat. 50° 31′. E. long. 11° 58′.

PAUSANIA, Παυσανια, in *Antiquity*, a feſtival in which were ſolemn games, wherein freeborn Spartans only contended. It had its name from Pauſanias, the Spartan general, under whoſe conduct the Grecians overcame Mardonius, in the famous battle at Platæa, there being always an oration in praiſe of him.

PAUSANIAS, in *Biography*, a celebrated Lacedæmonian commander, who fell at the famous ſtraits of Thermopylæ, was the ſon of Cleombrotus, and nephew of Leonidas. He obtained a high rank in the magiſtracy of his country, and when Mardonius, the Perſian general, invaded Greece with a mighty hoſt, Pauſanias was appointed commander-in-chief of the allied army raiſed to oppoſe him. He brought on a general engagement at Platæa, in the year 479 B.C., in which Mardonius was killed, and his army defeated with great ſlaughter. With the aſſiſtance of the Athenians, the camp of Mardonius was taken with an immenſe booty. Pauſanias exhibited a greatneſs of mind in rejecting the propoſal of one of the leaders, that the body of the Perſian general ſhould be ſought for, in order that it might be treated with the ſame indignity that had been offered to that of Leonidas. He proceeded to puniſh the traitors to the cauſe of Greece, and marching to Thebes, obliged that city to deliver up the heads of the Perſian party, whom he put to death. The effect of ſucceſs upon his own mind was to nouriſh a ſpirit of pride and arrogance, and inſpire ambitious deſigns. He aſſumed to himſelf all the honour of the victory of Platæa, and upon a golden tripod, which he preſented to the temple of Delphi, he put an inſcription that was honourable to himſelf alone. In the command of the united fleet, which had been given him for the purpoſe of freeing the Grecian cities from Perſian garriſons, he behaved with great partiality to his own countrymen, and created many enemies ; while the juſtice of Ariſtides, and the affability of Cimon, gained all hearts, and reſtored to the Athenians the naval ſupremacy of Greece. Suſpicions were entertained that he meant to aſſume the full controul of Greece, and to get the power of the country in his own hands, and on this account he was recalled to Sparta, and underwent a trial for his life, but as the evidence was inconcluſive, he was fined and liberated. When he returned to the army, he openly adopted the Perſian habit and manners, and went into all the exceſſes of that luxury which he had formerly decried. It was ſuppoſed that his mind was deranged, owing to the following tragical incident. Having been captivated by the charms of Cleonice, a young woman of good family at Byzantium, her parents not daring to refuſe his ſolicitations, obliged her to comply with his deſires. To ſave her bluſhes, it was agreed that the lights ſhould be extinguiſhed when ſhe entered his chamber. In the dark ſhe unfortunately ſtumbled over one of the lamps ; the noiſe of which ſuddenly awakening Pauſanias, he fancied an aſſaſſin was coming to murder him, and, ſtarting up, plunged a dagger into her breaſt. When he diſcovered the fatal error, he was almoſt diſtracted, and from that moment imagined that the blood of Cleonice was perpetually crying out for vengeance. He left Byzantium, and repaired to Heraclea, where he found perſons who pretended to evoke and pacify the ſpirits of the deceaſed. That of Cleonice was called up before him, and made to ſay to him, "When you come to Sparta, you will find a termination to your ſufferings." He went thither, ſtill occupied with the thought of betraying his country to the Perſians. For this purpoſe, he carried on a correſpondence with Artabazus, a ſatrap ; and all the meſſengers he ſent were put to death, that they might not betray him on their return. It is ſaid that he in vain attempted to engage Themiſtocles, who was at that time an exile, to concur in his meaſures, and being impatient, he wrote a peremptory letter to Artabazus, which he committed to one Argilius, his particular favourite. The young man, alarmed by the reflection, that none of the former meſſengers returned, unſealed the packet entruſted to his care, and finding a direction to put him to death, immediately diſcloſed the matter to the ephori. They reſolved to apprehend him, but being apprized of their intention, he fled into the temple of Minerva, from whence he could not be taken. While they were heſitating as to what could be done, the mother of Pauſanias brought a brick, and ſet it againſt the door of the temple : her example was followed, till he was completely immured. When he was dead with hunger, his body was brought out, and interred by his friends. Corn. Nep. Univer. Hiſt.

PAUSANIAS, a Greek topographical writer, who flouriſhed in the ſecond century, under Adrian, and the Antonines, was probably a native of Cæſarea, in Cappadocia, and ſtudied under the celebrated Herodes Atticus. Though as a ſpeaker defective in his pronunciation, he obtained a high reputation by his compoſitions. He declaimed both at Athens and Rome, in which laſt named city he died at an advanced age. He ſeems to have been a great traveller, and beſides his work on Greece that is extant, he compoſed deſcriptions of Syria and Phœnicia. The "Deſcription of Greece" is highly valuable to the antiquary, and contains much information no where elſe to be met with. It is a kind of itinerary through Greece, in ten books, in which the author notes every thing remarkable that fell under his obſervation, ſuch as temples, theatres, ſepulchres, ſtatues, paintings, public monuments of all kinds, the ſcites and dimenſions of ruined cities, and the ſcenes of important tranſactions. In ſome parts he gives hiſtorical details, and in thoſe his ſtyle, which is frequently negligent, riſes to a degree of dignity. His work abounds with fabulous narrations, but what he himſelf ſaw, there is no reaſon to ſuppoſe he miſrepreſented. His work was firſt publiſhed in 1516, at the preſs of Aldus. The beſt edition has been reckoned that of Kuhnius, Greek and Latin, 1696, but others give the preference to the modern one of I. F. Facius, Lipſ. 1794-7, in four volumes, 8vo. There is a French tranſlation in high eſtimation, by the abbè Gedoyn. Moreri.

PAUSARY, PAUSARIUS, in ancient Rome, an officer who, in the ſolemn pomps or proceſſions of the goddeſs Iſis, directed the ſtops, or pauſes.

In theſe ceremonies, there were frequent ſtands at places, prepared for the purpoſe, wherein the ſtatues of Iſis and Anubis were ſet down ; much after the manner of reſting-places in the proceſſion of the holy ſacrament in the Romiſh church.

Theſe reſts were called *manſiones* : the regulation of which was the office of theſe *pauſarii*.

From an inſcription quoted by Salmaſius it appears, that the Romans had a kind of college or corporation of *pauſaries*.

PAUSARY, *Pauſarius*, was alſo a name given to an officer in the Roman galleys, who gave the ſignal to the rowers, and marked the times and pauſes ; to the end they might act in concert, and row all together.

This was always done with a muſical inſtrument. Hyginus ſays, that, in the ſhip Argo, Orpheus did the office with his lyre.

PAUSE, a ſtop or ceſſation of ſpeaking, ſinging, playing, or the like.

The word is formed from the Latin *pauſa*, which we find uſed in Lucretius and Plautus in the ſame ſenſe.

The uſe of pointing in grammar is, to make the proper pauſes in certain places. See POINT and PUNCTUATION.

The uſe of theſe pauſes is equally neceſſary to the ſpeaker and to the hearer: to the ſpeaker, that he may take breath, without which he cannot proceed far in his delivery, and that he may relieve the organs of ſpeech by theſe temporary reſts, which otherwiſe would be ſoon tired by continued and uninterrupted action; to the hearer, that the ear alſo may be relieved from the fatigue which it would otherwiſe endure from a continuity of ſound, and that the underſtanding may have ſufficient time to mark the diſtinction of ſentences, and their ſeveral members.

Pauſes in common diſcourſe, and in moſt compoſitions in proſe, have, beſides the duration, marks of a ſurer kind annexed to them to point out their nature: and theſe are certain notes of the voice, which declare of what kind the pauſes are, at the inſtant they are made; and inform the mind what it is to expect from them; whether the ſenſe is ſtill to be continued in the ſame ſentence; whether the preceding one is to be the laſt member of the ſentence; or whether the ſentence is cloſed, and a new one is to begin. By means of theſe notes or tones, the ſpeaker may proportion his pauſes to the importance of the ſenſe, and not merely to the grammatical ſtructure of words in ſentences. A propoſition, or ſentiment of peculiar moment, may be preceded or cloſed by a longer pauſe than uſual: a pauſe may be alſo made before ſome very emphatical word, but this is a liberty that ſhould be uſed with great caution. An ingenious writer on this ſubject obſerves, that pauſes in general depend upon emphaſis: words are ſufficiently diſtinguiſhed from each other by accent; but to point out their meaning, when ranged in ſentences, emphaſes and pauſes are neceſſary. Accent, ſays this writer, is the link which connects ſyllables together, and forms them into words: emphaſis is the link which connects words together, and forms them into members of ſentences; but that there may be no miſtake to which emphaſis the words belong, at the end of every ſuch member of a ſentence there ought to be a perceptible pauſe. Sheridan's Lectures, p. 75, &c. See COMMA, COLON, POINTS, &c.

Pauſes are commonly diſtinguiſhed into thoſe that are emphatical, and thoſe that mark the diſtinctions of ſenſe. An emphatical pauſe is made, after ſomething has been ſaid of peculiar moment, and on which we want to fix the hearer's attention. Sometimes ſuch a thing is introduced with a pauſe of this nature. Such pauſes have the effect of a ſtrong emphaſis, and are ſubject to the ſame rules, eſpecially to the caution of not repeating them too frequently: for as they excite uncommon attention, and of courſe raiſe expectation, they will occaſion diſappointment and diſguſt, if the importance of the matter be not fully anſwerable to ſuch expectation. But the moſt frequent and the principal uſe of pauſe is to mark the diviſions of the ſenſe, and, as we have already ſaid, to allow the ſpeaker to draw his breath. The proper and graceful adjuſtment of ſuch pauſes is one of the moſt nice and difficult articles in delivery. The ſpeaker, in order to avoid mangling his ſentences, and totally loſing the force of the emphaſis, ſhould be careful to provide a full ſupply of breath for what he is to utter. It is a great miſtake, ſays Dr. Blair, to imagine that the breath muſt be drawn only at the end of a period, when the voice is allowed a fall. It may eaſily be gathered at the intervals of the period, when the voice is only ſuſpended for a moment; and, by this management, we may have always a ſufficient ſtock for carrying on the longeſt ſentences, without improper interruptions. If any one, as the ſame ingenious author obſerves, ſhall have formed to himſelf a certain melody or tune, which requires reſts and pauſes of its own, diſtinct from thoſe of the ſenſe, he has undoubtedly contracted one of the worſt habits into which a public ſpeaker can fall. It is the ſenſe which ſhould always rule the pauſes of the voice; for whenever there is any ſenſible ſuſpenſion of the voice, the hearer is always led to expect ſomewhat correſponding in the meaning. Pauſes, in public diſcourſe, muſt be formed on the manner in which we utter ourſelves in ordinary, ſenſible converſation; and not upon the ſtiff artificial manner, which we acquire from reading books according to the common punctuation, which is often arbitrary, capricious, and falſe, and dictates an uniformity of tone in the pauſes, that is extremely diſagreeable. In order to render pauſes graceful and expreſſive, they muſt not only be made in the right place, but alſo be accompanied with a proper tone of voice, by which the nature of theſe pauſes is intimated, much more than by the length of them, which can never be exactly meaſured. Sometimes it is only a ſlight and ſimple ſuſpenſion of voice that is proper; ſometimes a degree of cadence in the voice is required; and ſometimes that peculiar tone and cadence, which denote the ſentence finiſhed. In all theſe caſes, we are to regulate ourſelves, by attending to the manner in which Nature teaches us to ſpeak, when engaged in real and earneſt diſcourſe with others.

In reading or reciting verſe, there is a peculiar difficulty in making the pauſes juſtly. The difficulty ariſes from the melody of verſe, which dictates to the ear pauſes or reſts of its own; and to adjuſt and compound theſe properly with the pauſes of the ſenſe, ſo as neither to hurt the ear nor offend the underſtanding, is ſo very nice a matter, that it is no wonder we ſeldom meet with good readers of poetry. There are two kinds of pauſes that belong to the muſic of verſe: one is the pauſe at the end of the line; and the other, the cæſural pauſe in the middle of it. With regard to the pauſe at the end of the line, which marks the ſtrain or verſe to be finiſhed, rhyme renders this always ſenſible, and in ſome meaſure compels us to obſerve it in our pronunciation. In blank verſe, where a greater liberty is allowed of running the lines into one another, ſometimes without any ſuſpenſion in the ſenſe, it has been queſtioned, whether, in reading ſuch verſe with propriety, any regard at all ſhould be had to the cloſe of the line. On the ſtage, where the appearance of ſpeaking in verſe ſhould always be avoided, there can be no doubt, in the opinion of Dr. Blair, that the cloſe of ſuch lines as make no pauſe in the ſenſe ſhould not be rendered perceptible to the ear. But on other occaſions, this would be improper: for what is the uſe of melody, or for what end has the poet compoſed in verſe, if, in reading his lines, we ſuppreſs his numbers; and degrade them, by our pronunciation, into mere proſe? We ought, therefore, certainly to read blank verſe ſo as to make every line ſenſible to the ear. At the ſame time, in doing ſo, every appearance of ſing-ſong and tone muſt be carefully avoided. The cloſe of the line, where it makes no pauſe in the meaning, ought to be marked not by ſuch a tone as is uſed in finiſhing a ſentence; but without either letting the voice fall, or elevating it, it ſhould be marked only by ſuch a ſlight ſuſpenſion of ſound, as may diſtinguiſh the paſſage from one line to another, without injuring the meaning.

The other kind of muſical pauſe is that which falls ſomewhere about the middle of the verſe, and divides it into two hemiſtichs; a pauſe not ſo great as that which belongs to the cloſe of the line, but ſtill ſenſible to an ordinary ear. This, which is called the cæſural pauſe, falls uniformly, in the French laconic verſe, on the middle of the line. In the Engliſh, it may fall after the fourth, fifth, ſixth, or ſeventh ſyllables in the line, and no other. Where the verſe is ſo conſtructed, that this cæſural pauſe coincides with the ſlighteſt pauſe or diviſion in the ſenſe, the line can be read eaſily; as in the two firſt verſes of Mr. Pope's Meſſiah:

> " Ye nymphs of Solyma! begin the ſong;
> To heavenly themes, ſublimer ſtrains belong."

But if it ſhall happen that words, which have ſuch a ſtrict and intimate connection, as not to bear even a momentary ſeparation, are divided from one another by this cæſural pauſe, we then feel a ſort of ſtruggle between the ſenſe and the ſound, which renders it difficult to read ſuch lines gracefully. The rule of proper pronunciation, in ſuch caſes, is to regard only the pauſe which the ſenſe forms, and to read the line accordingly. The neglect of the cæſural pauſe may make the line ſound ſomewhat unharmoniouſly; but the effect would be much worſe, if the ſenſe was ſacrificed to the ſound. For inſtance, in the following line of Milton:

> " ——— What in me is dark,
> Illumine; what is low, raiſe and ſupport."

The ſenſe clearly dictates the pauſe after "illumine," at the end of the third ſyllable, which, in reading, ought to be made accordingly; though, if the melody only were to be regarded, "illumine" ſhould be connected with what follows, and the pauſe not made till the fourth or ſixth ſyllable. So, in the following line of Mr. Pope's (Epiſtle to Arbuthnot):

> " I ſit, with ſad civility I read."

The ear plainly points out the cæſural pauſe as falling after "ſad," the fourth ſyllable. But it would be very bad reading to make any pauſe there, ſo as to ſeparate "ſad" and "civility." The ſenſe admits of no other pauſe than after the ſecond ſyllable "ſit," which, therefore, muſt be the only pauſe made in the reading.

It is a diſtinguiſhing advantage of our Engliſh verſe, that it allows the pauſe to be varied through four different ſyllables in the line; for as the pauſe is placed after one or other of theſe ſyllables, the melody of the verſe is much changed, its air and cadence are diverſified. By theſe means, uncommon richneſs and variety are added to Engliſh verſification. When the pauſe falls earlieſt, that is, after the fourth ſyllable, the briſkeſt melody is thereby formed, and the moſt ſpirited air given to the line. In the following lines of the Rape of the Lock, Mr. Pope has, with exquiſite propriety, ſuited the conſtruction of the verſe to the ſubject:

> " On her white breaſt | a ſparkling croſs ſhe wore,
> Which Jews might kiſs | and infidels adore;
> Her lively locks | a ſprightly mind diſcloſe,
> Quick as her eyes | and as unfix'd as thoſe.
> Favours to none | to all ſhe ſmiles extends,
> Oft ſhe rejects | but never once offends."

Where the pauſe falls after the fifth ſyllable, which divides the line into two equal portions, the melody is ſenſibly altered. The verſe loſes that briſk and ſprightly air, which it had with the former pauſe, and becomes more ſmooth, gentle, and flowing.

> " Eternal ſunſhine | of the ſpotleſs mind,
> Each prayer accepted | and each wiſh reſign'd."

When the pauſe proceeds to follow the ſixth ſyllable, the tenor of the muſic becomes ſolemn and grave. The verſe marches now with a more ſlow and meaſured pace, than in either of the two former caſes.

> " The wrath of Peleus' ſon | the direful ſpring
> Of all the Grecian woes | O goddeſs ſing!"

But the grave, ſolemn cadence becomes ſtill more ſenſible, when the pauſe falls after the ſeventh ſyllable, which is the neareſt place to the end of the line that it can occupy. This kind of verſe occurs the ſeldomeſt, but has a happy effect in diverſifying the melody. It produces that ſlow Alexandrian line, which is finely ſuited to a cloſe; and for this reaſon, ſuch lines almoſt never occur together, but are uſed in finiſhing the couplet.

> " And in the ſmooth deſcription | murmur ſtill.
> Long loved adored ideas! | all adieu."

Blank verſe, being of a freer kind than rhyme, and naturally read with leſs cadence or tone, its pauſes, and the effect of them, are not always ſo ſenſible to the ear. It is, however, conſtructed upon the ſame principles, with reſpect to the place of the pauſe. Some, indeed, have maintained that heroic verſe admits of muſical pauſes, not only after the four ſyllables to which their place is above aſſigned, but after any one ſyllable in the verſe indifferently, where the ſenſe directs it to be placed. But this, ſays Dr. Blair, is the ſame thing as to maintain that no pauſe at all belongs to the natural melody of the verſe; ſince, according to this notion, the pauſe is formed entirely by the meaning, not by the muſic. But this, he apprehends, is contrary both to the nature of verſification, and to the experience of every good ear. Blair's Lectures, vols. ii. and iii. See PROSODY and VERSIFICATION.

Pauſes, or ſilences, are the ſame in poetry as the odd-reſts in muſic, which ſerves to make the odd notes even ten. St. Auſtin inſtructs us how the pauſes are to be made according to the laws of muſic.

PAUSE, in *Muſic*, is a ceſſation of ſound, marked with a character commonly called in England a bull's eye, 𝄐; but by the Italians a *corona*, or crown. The pauſe uſed to be of an unlimited duration in the middle of a piece, different from common reſts, all which repreſent the duration of ſome note in the time-table. Emanuel Bach was the firſt who meaſured pauſes by a reſt of one, two, or three bars; which method has been adopted by Haydn, Mozart, and others, a method which is very convenient in ſymphonies and full pieces; as, when it was left to the will or ſagacity of the ſeveral performers, they never, after a pauſe, reſumed the ſtrain together. See RESTS, and CORONA.

For the ſigns or characters of pauſes, ſee CHARACTERS.

PAUSEBASTOS, in *Natural Hiſtory*, the name of a beautiful ſtone dedicated to Venus, and called alſo *paneros*. It ſeems to have been a beautiful agate.

PAUSICAPE, Παυσικαπη, among the Athenians, a kind of puniſhment. A round engine was put about the neck in ſuch a manner, that the ſufferer could not lift his hand to his head.

PAUSILIPO, or POSILIPO, in *Geography*, a celebrated mountain and grotto, near the city of Naples. It took its name from a villa of Vedius Pollio, erected in the time of Auguſtus, and called "Pauſilypam," from the effect which its beauty was ſuppoſed to produce in ſuſpending ſorrow and anxiety. This mountain is ſaid to be beautiful in the extreme, and to be juſtly honoured with its appellation, as no ſcene is better calculated to baniſh melancholy and exhilarate the mind. The grotto is nearly a mile in length, and is made through the mountain, 20 feet in breadth and 30 in height. On the mountain Vedius Pollio had not only a villa, but a reſervoir or pond, in which he kept a number of lampreys, to which he uſed to throw ſuch of his ſlaves as had committed a fault. When he died, he bequeathed among other parts of his poſſeſſion his villa to Auguſtus; but this monarch, abhorring a houſe where ſo many ill-fated creatures had loſt their lives for very ſlight faults, cauſed it to be demoliſhed, and the fineſt materials in it to be brought to Rome, and with them raiſed Julia's portico.

Virgil's tomb is ſaid to be above the entrance of the grotto of Pauſilipo. A vaulted cell and two modern windows above preſent themſelves to view: the poet's name is the only ornament of the place. No ſarcophagus, no urn, and even no inſcription, ſerve to feed the devotion of the claſſical pilgrim. The epitaph, though not genuine, is yet ancient; it was inſcribed by order of the duke of Peſcolangiano, the proprietor of the place, on a marble ſlab placed in the ſide of the rock oppoſite to the entrance of the tomb, where it ſtill remains. It is as follows:

> "Mantua me genuit, Calabri rapuere, tenet nunc
> Parthenope, cecini paſcua, rura, duces."

An Italian author, ſuppoſed to be Pietro de Steffano, aſſures us that he himſelf had ſeen, about the year 1526, the urn ſuppoſed to contain the poet's aſhes, ſtanding in the middle of the ſepulchre, ſupported by nine little marble pillars, with the inſcription juſt quoted on the frieze. He adds, that Robert of Anjou, apprehenſive leſt ſuch a precious relic ſhould be carried off or deſtroyed during the wars then raging in the kingdom, took the urn and pillars from the tomb, and depoſited them in the Caſtel Nuovo. This extreme precaution eventually occaſioned the loſs which it was meant to prevent: for notwithſtanding the moſt laborious ſearch and frequent inquiries made by the orders of Alphonſo of Arragon, they were never more diſcovered. Some, indeed, have aſſerted that the tomb juſt mentioned is not the ſepulchre of Virgil. Among theſe we may reckon Cluverius and Addiſon. The reader will learn with regret that Virgil's tomb, conſecrated as it ought to have been to genius and meditation, is ſometimes converted into the retreat of aſſaſſins, or the lurking-place of Sbirri. Few places, however, are in themſelves more pictureſque, and from the recollection inſeparably interwoven with it, no ſpot is more intereſting than the tomb of Virgil. The whole hill of Pauſilipo is covered with country ſeats and gardens, for ſummer reſort, being protected from the hot ſouth and weſt. In the middle of the paſſage is a church or chapel; but the duſt raiſed by the horſes and carriages is very offenſive.

PAUSIS, a word uſed by the old phyſicians for a remiſſion in acute diſeaſes.

PAUSUS, in *Entomology*, a genus of inſects of the order Coleoptera. The generic character is as follows; antennæ two-jointed, the upper joint very large, inflected, hooked, pedicillate; head pointing forwards, with a convex jugular triangle; thorax narrow, unequal, ſcutellate; ſhells flexile, deflected, truncate; fore-feet placed at the fore-part of the breaſt, thighs with minute appendages, the tarſi four-jointed. Five ſpecies are enumerated in Gmelin's edition of Linnæus, of which the firſt and ſecond are fully deſcribed in the 4th volume of the Tranſactions of the Linnæan Society. This genus was not known when the 12th edition of the Syſtema Naturæ firſt appeared; and it obtained its preſent rank in 1775, owing to a diſſertation publiſhed by Linnæus at Upſal. At this period one ſpecies only was mentioned. The etymology of the generic term is thought to be from the Greek παυσις, ſignifying a pauſe, ceſſation, or reſt, becauſe Linnæus, now old and infirm, and ſinking under the weight of age and infirmity, ſaw no probability of continuing any longer his career of glory. He might therefore be ſuppoſed to ſay, "hic meta laborum," as it really proved, at leaſt with regard to inſects, Pauſus being the laſt he ever deſcribed. Such is the account given by Dr. Afzelius in the work already referred to.

Species.

MICROCEPHALUS. The head of the ſpecies is unarmed; the club is an oblong; ſhells as long as the body, not punctured, ſhanks linear. This rare inſect is a native of Sierra Leona, the Banana, and neighbouring iſlands. The body is of a dark cheſnut-brown; the head is, as its name denotes, uncommonly ſmall; the ſhield is two-parted; jugular triangle minute; pivots of the antennæ black, upper joint of the club much larger than the head; the thorax broader than the head, and the wings are ſooty.

SPHÆROCERUS. Head horned, club globular; ſhells ſhorter than the abdomen, punctured; ſhanks dilated at the tip. This is found at Sierra Leona; the body is poliſhed, cheſnut, a little narrower than the laſt; the horn between the eyes is ſtraight, conical, tipt with a tuft of cartilaginous hairs; the eyes are larger; the thorax is of the ſame breadth as the head, the wings are of a ſhining changeable violet. We ſhall give part of Dr. Afzelius' deſcription of this inſect in his own words: "There was," ſays he, "a houſe building for the governor, on an eminence called Thornton Hill, at the ſouth end of Free-town, in Sierra Leona; and in the beginning of the year 1795, ſeveral apartments having been got ready, ſo as to be habitable, one of them was allotted to me, and I removed into it in the end of the month of January. I had not reſided there many days, when one evening, having juſt lighted my candle and begun to write, I obſerved ſomething dropping down from the ceiling before me upon the table; which from its ſingular appearance attracted my attention. It remained for a little while quite immoveable, as if ſtunned or frightened, but began ſoon to crawl very ſlowly and ſteadily. I then caught it, and from the remembrance I had of the Linnæan ſpecies, I directly took it for a non-deſcript of this genus. Some days after, coming into my room from ſupper, with a light in my hand, and having put it upon the table, there inſtantly fell another down from the ceiling. The third I was favoured with by the then governor Mr. Dawes, who informed me that it had dropped down before him on the table, juſt when he had entered his room, and was going to write. The other three, which I afterwards collected, were alſo got upon ſimilar occaſions, and from thence I thought I had ſome reaſon to conclude that it was a nocturnal animal; that it becomes benumbed by candle-light; that it lives in wood, and prefers newly-built houſes. After the end of February I never ſaw any more. The laſt which I caught I put into a box, and left confined there for a day or two. One evening going to look at it, and happening to ſtand between the light and the box, ſo that my ſhadow fell upon the inſect, I obſerved, to my great aſtoniſhment, the globes of the antennæ like two lanthorns, ſpreading a dim phoſphoric light. This ſingular phenomenon raiſed my curioſity, and, after having examined it ſeveral times that night, I reſolved to repeat my reſearches the following day. But the animal, being exhauſted, died before morning, and the light diſappeared."

RUBER. Reddiſh; thorax jagged before. This and the next ſpecies inhabit the Cape of Good Hope.

LINEATUS. Reddiſh; ſhells with a brown line. This is ſuppoſed to be the Cerocoma lineata of Fabricius.

RUFICOLLIS. Black; thorax and ſtreak on the ſhells ferruginous, ſuppoſed to be the Cerocoma ruficollis of Fabricius.

PAUTE', in *Geography*, a town of South America, in the audience of Quito; 23 miles E. of Cuença.

Pauté, or *St. Yago*, a river of Peru, which runs into the Maranon; five miles W. of St. Franciſco de Borja.

PAUTO, a town of New Granada; 25 miles E. of Tunja.

PAUTRE, Antony le, in *Biography*, an eminent French architect, was born at Paris in 1614. He diſtinguiſhed himſelf by his taſte in the decoration of buildings. Several edifices from his deſigns were erected in the capital and its neighbourhood, of which the moſt noted were the wings of St. Cloud; the church of the nunnery of Port-Royal, and the hotels of Gevres and Beauvais. He was appointed architect to the king's brother, and afterwards to the king himſelf. He was a member of the Academy of Architecture from its firſt inſtitution, and publiſhed a work on that art, entitled "Les Œuvres d'Architecture d'Antoine le Pautre," of which the firſt edition appeared in 1652. He died in 1691. He had a brother an eminent engraver, who died in 1682; and his ſon, Peter, who was born in 1660, was eminent as a ſculptor. He ſtudied fourteen years at Rome, and on his return was employed in ſeveral public works, of which the moſt celebrated is a group of Eneas bearing Anchiſes on his ſhoulders, and holding Aſcanius in his hand, which was placed in the garden of the Thuilleries. He died in 1744, at the age of eighty-four.

PAUTUCKE, in *Geography*, a town of America, in the ſtate of Maſſachuſetts; 33 miles S.S.W. of Boſton.

PAUW, N. de, in *Biography*, a German canon, diſtinguiſhed himſelf by his philoſophical writings, of which the principal were "Recherches Philoſophiques ſur les Americains, les Egyptiens, et les Chinois," in two vols. 1768; and "Recherches Philoſophiques ſur les Grecs," two vols. 1787, reprinted at Paris in ſeven vols. 8vo. "In theſe works," ſays his biographer, "there are much learning and ingenuity, but joined with a bold ſpirit of conjecture, and a diſpoſition to contradict all received notions." They were very popular at the time of their appearance, but have loſt a great part of their original reputation. The author was in high eſtimation with Frederick the Great, as one of the free ſpeculators of the time, and was, of courſe, obnoxious to the clergy. His private character was excellent. He died at Xanton, near Aix-la-Chapelle, in 1799; a nephew of his was Anacharſis Cloots, who was famous at the commencement of the French revolution.

PAUXI, in *Ornithology*, the name of an American bird deſcribed by Nieremberg. See Crax *Pauxi*.

PAUXIS, in *Geography*, a fortreſs of Braſil, in the government of Para, on the N. ſide of the river Amazon. S. lat. 1° 56′. W. long. 58° 10′.

PAUZEN, a town of Bohemia, in the circle of Boleſlau; 10 miles E. of Jung Buntzel.

PAUZK, Pautzk, or *Putzig*, a town of Pruſſian Pomerelia; 24 miles N.E. of Dantzick. N. lat. 54° 30′. E. long 18 8′.

PAW, in the *Manege*. A horſe is ſaid to *paw* the ground when his leg being either tired or painful, he does not reſt it upon the ground, and fears to hurt himſelf as he walks.

Paw *Patté*, in *Heraldry*, the fore-foot of a beaſt cut off ſhort. If the whole leg be cut off, it is called *gambé*. Lion's-paws are much uſed in armoury.

PAWAH, in *Geography*, a town of Hindooſtan, in Bahar; 40 miles S.W. of Bahar.

PAWARAH, a town of Hindooſtan; 43 miles N.W. of Benares.

PAWEN, a ſmall iſland in the bay of Gunong Tellu, on the E. coaſt of the iſland of Celebes. S. lat. 0° 18′. E. long. 122° 2′.

PAWING, or Pogum, a town of Eaſt Frieſland, near the Ems; 32 miles S. of Emden.

PAWLE, in a *Ship*. See Paul.

PAWLET, in *Geography*, a townſhip of America, in Rutland county, Vermont, containing 1938 inhabitants. It is watered by Pawlet river, which joins Wood creek, and the confluent ſtream falls into South bay at Fiddler's Elbow.

PAWLOCZ, a town of Ruſſian Poland, in the palatinate of Kiev; 60 miles S.W. of Kiev.

PAWN, Pignus, a pledge or gage for ſurety of payment of money lent. It is ſaid to be derived, *a pugno, quia res quæ pignori dantur, pugno vel manu traduntur*. (Lit. Dict.) The party that pawns goods hath a general property in them; they cannot be forfeited by the party that hath them in pawn, for any offence of his, nor be taken in execution for his debt; neither may they otherwiſe be put in execution till the debt for which they are pawned is ſatisfied. Litt. Rep. 332.

If the pawn is laid up, and the pawnee robbed, he is not anſwerable; though if the pawnee uſe the thing, as a jewel, watch, &c. that will not be the worſe for wearing, which he may do, it is at his peril; and if he is robbed, he is anſwerable to the owner, as the uſing occaſioned the loſs, &c. Ibid. See Bailment.

If the pawn is of ſuch a nature that the keeping is a charge to the pawnee, as a cow, or a horſe, &c. he may milk the one, and ride the other, and this ſhall go in recompence for his keeping. Ibid.

Things which will grow the worſe by uſing, as apparel, &c. he may not uſe. If a pawnbroker receives plate or jewels, as a pledge or ſecurity, for the repayment of money lent thereon at a day certain, he has them upon an expreſs contract or condition, to reſtore them, if the pledger performs his part by redeeming them in due time (Cro. Jac. 245. Yelv. 178.); for the due execution of which contract many uſeful regulations are made by ſtatute 30 Geo. II. c. 24. See *Pawn*-Brokers.

Pawn, among *Miners*, is a pledge of money put into the bar-maſter's hand, at the time when the plaintiff cauſes the bar-maſter to arreſt the mine.

Pawn-*Brokers*. See *Pawn*-Brokers, and 39 & 40 Geo. III. c. 99.

PAWNAGE. See Pannage.

PAWNEES, in *Geography*, the name of an Indian nation, inhabiting a part of Louiſiana, conſiſting of three villages. The number of warriors is 1993, of women 2170, and of children 2060, according to the ſtatement made in the "Exploratory Travels in North America."

PAWNGAW, a town of Hindooſtan, in Dowlatabad; 20 miles E. of Perinda.

PAWTUCKET Falls, a cataract of America, in Merrimack river, in the townſhip of Dracut.

PAWTUXET, a village of America, in the townſhip of Cranſton, Providence county, Rhode iſland.

PAX, a ſmall metallic plate, commonly of ſilver, with the repreſentation of the crucifixion engraved upon it, which was kiſſed by the prieſt at a certain part of the maſs, he repeating at the ſame time *Pax tecum*, Peace be to you, and afterwards by the aſſiſtants in token of fraternal charity.

Pax *Dei*. See Peace *of God*.

Pax *Eccleſiæ*. See Sanctuary.

Pax *Regis.* See Peace *of the King.*

"Longe debet eſſe pax regis a parte ſua, ubi reſidens fuerit, a quatuor partibus loci illius, hoc eſt quatuor milliaria & tres quarentenæ, & novem acræ latitudine, & novem pedes, & novem palmæ, & novem grana hordei, &c." Leg. Edw. Confeſſ.

Ad Pacem *redire*, to reſtore to the peace, is to reverſe an outlawry; whereby a perſon is reſtored to the benefit of the king's peace.

"Rex poteſt dare quod ſuum eſt, hoc eſt, pacem ſuam quam utlagatus amiſit." Bracton, lib. iii.

PAXAROS, or *Bird-Iſland*, in *Geography*, a ſmall iſland near the S. coaſt of Cuba. N. lat. 19° 56′. W. long. 78° 24′.—Alſo, an iſland on the coaſt of California, in the North Pacific ocean. N. lat. 30° 18′. W. long. 120° 45′.—Alſo, ſmall iſlands or rocks in the Pacific ocean, near the coaſt of Chili. S. lat. 29° 40′.

PAXIMADES, an iſland in the Mediterranean, near the S. coaſt of the iſland of Candia. N. lat. 34° 54′. E. long. 24° 43′.

PAXTON, *Upper*, *Lower*, and *Middle*, three townſhips in Dauphin county, Pennſylvania: the firſt contains 2274, the ſecond 727, and the third, including Swatara, 3208 inhabitants.—Alſo, a townſhip of Worceſter county, Maſſachuſetts; 8 miles W. of Worceſter, incorporated in 1765, and containing 582 inhabitants.

PAY *of the Army and Navy*, is the ſtipend or ſalary allowed for each individual ſerving in the army or navy; for which we refer the reader to the Regiſters publiſhed annually, and in almoſt every body's hands.

In our ancient armies, there were, at all times, both before and after the conqueſt, beſides the feudal tenants, ſtipendiary or mercenary ſoldiers, natives as well as foreigners. But our earlieſt information reſpecting military pay reaches no higher than the reign of king Henry II. Mr. Groſe, in his "Military Antiquities," vol. i. has given an account of the amount of the pay of officers and ſoldiers at different periods; and from his account it appears, that the pay of the troops, as it was eſtabliſhed at the Revolution, underwent very little change till after the commencement of the preſent war in 1793. But in the courſe of the preſent war, the pay and allowance of the officers and ſoldiers have received conſiderable augmentation. In 1795 his majeſty iſſued a warrant for granting an addition of 2¼*d.* *per* diem to the ſubſiſtence of the non-commiſſioned officers and men; to this was afterwards added 3¾*d.* *per* diem, making the pay of the private ſoldier 1*s.* *per* diem. In 1797, the ſtoppages from all the officers' pay called arrears, were aboliſhed; beſides which 1*s.* *per* diem was added to the ſubſiſtence of each ſubaltern officer. The pay of the ſurgeon and his mate (now aſſiſtant,) was alſo raiſed, the former to 10*s.* and the latter to 3*s.* a day. In our ancient armies there were, in addition to the regular ſtipend of the troops, certain allowances, called "regards" (rewards, Ducange.) Such there are, though under different appellations, at preſent. Among theſe we may notice the *non-effective* and *contingent* allowances to the captains of troops and companies. Formerly the captains received and kept the ſubſiſtence of the non-effective, or men wanting to complete their companies; but this becoming an enormous abuſe, has been ſince reſtricted to 20*l.* for each captain *per annum.* The contingent allowance is proportioned to the ſtrength of the company. There are beſides other allowances to officers in general, ſuch as bat, baggage, and forage money in camp, and lodging money in garriſon, when there are no barracks. Theſe allowances vary according to circumſtances. For particulars, ſee Groſe, ubi ſupra.

Full Pay denotes the pecuniary allowance which is made to officers and non-commiſſioned officers, without any deduction whatſoever. Since the abolition of arrears in 1797, commiſſioned and warrant officers, &c. (thoſe belonging to the guards excepted,) receive their full pay, or daily ſubſiſtence. The private ſoldiers are ſubject to temporary deductions, for the purpoſe of appropriating part of their pay and allowances to the expence of their meſſes, including vegetables, &c. and to a ſtoppage not exceeding 1*s.* 6*d.* *per* week, for neceſſaries, which ſtoppage is to be accounted for every month; and the remainder being 1*s.* 6*d.* muſt be paid weekly to each ſoldier, ſubject to the accuſtomed deduction, for waſhing, and for articles to clean his clothing and appointments. The full pay of the Britiſh army is given in advance on the 25th of every month, and accounted for to government by the ſeveral diſtrict and regimental paymaſters, through army agents appointed for that purpoſe. Non-commiſſioned officers and private ſoldiers, ſerving as marines, are not liable to any deduction whatever from their full pay, on account of proviſions. Although the army is now paid its full pay, in conſequence of the abolition of the diſtinction between ſubſiſtence and arrears, that pay is nevertheleſs ſubject to the uſual deductions on account of poundage, hoſpital, and agency.

Half Pay is a compenſation, or retaining fee, given to officers who have retired from the ſervice through age, inability, &c. or who have been placed upon that liſt in conſequence of a general reduction of the force, or a partial drafting, &c. of the particular corps to which they belonged. The half-pay becomes due on the 25th of June, and on the 25th of December in each year, but it is ſeldom iſſued until three months after the expiration of each of thoſe periods. The only deduction from the half-pay is the poundage, 2½ *per cent.* The firſt time when this allowance occurs, is in a vote of the houſe of commons, January 18, 1697. As the officer when diſbanded is rewarded with half-pay, ſo the private ſoldier in the cavalry has his horſe, and an allowance for his ſword given him, with fourteen days' pay to carry him home to any part of England: to any part of Scotland the allowance is twenty-one days' pay: and to any part of Ireland twenty-eight days' ſubſiſtence. The infantry likewiſe have the ſame allowance of pay for ſubſiſtence.

Pay-*Maſter*, is the perſon intruſted with the money, and that has the charge of paying it to the regiment. The payment of the land-forces is under the direction of an office, the buſineſs of which is conducted by the pay-maſter general, his deputy, caſhiers, clerks, &c. The payment of the navy is under the direction of the treaſurer of the navy, a pay-maſter, and accomptant, clerks, &c. There is alſo a pay-maſter of the penſions, &c. a pay-maſter of the marines, &c. diſtrict pay-maſter, &c. The army pay-office is at Whitehall: and the navy pay-office at Somerſet-houſe.

Pay-*Bills*, bills belonging to the military department, which are diſtinguiſhed according to the nature of the ſervice for which they are given. Every captain of a troop or company receives a regular weekly account from his ſerjeant, of money to be advanced for the effectives of ſuch troop or company; and on the 24th day in each month he makes out a monthly one for the pay-maſter, who makes out a general abſtract for the agent. The pay-maſter-general's eſtimate is likewiſe called the pay-bill.

Pay-*Liſts*, the monthly accounts which are tranſmitted by the ſeveral regimental and diſtrict pay-maſters to their agents on the 25th of each month.

PAY-*Serjeant.* See SERJEANT.

To PAY, in *Sea Language*, is to daub or anoint the ſurface of any body, in order to preſerve it from the injuries of the water, weather, &c. Thus the bottom of a ſhip is paid with a compoſition of tallow, ſulphur, reſin, &c. The ſides of a ſhip are uſually paid with tar, turpentine, or reſin, or with a compoſition of tar and oil, to which is ſometimes added red ochre, &c. in order to protect the planks from being ſplit by the ſun or wind. The lower maſts are, for the ſame reaſons, paid with the materials of the ſame ſort, if we except thoſe along which their reſpective ſails are frequently hoiſted and lowered; ſuch are the maſts of ſloops and ſchooners, which are always paid with tallow for this purpoſe: for the ſame reaſon, all top-maſts and top-gallant-maſts are alſo paid with hog's-lard, butter, or tallow. Falconer. See SHIP and WOOD.

PAYA, in *Geography*, a town of South America, in the province of Darien; 30 miles E. of St. Marie de Darien.

PAYEE, in *Commerce*, the perſon to whom a bill is made payable.

PAYERNE, in *Geography*, a town of Switzerland, in the canton of Berne, formerly an imperial town, under the protection of the dukes of Savoy. It is governed by its own magiſtrates; 22 miles S.W. of Berne. N. lat. 46° 51′. E. long. 6° 44′.

PAYERSDORFF, a town of Germany, in the margraviate of Bayreuth, near which is a decayed caſtle; both which were taken by the Swedes under Guſtavus Adolphus.

PAY-HO, or PEI-HO, a river of China, which riſes in the north part of the province of Pe-tcheli, and runs into the gulf of Leao-tong. N. lat. 39° 3′.

PAY-HOU, a lake of China, in Pe-tcheli; 140 miles S. of Pe-king.

PAYJAN, a town of Peru, in the dioceſe of Truxillo; 15 miles N. of Truxillo.

PAYING-OFF, in *Sea Language*, denotes the movement by which a ſhip's head falls to leeward of the point where it was previouſly directed: particularly when, by neglect of the helmſman, ſhe had inclined to windward of her courſe, ſo as to make the head-falls ſhiver in the wind, and retard her velocity.

PAYING-*Off* is likewiſe uſed to ſignify the payment of the ſhip's officers and crew, and the diſcharge of the ſhip from ſervice, in order to be laid up at the moorings.

PAYING-*Out*, or *Paying-away*, is the act of ſlackening a cable, or other rope, ſo as to let it run out of the veſſel for ſome particular purpoſe. See CABLE.

PAYMENT, the diſcharge of a debt, either by money really told, or by bills of exchange, &c. See DEBT, &c.

PAYMENT, *Prompt*, a popular term in England and Amſterdam. It is when a debtor acquits what he owes, before the expiration of the term granted by the creditor. The ordinary diſcount for prompt payment on moſt merchandizes, is one *per cent.*

PAYMENTS, *Equation of.* See EQUATION *of Payments.*

PAYMOGO, in *Geography*, a town of Spain, in the province of Seville, on the frontiers of Portugal; 35 miles N. of Ayamonte.

PAYNESVILLE, a town of America, in Trumbull county, ſtate of Ohio, on lake Erie, near the mouth of Grand river; in 1802 it had about 150 inhabitants.

PAYO, ST., a town of Portugal, in the province of Tras los Montes; 18 miles W. of Mirand-de-Duero.

PAYRA, a town of South America, in the province of Quito; 12 miles N.W. of Macas.

PAYRAC, a town of France, in the department of the Lot, and chief place of a canton, in the diſtrict of Gourdon. The place contains 902, and the canton 5171 inhabitants, on a territory of 140 kiliometres, in 12 communes.

PAYROLA, in *Botany*, a name contracted by Juſſieu from *Paypayrola* of Aublet, its Caribbean name.—Juſſ. 427. Lamarck Dict. v. 5. 118. Illuſtr. t. 125. (Paypayrola; Aubl. Guian. v. 1. 249. t. 99.)—Claſs and order, *Pentandria Monogynia.* Nat. Ord. uncertain.

Gen. Ch. *Cal.* Perianth inferior, of one leaf, cloven into five, roundiſh, acute ſegments. *Cor.* Petals five, oblong, narrow, erect, united together, ſo as to reſemble a tube, their tops reflexed; one larger, emarginate, inſerted into the diſk beneath the germen. *Stam.* Filaments five, erect, inſerted into the diſk; anthers oblong, combined, two-celled. *Piſt.* Germen ſuperior, placed on the diſk; ſtyle elongated, ſtigma two-lobed. *Peric.* and *Seeds* unknown.

Obſ. Aublet remarks that he never ſaw the fruit of this plant in its perfect ſtate, but from an imperfect one, which he cut in halves, it appeared to have two cells.

Eſſ. Ch. Calyx inferior, five-cleft. Petals five, forming a tube, reflexed at their ſummit. Stigma two-lobed.

1. P. *guianenſis.* Aubl. Guian. t. 99.—Native of woods in Guiana, about Sinemari, upwards of twenty miles from the ſea. It flowers in October.—This is a ſhrub from twelve to fifteen feet in height, whoſe *ſtem* is upright and branched. *Leaves* alternate, ſtalked, large, ovate, acute, ſmooth, entire. *Stipulas* two, ſhort, acute, deciduous. *Flowers* ſpiked, axillary, terminal, yellow, each furniſhed with three glands at its baſe.

PAYS, RENE LE, in *Biography*, a writer of celebrity, born at Nantz in 1636, was brought up to buſineſs, and obtained the poſt of director-general of the gabelles in Dauphiné and Provence. He was firſt known in the literary world in 1685, by a little production in verſe and proſe, entitled "Amitiès, Amours, et Amourettes," which was read with great avidity at Paris. It is ſaid that in anſwer to ſome enquiries made by ladies as to his perſon, he addreſſed to the ducheſs of Nemours a "Portrait" of himſelf, written in the ſame ſtyle. He profeſſed to imitate Voiture, but was ſeverely criticiſed by Boileau as a very inferior writer. Le Pays, however, inſtead of being offended with the ſatire, paid a viſit to the poet, and obtained his friendſhip. He publiſhed letters, which prove that he had viſited England and Holland. He was honoured by the duke of Savoy with the knighthood of St. Michael, and was an aſſociate of the academy of Arles. He died in 1690, at the age of fifty-four.

PAYTA, or PAITA, or *St. Michel de Payta*, in *Geography*, a town of Peru, in the dioceſe of Truxillo, founded by Francis Pizarro, in the year 1531. It is ſmall, conſiſting of houſes that are conſtructed of ſplit canes and mud, covered with leaves, and one ſtory high; the only exception being that of the governor, which is built of ſtone. It has a pariſh church and chapel, dedicated to our Lady of Mercy. The inhabitants are chiefly Spaniards, Mulattoes, and Meſtizoes, who live chiefly by paſſengers going or returning from Panama to Lima, the number of whites being inconſiderable; all of them conſtituting about one ſtreet, and about 172 houſes, and 35 or 40 families. The port, though little more than a bay, is eſteemed the beſt on the coaſt, and affords a ſecure anchoring-place. This is the only place where ſhips from Acapulco, Sonſonate, Panama, &c. can touch in their paſſage to Callao. The voyage is long and tedious, on account of contrary winds, rains, and ſhifting currents : ſo that, though the diſtance, according to the latitude of theſe ports, is only 140 leagues, a ſhip is very fortunate in performing it in 40 or 50 days, and in not being obliged to return to Paita. Southward of the town is a mountain, called from its figure Silla de Paita, or the ſaddle of Paita. The ſoil round the town is wholly ſandy, and very barren : for beſides the total want of rain, it has not a ſingle river for the conveyance of water, of which it would be entirely deſtitute, if it were not ſupplied every day with great fatigue from Colan, a town on the ſame bay, four leagues N. of Paita, near which runs the river Chera, which waters Amotape. The Indians of Colan are obliged to ſend daily to Paita one or two balzes, loaded with water, which is diſtributed in ſtated proportions among the inhabitants. Paita has alſo the greateſt part of its proviſions from the ſame town. The nature of the ſoil and the ſituation of the place render it extremely hot. The town owes its whole ſupport to the harbour, which is the place, as we have already intimated, where the cargoes of goods ſent from Panama are landed, together with thoſe coming from Callao to the juriſdictions of Piara and Loja. In the bay of Paita, and alſo that of Sechura, little farther to the ſouth, there is an ample fiſhery, in which the Indians of Colan, Sechura, and the ſmall hamlets near the coaſt, are conſtantly employed. The whole defence of the town conſiſts in a ſmall fort encompaſſed by a brick wall, and mounted with about eight pieces of cannon, but it has neither ditch, nor outwork. It has been often taken by the Engliſh, and particularly in 1741 by the ſquadron of commodore Anſon, when it was pillaged and burnt. S. lat. 5° 10′. W. long. 81° 6′.

PAYTOLLEE, a town of Hindooſtan, in Rohilcund ; 7 miles E. of Biſſowie.

PAZ, *La*, a province and dioceſe of Peru, belonging however to the viceroyalty of Buenos Ayres. This dioceſe contains ſix juriſdictions, *viz.* La Paz, Omaſuyos, Pacajas, Laricaxas, Chucuito, and Paucar-colla, which ſee reſpectively. The juriſdiction of La Paz is of no great extent ; and the city is almoſt the only place in it that is worthy of any notice. In the adjacent cordillera is a high mountain, called Illimani, which is ſuppoſed to contain immenſe riches ; but its ſummit being perpetually covered with ice and ſnow, no mine has been opened in this mountain. This province was formerly known by the name of Chuquiyapu, which in the idiom of that country, is commonly thought to ſignify Chacra, or an inheritance of gold, and is there corruptly called Chuquiabo.

Paz, *La*, a conſiderable city, and capital of the above province, having, according to Helms, more than 4000 hearths, or 20,000 inhabitants. It is an elegant and clean town, chiefly trading in the noted tea of Paraguay. The province was firſt conquered by Mayta-Capac, the 4th Inca ; and the Spaniards having afterwards taken poſſeſſion of it, this city was founded by Pedro de la Gaſca, in order to ſecure a ſettlement of Spaniards, in the extenſive interval of 170 leagues between Arequipa and Plata, for the improvement of commerce, and the convenience and ſafety of the traders. Its ſituation was ſelected in a valley called Las Pacaſas, in October 1548, as a place abounding in grain and cattle, and full of Indians. Along the valley of La Paz flows a pretty large river, occaſionally much increaſed by torrents from the Cordillera, about 12 leagues diſtant from the city ; but from its vicinity, a great part of the country is expoſed to ſo cold an air, that hard froſts, ſnow, and hail are not uncommon ; but the city itſelf is ſecured from them by its happy ſituation. Other parts are ſo well ſheltered, that they produce all the vegetables of a hot climate, as ſugar-canes, cocoa, maize, and the like. In the mountainous parts are large woods of valuable timber, but infeſted with bears, tigers, and leopards, with a few deer ; while on the heaths are found guanacos, vicunas, and blamas, with a great number of cattle of the European ſpecies. The city ſtands on unequal ground, among the branches of the Cordillera, and is ſurrounded by mountains. When the river in its vicinity is increaſed, either by rains or by the melting of the ſnow on the mountain, its current forces along large maſſes of rocks, with ſome grains of gold, which are found after the flood has ſubſided, and from which ſome idea may be formed of the riches incloſed in the bowels of theſe mountains. In the year 1730, an Indian accidentally diſcovered a lump of gold of ſo large a ſize, that the marquis de Caſtel Fuerte gave 12,000 pieces of eight for it, and ſent it to Spain, as a preſent worthy of his ſovereign. This city is governed by a corregidor, under whom are regidors, and ordinary alcaldes, as in all other towns. Beſides the cathedral and the pariſh church, there are three others ; and alſo religious fraternities of Franciſcans, Dominicans, Auguſtines, the fathers of Mercy, a college of Jeſuits, and a convent and hoſpital, together with two nunneries. Here is alſo a college of St. Jerom, for the education of youth, whether deſigned for civil or eccleſiaſtical employments ; 120 miles E.S.E. of Arequipa. S. lat. 17° 15′. W. long. 68° 36′.

PAZARO, a cape of North America, on the W. ſide of the peninſula of California, near to the ſouth end of it, in about N. lat. 24°, and W. long. 113°.

PAZMANI, Peter, in *Biography*, a celebrated cardinal, who flouriſhed in the 17th century, was deſcended from a noble Tranſylvanian family. The time of his birth is not known, but he entered the order of Jeſuits in the year 1587, and diſtinguiſhed himſelf by the progreſs which he made in the different branches of literature, ſacred and profane. In the year 1607, he was appointed profeſſor of philoſophy, and afterwards of divinity at the college of Gratz, in Styria, in which poſts he acquitted himſelf with univerſal ſatisfaction. He afterwards devoted himſelf to miſſions in different parts of the kingdom, and was thought to have laboured very ſucceſsfully in oppoſing the progreſs of the reformed opinions. By his zeal he recommended himſelf to the emperor Matthias, and the principal Hungarian nobility, and was appointed to the archbiſhopric of Gran, or Strigonia, an office that he did honour to by the eſtabliſhment of ſtrict diſcipline, and correcting the relaxed manners of the Hungarian clergy. He founded colleges at Preſburg, Poſen, and other places, for the encouragement of literature. In 1629 he was promoted to the high dignity of cardinal, by pope Urban VIII., at the ſolicitation of the emperor Ferdinand II. By the ſame prince he was afterwards ſent ambaſſador to the court of Rome. He died at Poſen in 1637, while on his journey towards Vienna, to attend on the councils of the emperor Ferdinand III. He was author of "Acta et Decreta Synodi Diœceſanæ Strygonienſis, celebratæ Tyrnauiæ." "Sermons on the Goſpels for all the Sundays, and ſeveral of the Feſtivals, throughout the Year," in the Hungarian language. "A Collection of Prayers," in the ſame language, which has undergone numerous impreſſions ; and a great number of doctrinal, practical, and controverſial treatiſes, in Hungarian and Latin. Moreri.

PAZZANO, in *Geography*, a town of Naples, in Calabria Ultra ; 19 miles N.N.E. of Gierace.

PEA, in *Botany*, &c. See Lathyrus, Lotus, and Pisum.

Pea, in *Agriculture*, a ſort of plant or pulſe generally cultivated as a field crop. It is a ſort of crop which is often ſuppoſed to be leſs advantageous to the farmer than ſeveral others; but in many ſituations and circumſtances of land, it will be found highly beneficial to the cultivator, from its ameliorating and cleaning properties.

The ſpecies and varieties of peaſe are very numerous; but thoſe employed in field culture are diſtinguiſhed into two kinds, the early and late; the chief of the former of which are the *early charlton*, the *golden hotſpur*, and the *common white* ſorts; and of the latter the various kinds of grey peaſe, as the *marleborough grey*, the *horn grey*, and the *purple grey*; but the marleborough is the moſt commonly made uſe of by moſt farmers.

Soil.—Peaſe are a crop that are grown upon almoſt any ſort of ſoil, but which anſwer beſt on thoſe that are dry, and free from ſtagnant moiſture, and which are in a good ſtate of mellowneſs, and impregnated with calcareous materials. But " all the ſorts of early peaſe ſhould, according to Mr. Young, be cultivated on dry ſoils only. They will grow on moiſt, and even wet ones; but the crop is ſeldom beneficial. Upon ſands, dry ſandy loams, gravels, and chalks, they ſucceed well. They are not, however, to be much recommended on land in tilth. Great ſucceſs is rarely commanded, eſpecially in a wet ſeaſon, if they be not on a layer."

It is a ſort of crop cultivated after many different kinds, as almoſt all thoſe of the grain deſcription, as well as clover, ſainfoin, and on old lays newly broken up from ſward. But Mr. A. Young has well remarked, that " a farmer deſirous of keeping his land always in good and clean order, ſhould, in the arrangement of his crops, take great care not to be too free with wheat, barley, and oats, which are all exhauſting plants. He ſhould ſow beans and peaſe enough, becauſe they are ameliorating ones, and admit hand-hoeing, to kill the weeds. In thoſe fields in which the common huſbandmen ſow oats or barley, after wheat, or after each other, let the good cultivator ſubſtitute peaſe or beans, or ſome other ameliorating crop, which will pay him better than white corn, under ſuch circumſtances, and at the ſame time keep his land clean. Peaſe may be ſown, like black oats, on turf ploughed up before winter, and harrowed in." He further remarks, " on the culture of peaſe, that bad farmers are too apt to ſow this pulſe when the land will yield nothing elſe. They have a proverb among them, which ſignifies, that the ſeaſon does as much for peaſe as good huſbandry; and they from thence take care that good crops ſhall be owing to ſeaſon alone. Hence ariſes the general idea of peaſe being the moſt uncertain crop of all others. This is owing to their being ſcarcely ever ſown on land that is in good order. Let the good huſbandman lay it down as a maxim, that he ſhould ſow no crop on land that is not in good order; not merely in reſpect of fine tilth at the time of ſowing, but alſo of the ſoil's being in good heart, and clear of weeds. He would not, however, here be underſtood to rank all theſe crops together, becauſe beans and peaſe will admit of cleaning while they grow. On that account, if a farmer comes to a field which his predeceſſor has filled with weeds, a horſe-hoed crop of beans will be expedient, when a barley crop would be utterly improper, and, after land has yielded one crop of barley, certainly another ſhould not be ſown, but one of pulſe ſubſtituted. If theſe ideas are well executed, the peaſe and beans, in every courſe, will find the land in heart enough for barley, the ſoil will always be clean, and the crop good. Peaſe, when managed in a ſpirited manner, will not have the reputation of being ſo very uncertain a crop, which character has, in ſome meaſure, been owing to ill conduct."

And the ſame writer thinks, that the following courſes do well for them:

" 1. Turnips,
2. Barley,
3. Clover,
4. Peaſe and turnips,
5. Barley,
6. Carrots,
7. Barley,
8. Clover,
9. Wheat.

Alſo,
1. Turnips,
2. Barley,
3. Seeds for two, three, or more years,
4. Peaſe and turnips,
5. Barley,
6. Beans,
7. Wheat."

It is ſtated, that " there is a remarkable circumſtance obſerved by that excellent huſbandman, Mr. Overman of Norfolk, relative to peaſe, which ſhould be in the mind of every farmer fond of a pea crop. It is, that they do not ſucceed well, if ſown oftener than once in ten or eleven years; and he has heard it more generally obſerved by others, that peaſe ſhould not be ſown *too* often."

In regard to manuring for this crop, it is obſerved, that " it is the practice with ſome farmers to manure for them. But he muſt confeſs that he has been always ſo much againſt it, that he never did it himſelf, and therefore can only ſtate his reaſons for avoiding it. If land is in heart, and they are put in on a layer, they do not want manure. A very good crop may be gained without it. He has had five, and even five and a half quarters an acre, without any manure applied for this crop. Dung makes them run to long ſtraw, and that is not favourable for podding productively. Dung encourages weeds; and peaſe, except in the early ſtage of their growth, do not admit of ſuch hoeing as a farmer would wiſh to give. Beans cannot have too much dung, but with peaſe the caſe is different. There are few ſituations in which the farmer can have ſuch a command of manure to give him a ſufficiency. It is, therefore, of much conſequence to him, never to ſpread a load but where it will be ſure to anſwer beſt. Every man complains of a want of dung; how very careful, therefore, ought all to be, to give it to the crops that will pay beſt for the expence." But notwithſtanding theſe uſeful remarks, manure may in many caſes be employed with advantage for crops of this kind, and in ſome they cannot probably be grown without it to advantage.

Time of Sowing, and Quantity of Seed.—The time of putting this ſort of crops into the ground differs conſiderably, according to the intentions of the cultivator. When they are grown for podding early for ſale green, they ſhould be ſown at different times, from January to the end of March, beginning with the drieſt and moſt reduced ſorts of land. And in this intention, in ſome ſouthern counties, they are put in in the autumn. But for the general crops, from February to April, as ſoon as the lands can be brought into proper order, is the proper ſeaſon; the grey ſorts being employed in the early ſowings, and the white ſorts in the later. Mr. Young ſays, that where the crops cannot be put in in February, they ſhould always be completed in the following month. And that, in ſowing on layers, that " the white boiling pea, of many ſorts, and under various names, is more tender than the greys, and various kinds of hog peaſe; but he has many times put them into the ground in February, and though very ſmart froſts followed, they received no injury. He has uniformly found, that the earlier they were ſown the better. There is alſo a particular motive for being as early as poſſible; that is, to get them off in time for turnips. This is moſt profitable huſbandry, and ſhould never be neglected. If they are ſown in this month, and a right ſort choſen, they will be off the land in June, ſo that turnips may follow at the common time of ſowing that crop."

It is evident that the quantity of ſeed muſt be different in different caſes and circumſtances, and according to the time and manner in which the crop is put into the ground; but in general, it may be from two and a half to three buſhels, the early ſowings having the largeſt proportion of ſeed. In planting every flag, Mr. Young ſays, two buſhels and a half is the uſual proportion; but when drilled at greater diſtances, ſix or ſeven pecks will anſwer in moſt caſes.

Methods of Sowing.—There are different practices purſued in putting this ſort of crop into the ſoil: Mr. Young remarks, that in common management they are ſometimes ploughed, and at others harrowed in, circumſtances which often make a difference in the crops, as where the land is apt to bind with rain, and the peaſe are ploughed in, they ſometimes do not come up at all, not having ſtrength to pierce the plaſtered ſurface. But this is an evil that attends only the very binding ſoils with late ſowing. On the other hand, when the ſeed is only harrowed in, where the land is not very well guarded, much devaſtation will be committed by the pigeons, and other birds, for which allowances ſhould be made. It is ſuppoſed, that where the lands harrow well, all ſhould be harrowed in, except on the lighteſt lands. But on theſe, ſuch as looſe ſands, and other very porous and dry ſoils, it is a preferable practice to plough them in, as they have a greater depth, and are of courſe leſs liable to burn in hot ſummers.

It has been remarked, that it is uſual, in theſe caſes, in many diſtricts, to put the ſeed into the ground in the broadcaſt method; but the drill, or row ſyſtem, is moſtly to be preferred, as being more regular, ſaving conſiderably in the proportion of ſeed, and admitting of cultivation afterwards with more eaſe and advantage. And that different implements have been contrived for this uſe, but the moſt convenient is probably a ſmall light ſort of wheel-plough, to the body of which a ſort of ſeed-box is attached, through the bottom of which the axis of a light wheel paſſes, by which the ſowing is regulated, and which is pulled up and prevented from letting the peaſe be depoſited at the ends of the ridges, or other places, as in turning, by a ſtring attached to the handle. It may be conveniently employed with one or two horſes. In regard to the rows, it is obſerved, that the proper diſtance of drilling this kind of crop is moſtly about twelve or fixteen inches for hand-hoeing; but where the horſe-hoe is employed, from two to three feet; and the depth to which the ſeed is depoſited from two to three inches. And that, in ſome diſtricts, the ſeed is put by the hand into drills moſtly made croſsways of the ridges, but occaſionally in the direction of them at the diſtance of about fifteen inches from each other, and afterwards covered in by means of hoes. In ſome inſtances, alſo, a buſh-harrow is drawn over the ſurface, by which the land is rendered ſmooth and even. But where this ſort of crop is cultivated on a lay preparation, the beſt method is probably to dibble the ſeed in. This is the practice conſtantly followed by the beſt cultivators in ſome diſtricts in Middleſex. Mr. Young, however, adviſes, that broad-caſt peaſe ſhould be utterly rejected in every caſe. The only queſtion that can ariſe in their culture, is between drilling and dibbling. If the former is determined on, the land ſhould have been ploughed late in autumn, with Ducket's ſkin coulter, into lands adapted to the drill-machine and ſcarifiers. The ſurface being then worked ſhallow, in this month drilling ſhould directly follow. If dibbling is determined on, the land ſhould not be plonghed till the time of planting, and a heavy roller follow the plough. On lighter ſoils, if the froſt has worked the ſurface, after ploughing, the ground will be in too friable a ſtate, the holes will moulder in, and the ſeed will be laid too ſhallow. Dibbling peaſe on a layer cannot be too much commended. It is an excellent practice in moſt caſes.

But in reſpect to the rows, the practice of various farmers differs exceedingly. Equi-diſtant rows, from nine to eighteen inches, are common. He has ſeen them at two feet, and even three. In dibbling, it is common in Norfok and Suffolk to put in three rows, on every flag of nine or ten inches breadth; ſome farmers one row on ſuch a furrow: and he has known very good crops in moſt of theſe diſtances. If horſe-hoeing is intended, double rows at nine inches, with intervals of eighteen, do well: but the greateſt crops have been from planting every flag.

It has been ſuggeſted, that, though the practice of ſteeping this ſort of ſeed is ſeldom had recourſe to by the cultivators of peaſe, it is probable that the later ſown crops may be greatly benefited by it, as the vegetation of the plants may be rendered more quick, regular, and uniform. And in the Maiſons Ruſtiques, the ſame practice is approved of, not only to ſeparate the bad and faulty, but to enable the crop to riſe ſooner.

It is the cuſtom in Hertfordſhire, and ſome other diſtricts, to ſow beans, or even oats, ſometimes with the peaſe, with a view of keeping them up. Theſe mixtures ſhould, however, never be adopted, as the different crops, from their being of an unequal growth, muſt conſtantly be liable to injure each other while they are growing on the land.

Culture while Growing.—There can be no doubt but that the uſe of the hoe in ſtirring the intervals, and earthing up the young plants where the crop has been put in in rows by the drill or dibble, is of eſſential advantage in promoting their growth, and protecting them from the injuries of the ſeaſon. Where the method of hand-culture prevails, it is the general cuſtom to have recourſe to two hoeings; the firſt, when the plants are about two or three inches in height, and again juſt before the period in which they come into bloſſom. In this way the vigorous vegetation of the young crop is ſecured, and a freſh ſupply of nouriſhment afforded for the ſetting of the pods and the filling of the peaſe. At the laſt of theſe operations, the rows ſhould be laid down, and the earth well placed up to them, the weeds being previouſly extirpated by hand-labour. In ſome parts of Kent, where this ſort of crop is much grown, it is the practice, when the diſtance of the rows is ſufficiently great, to prevent the vegetation of weeds, and forward the growth of the pea crops, by occaſionally hedge-hoeing, and the uſe of the break-arrow, the mould being laid up to the roots of the plants at the laſt operation, by fixing a piece of wood to the arrow. This ſhould, however, only be laid up on one ſide, the peaſe being always placed up to that which is the moſt fully expoſed to the effects of the ſun. The hedge-hoeing is performed at the rate of from two to three ſhillings the acre, according to the nature of the land. Theſe ſorts of crops can never be kept too clean, therefore the greateſt attention ſhould be paid to them.

It has been ſtated that there are many inducements to the cultivation of this crop, on ſuitable ſoils in the vicinity of large towns, where the demand for green peaſe is conſiderable; ſuch as the ready ſupply of money, that is thus provided for the other expenſive operations during the ſummer months, the facility of thus rendering the land proper for the growth of turnips, and the large ſupply of fodder that is afforded by the ſtems of the plants when properly ſecured; notwithſtanding the danger of ſuch crops during the winter, and even in the ſpring months, when the ſeaſon proves unfavourable, and the heavy expences incurred in the gathering and diſpoſal of them. And that it is frequently a practice with the large cultivators of early green pea crops, in the neighbourhood of London, to diſpoſe of them by the acre to inferior perſons, who procure the podders; but the ſmaller farmers for the moſt part provide this deſcription of people themſelves, who generally apply at the proper ſeaſon for the purpoſe. The buſineſs of picking or podding the peaſe is uſually performed by the labourers at a fixed price for the ſack, of four heaped buſhels. The number of this ſort of perſons is generally in the proportion of about four to the acre, the labour proceeding on the Sundays as well as other days. It is ſometimes the cuſtom to pick the crops over twice, after which the reſt are ſuffered to ſtand till they become ripe for the purpoſe of ſeed. This, however, moſtly ariſes from the want of pickers, as it is conſidered as a loſs, from the peaſe being leſs profitable in their ripe ſtate than when green. Beſides, they are often improper for the purpoſe of ſeed, as being the worſt part of the crop. It is therefore better to have them clear picked, when the hands can be procured. After this they are loaded into carts, and ſent off at ſuitable times, according to the diſtance of the ſituation, ſo as to be delivered to the ſaleſmen in the different markets from about three to five o'clock in the morning. In many caſes in other parts the early gatherings are, however, ſent to the markets in half-buſhel ſieves, and are frequently diſpoſed of at the high price of five ſhillings the ſieve; but at the after periods they are uſually conveyed in ſacks of a narrow form, made for the purpoſe, which contain about three buſhels each, which, in the more early parts of the ſeaſon, often fetch twelve or fourteen ſhillings the ſack, but afterwards moſtly decline conſiderably, in ſome ſeaſons ſo much as ſcarcely to repay the expences. This ſort of crop affords the moſt profit in ſuch pea ſeaſons as are inclined to be cool, as under ſuch circumſtances the peaſe are moſt retarded in their maturation or ripening, and of courſe the markets are kept from being over abundantly ſupplied. With reſpect to the expence attending the gathering of green peaſe, it is different according to the difficulty of procuring podders, the bulk or abundance of the crops, and the kind of pea, or ſize of the pods. Thoſe of the larger ſorts, ſuch as the marrowfats, being in the county of Middleſex about one ſhilling, and thoſe of the ſmaller kinds, as the charlton, from fifteen to eighteen pence the ſack. In Kent, the uſual price is about fourteen-pence the ſack for podding, one ſhilling for conveying them to the market, and three-pence the ſack for the ſaleſman. It is obviouſly only in the vicinities of large towns, that the ſyſtem of green pea management can be carried on with the proſpect of much profit; in other caſes it will be better to take regular field crops in the uſual way. Theſe prices ſtand much higher at preſent.

It is further ſtated, that the quantity of produce of both the early and late pea crops varies much according to the nature of the ſeaſon, and many other circumſtances. The average of the early crops in Middleſex is ſuppoſed to be from about twenty-five to thirty ſacks the acre. The author of the Synopſis of Huſbandry, however, ſtates the produce about Dartford, in the county of Kent, at about forty ſacks the acre, though fifty have ſometimes been gathered from that ſpace of land.

In the county of Middleſex, Mr. Middleton has ſtated the expences and produce in cultivating a field of ſix acres in the year 1796 to ſtand as below, though it was not remarkable for more than a common crop.

Expences of Preparation.

	£	*s.*	*d.*
Ploughing once from clover lay - -	0	10	0
Seed four buſhels, at 12*s.* - -	2	8	0
Drilling and covering in, &c. - -	0	7	0
Hoeing twice - - -	0	10	0
Podding *per* ſack 18*d.* on 40 ſacks -	3	0	0
Marketing, diſtance 10 miles; land carriage -	1	5	0
	8	0	0

Produce of Crop.

	£	*s.*	*d.*
Forty ſacks, of four buſhels each, of pods for market, at from 6*s.* to 13*s.* average 7*s.* but at 6*s.* each - -	15	0	0
Haulm, ſtacked for giving to draught horſes, one ton *per* acre, worth two-thirds as much hay, but ſuppoſe only -	3	0	0
	18	0	0

The advantage in this caſe ten pounds.

And in the latter crops, that ſtand to ripen, it is ſuppoſed by ſome to be from three and a half to four quarters the acre; others, however, as Mr. Donaldſon, imagine the average of any two crops together not more than about twelve buſhels. And that on the whole, if the value of the produce be merely attended to, it may be conſidered as a leſs profitable crop than moſt others. But as a means of ameliorating and improving the ſoil, at the ſame time, it is however to be eſteemed as of great value.

The greateſt danger to the early pea crops is to be apprehended, when the weather during the more early ſpring months is hot and ſunny in the day-time, attended with ſharp froſts in the night, as in this way great miſchief is often done; the crops becoming attacked with the mildew, and not ripening in a proper manner. And, while the peaſe are proceeding in their growth, and ſtill more particularly at the periods when they come into bloſſom and begin to ſet their pods, it is of great importance to have rather moiſt weather, as by that means the vegetation of the crop is promoted in a more perfect manner, and there is a greater chance of the peas being well podded. The chief ſigns of the healthy and vigorous vegetation of pea crops are thoſe of their leaves poſſeſſing a fine bloom of a bluiſh caſt, and having the outermoſt large leaves of the bloſſom extending backwards in ſome degree.

As the pea crops become ripe, they wither and turn brown in the haulm or ſtraw, and the pods begin to open. In this ſtate they ſhould be cut as ſoon as poſſible, in order that there may be the leaſt loſs ſuſtained by their ſhedding. In the late or general crops, after they are reaped, or rather cut up by means of a hook, it is the uſual practice to put them up into ſmall heaps, termed wads, which are formed by ſetting ſmall parcels againſt each other, in order that they may be more perfectly dried both in the ſeed and ſtem, and be kept from being injured by the moiſture of the ground. But in the early crops the haulm is hooked up into looſe open heaps, which, as ſoon as they are perfectly dry, are removed from the ground and put into ſtacks for the purpoſe of being converted to the food of animals, on which they are ſaid to thrive nearly as well as on hay. When intended for horſes, the beſt method would ſeem to be that of having them cut into chaff and mixed with their other food. Mr. Young aſſerts, that forward white peas will be fit to cut early in July ; if the crop is very great, they muſt be hooked ; but if ſmall, or only middling, mowing will be ſufficient. The ſtalks and leaves of peaſe being very ſucculent, they ſhould be taken good care of in wet weather : the tufts, called wads or heaps, ſhould be turned, or they will ſell but indifferently, as the brightneſs and plumpneſs of the grain are conſidered at market more than with hog-peaſe. The ſtraw alſo, if well harveſted, is very good fodder for all ſorts of cattle and for ſheep ; but if it receives much wet, or if the heaps are not turned, it can be uſed only to litter the farm-yard with.

It is the practice in ſome diſtricts to remove the haulm, as ſoon as it has been cut up by hooks, conſtructed with ſharp edges for the purpoſe, to every fifth ridge, or even into an adjoining graſs field, in order that it may be the better cured for uſe as cattle food, and at the ſame time allow of the land being immediately prepared for the ſucceeding crop. What are uſually termed winter peaſe, or ſuch crops as have been ſown in the autumn, generally afford the largeſt proportion of cattle fodder, when properly managed in the ſecuring of it.

Mr. Banniſter ſtates, that if wet weather happens whilſt the peaſe lie in wads, it occaſions a conſiderable loſs, many of them being ſhed in the field, and of thoſe that remain, a great part will be ſo conſiderably injured, as to render the ſample of little value. This inability in peaſe to reſiſt a wet harveſt, together with the great uncertainty throughout their growth, and the frequent inadequate return in proportion to the length of haulm, has diſcouraged many farmers from ſowing ſo large a ſeaſon of this pulſe as of other grain ; though on light lands which are in tolerable heart, the profit, in a good year, is far from inconſiderable.

It is thought by ſome of conſiderable importance in the economy of a farm, when the nature of the ſoil is ſuitable, to have recourſe to the early ſorts ; as by ſuch means, the crops may in many caſes be cut and ſecured, while there is leiſure, before the commencement of the wheat harveſt. And, that where the nature of the ſoil is dry and warm, and the pea crop of a ſufficiently forward kind, it may be eaſy to obtain a crop of turnips from the ſame land in the ſame year, as has been ſuggeſted above. But in this view it is the beſt practice to put the crops in in the row method, and keep them perfectly clean by means of attentive hand and horſe-hoeing ; as in that way the land will be in ſuch a ſtate of preparation for the turnips, as only to require a ſlight ploughing, which may be done as faſt as the pea crop is removed, and the turnip ſeed harrowed in as quickly as poſſible upon the newly turned up earth. In ſome particular diſtricts a third crop is even put into the ſame land, the turnips being ſold off in the autumn and replaced by collards, for the purpoſe of greens in the following ſpring. This, according to Mr. Middleton, is the practice in ſome places in Middleſex. But it is obviouſly a method of cultivation that can only be attempted on the warm and fertile kinds of turnip ſoil, and where the pea crops are early ; on the cold heavy and wet deſcriptions of land, it is obviouſly impracticable, and wholly improper.

It is ſtated by a practical writer, that with the marrowfat and other late ſorts of peaſe, the uſual practice is either to prepare the land for wheat, or to put in crops of ſavoys or other late ſorts of cabbages, which are the methods of huſbandry that may often be had recourſe to, even on the more heavy ſorts of land, with ſucceſs. And that from pea crops rendering the lands, on which they are cultivated, more light, open, and porous, they are ſuppoſed to be leſs proper for preceding wheat, than thoſe of beans ; on the more ſtiff ſorts of ground, this cannot, however, be an objection of any great conſequence, and even on the lighter kinds it may often be obviated, by giving the ſeed earth early, ſo that the crop may be put in upon a ſtale furrow, by the uſe of the ſheep-fold, either immediately before or after the grain is depoſited in the ſoil, and by repeating the ſame practice occaſionally afterwards, as well as by rolling.

Application of Crops.—It is ſtated, that the portion of peaſe, that is not conſumed as human food, is moſtly appropriated to the purpoſes of fattening hogs and other ſorts of domeſtic animals ; and, in particular inſtances, ſupplies the place of beans as the provender of labouring horſes ; but that care ſhould be taken, when uſed in this way, that they be ſufficiently dry, as, when given in their green ſtate, they are ſaid to be apt to produce the gripes and other bowel complaints in theſe animals. And Mr. Banniſter, after obſerving that the ſtraw is a very wholeſome food for cattle of every kind, ſuggeſts, that there is generally a conſiderable demand for peaſe of every denomination in the market, the uſes to which they may be applied being ſo many and ſo various. The boilers, or yellow peaſe, always go off briſkly ; and the hog peaſe uſually ſell for ſixpence or a ſhilling *per* quarter more than beans. For feeding ſwine the pea is much better adapted than the bean, it having been demonſtrated by experience, that hogs fat more kindly when fed with this grain than on beans ; and, what is not eaſy to be accounted for, the fleſh of ſwine, which have been fed on peaſe, it is ſaid, will ſwell in boiling, and be well taſted ; whilſt the fleſh of the bean-fed hog will ſhrink in the pot, the fat will boil out, and the meat be leſs delicate in flavour. It has, therefore, now become a practice with thoſe farmers who are curious in their pork, to feed their hogs on peaſe and barley-meal, and if they have no peaſe of their own growth, they rather chooſe to be at the expence of buying them, than ſuffer their hogs to eat beans. Nay, ſo far do ſome of them carry their prejudice in this particular, as to reject the grey peaſe for this uſe, as bearing too great an affinity to the bean, and therefore reſerve their growths of white peaſe ſolely for hog-fatting.

Peaſe, if the ground is kindly for their growth, and the ſummer moiſt, generally produce a great abundance of haulm, which takes up a large ſpace in the barn, and for this reaſon the mow ought always to be trodden with hogs or horſes, or in ſome better way, which will cloſe down the haulm into one-ſixth part of the compaſs it would otherwiſe have occupied. In Leiceſterſhire they ſet all their peaſe abroad in ſtacks, being perſuaded that they thence acquire a much better colour than when houſed in the barn.

Malted peaſe have been found to anſwer well in the fattening of hogs and turkeys, as well as in the feeding of horſes in ſome caſes.

Saving of Seed-peaſe.—In the ſaving of any particular ſorts of peaſe for ſeed, they ſhould be carefully looked over while in flower, in order to draw out all ſuch plants as are not of the right ſort ; as there will always be, in every ſort, ſome roughiſh plants, which, if left to mix, will degenerate the kind. As many rows as may be thought ſufficient to furniſh the deſired quantity of ſeed ſhould then be marked out, and left till their pods turn brown, and begin to ſplit, when they ſhould immediately be gathered up with the haulm ; and if the farmer has not room to ſtack them till winter, they may be threſhed out, as ſoon as they are dry, and put up in ſacks for uſe: but particular care ſhould be taken not to let them remain too long abroad, after they are ripe; as wet would rot them; and heat, after a ſhower of rain, make their pods burſt in ſuch a manner that the greater part of their ſeeds would be loſt.

Pea, *Chich.* See Cicer.

The chich pea is much cultivated in Spain, being an ingredient in their dyes, and is there called *garavance.* It is cultivated in France alſo, but in England it is rarely ſown; and unleſs the ſeaſon proves warm and dry, the plants decay before the ſeeds ripen. Miller.

The ancient Hebrews made uſe of chich peas as their common proviſions, when they took the field. They parched them to eat. At this day in Egypt, when people undertake a journey, they lay in a good ſtock of chich peas, parched in a frying-pan. Bellonius aſſures us, that at Grand Cairo, and Damaſcus, there are abundance of ſhops, where people do nothing elſe but fry peas, it being a ſort of proviſions with which they furniſh travellers. In Ethiopia they take barley with them, roaſted in the ſame manner. In Turkey they lay in a ſtock of rice on theſe occaſions, which they prepare and ſhell. The Hebrew term קלי, ſignifies properly any thing roaſted in general, and by it is underſtood roaſted peas, rice, or barley; ſome will have even coffee to be meant by it. Bellon. lib. ii. cap. 53. Calm. Dict. Bibl.

Pea, *Everlaſting,* or earth-nut pea, names ſometimes given to the lathyrus. See Lathyrus.

Pea, *Everlaſting,* in *Agriculture,* a plant of the vetch kind, that may be ſometimes cultivated. This is probably another plant of the pea kind that may be cultivated with great advantage as green food for animals.

Mr. Weſton has obſerved, that tares and vetches are plants of which horſes are very fond, and are cultivated with great advantage for that purpoſe. The everlaſting peas belong to the ſame claſs of plants; are much more luxuriant in their growth, and yet are not cultivated, except for ornament. Theſe plants are well known, and may be found in the gardens of almoſt every village in the kingdom. The luxuriance of their growth is ſo great, that the narrow-leaved, lathyrus ſylveſtris, grows to the height of five or ſix feet, the other, lathyrus latifolius, to eight, ten, or more. They begin to vegetate early in the ſpring, and continue growing until ſevere froſts ſtop them. Another peculiar advantage belonging to them is, that they are perennial-rooted plants, and when once ſown, improve in their vigour and growth after the firſt year, and continue increaſing for ſeveral ſucceſſive ones, as may readily be proved by examining the gardens in which they are to be found, where ſeed may be had, and tried at firſt upon a ſmall ſcale, with very little trouble and expence, and afterwards increaſed. A rood of land, light, and but poor in quality, was ſowed with it early in the ſpring; the land prepared as for barley. A ſlight furrow was drawn with a light plough, and the ſeed thinly dropped into it. Another was drawn at a foot diſtance, and the ſeed dropped in like manner. An interval was then left at leaſt two feet wide; then two more rows, till the whole was ſown. The ſeed was afterwards covered by drawing a light harrow, with wooden tines, backwards and forwards acroſs the land. When the plants came up and grew a little ſtrong, they were thinned with a hoe to a foot diſtance, that they might have room to ſpread and branch. The firſt year they made no great quantity of fodder, but have ſince made ample amends.

The ſecond ſpring they came up very ſtrong and vigorous, branching out very much. A couple of horſes were turned into feed, who were very fond of them, eating them very greedily, though they were taken out of a good natural upland paſture. The third year the land was almoſt entirely covered, and it yielded a great deal of food. For experiment a few rods were mowed juſt before it flowered, which made good hay, ſweet without being ſticky.

It is noticed, that this experiment is not deſcribed longer than the three firſt years. Inſtead of deſtroying the plants by hoeing them where too thick, he would recommend them to be drawn out, and a freſh plantation made with them. In gardens, they are generally tranſplanted from the ſeed beds the ſecond ſpring. And inſtead of turning horſes into feed, he would prefer cutting them either with a ſcythe or ſickle, and have them given to the horſes. It would certainly by that method produce more fodder, and you could find how many times in the ſummer they would bear cutting, and at what height it is the moſt advantageous to cut them. If the intervals be left three feet wide, inſtead of two, there would be room to plant in September and October a winter crop, when the peas ceaſe growing, as borecole, cabbage plants, &c. which would occupy the ground till March, at which time they begin to vegetate.

Others have found much advantage from this plant in the fattening of cattle in ſome of the weſtern counties.

Pea *Flowers,* in *Botany,* ſee Diadelphia, Leguminosæ, and Papilionaceous *Flowers.*

Pea, *Heart,* or *Bladder.* See Cardiospermum.

Pea, *Indian,* or *Heath,* the name by which a ſpecies of orobus is ſometimes called. See Orobus.

Pea, *Painted Lady.* See Lathyrus.

Pea, *Pigeon,* a name ſometimes given to the *cytiſus;* which ſee.

Pea, *Scarlet,* the Engliſh name of a genus of plants, called by Linnæus *glycine;* which ſee.

Pea, *Sweet-ſcented* and *Tangier.* See Lathyrus.

Pea, *Winged,* a name by which ſome call the *lotus;* which ſee.

Pea, *Wild-winged,* a ſpecies of the *piſum;* which ſee.

Pea, *Wood.* See Orobus.

PEACE, Pax, in its general ſignification, ſtands in oppoſition to *war.* The right of making war and peace is one of the prerogatives of the king. In order to make a war completely effectual, it is neceſſary with us in England, that it be publicly declared, and duly proclaimed by the king's authority; and then all parts of both the contending nations, from the higheſt to the loweſt, are bound by it. And wherever the right reſides of beginning a national war, there alſo muſt reſide the right of ending it, or the power of making peace. And the ſame check of parliamentary impeachment, for improper or inglorious conduct, in beginning, conducting, or concluding a national war, is in general ſufficient to reſtrain the miniſters of the crown from a wanton or injurious exertion of this great prerogative.

Peace, in our *Law Books,* &c. is reſtrained to a quiet and inoffenſive carriage towards the king, and his people. Lamb. Eirenarch.

Offences againſt the public peace are either ſuch as are an actual breach of the peace; or conſtructively ſo, by tending to make others break it. Both of theſe ſpecies are either felonious, or not felonious. The felonious breaches of the peace, are ſtrained up to that degree of malignity by virtue of ſeveral modern ſtatutes; and, particularly, the "riotous aſſembling" of 12 perſons or more, and not diſperſing upon proclamation: "unlawful hunting" in any legal foreſt, park, or warren, not being the king's property, by night, or with painted faces, 1 Hen. VII. c. 7, or appearing with the face blacked, or with other diſguiſe, and being armed with offenſive weapons, to the breach of the public peace, and the terror of his majeſty's ſubjects, 9 Geo. I. c. 22:—ſending any *letter* without a name, or with a fictitious name, *demanding* money, &c. or *threatening* to kill any of his majeſty's ſubjects, or to fire their houſes, &c., 9 Geo. I. c. 22. 27 Geo. II. c. 15:—deſtroying any *lock*, *ſluice*, or *floodgate*, &c. turnpike-gate, &c. The above-mentioned offences are felonies. Thoſe that remain to be enumerated are merely miſdemeanors; *viz. affrays, riots, routs*, and *unlawful aſſemblies*, conſiſting of at leaſt three perſons; *tumultuous petitioning; forcible entry* or *detainer; riding* or *going armed*, with dangerous or unuſual weapons; *ſpreading falſe news; falſe* and *pretended prophecies*. Beſides actual breaches of the peace, any thing that tends to provoke or excite others to break it, is an offence of the ſame denomination; ſuch are *challenges to fight*, either by word or letter, or *bearing* ſuch challenge; and *libels*. See each article.

The Engliſh laws have provided various means for preventing offences againſt the public peace. Where any man ſtands in danger of harm from another, and makes oath thereof before a juſtice of the peace, he muſt be ſecured by good bond, which is called *binding to the peace*. Any juſtice of the peace may, *ex officio*, bind all thoſe to keep the peace, who, in his preſence, make any affray; or threaten to kill or beat another; or contend together with hot and angry words; or go about with unuſual weapons or attendance, to the terror of the people; and all ſuch as he knows to be common barretors; and ſuch as are brought before him by the conſtable for a breach of the peace in his preſence, and all ſuch perſons, as, having been before bound to the peace, have broken it and forfeited their recognizances. (1 Hawk. P.C. 136.) Alſo, wherever any private man hath juſt cauſe to fear that another will burn his houſe, or do him a corporal injury, by killing, impriſoning, or beating him; or that he will procure others ſo to do; he may demand ſurety of the peace againſt ſuch perſon; and every juſtice of the peace is bound to grant it, if he who demands it will make oath, that he is actually under fear of death or bodily harm; and will ſhew that he has juſt cauſe to be ſo, by reaſon of the other's menaces, attempts, or having lain in wait for him; and will alſo farther ſwear that he does not require ſuch ſurety out of malice or mere vexation. (Ibid. 127.) This is called *ſwearing the peace* againſt another; and if the party does not find ſuch ſureties, as the juſtice in his diſcretion ſhall require, he may immediately be committed till he does. (Ibid. 128.) A recognizance for keeping the peace, when given, may be forfeited by any actual violence, or even an aſſault, or menace, to the perſon of him who demanded it, if it be a ſpecial recogniſance; or, if the recogniſance be general, by any unlawful action whatſoever, that either is or tends to a breach of the peace. Blackſt. Com. b. iv. See Good-*abearing*.

Peace, *Time of*, is when the courts of juſtice are open, and the judges and miniſters of the ſame may by law protect men from wrong and violence, and diſtribute juſtice to all. See Coke on Litt.

Peace *of the King, pax regis*, mentioned in the ſtat. 6 Ric. II. &c. is that ſecurity which the king promiſes his ſubjects, and others taken into his protection, both for life and goods.

Peace *of God and the Church, pax Dei & eccleſiæ*, mentioned in our *Ancient Law Books*, is that reſt and ceſſation which the king's ſubjects had from trouble and ſuit of law, between the terms.

Peace *of the Plough*, that whereby the plough, plough-tackle, and plough-cattle, are ſecured from diſtreſſes.

Thus fairs may be ſaid to have their peace, becauſe no man may be troubled in them for any debt contracted elſewhere.

Peace, *Clerk of the*. See Clerk *of the Peace*.

Peace, *Commiſſion and Juſtice of*. See Justices *of Peace*.

Peace, *Conſervator of the*. See Conservator.

Peace, *Homage of the*. See Homage.

Peace, in *Mythology*, a goddeſs among the Romans, to whom they erected a variety of magnificent temples. The temple, which was begun by Claudius, and finiſhed by Veſpaſian, was not inferior to any in Rome. If we may believe Suetonius, Joſephus, and St. Jerom, the emperor depoſited there the precious and rich ſpoils of the temple of Jeruſalem. In this temple thoſe who profeſſed the fine arts aſſembled, in order to diſpute about their prerogatives, that in the preſence of the goddeſs of peace, all heats might be baniſhed from their debates. This goddeſs had alſo in the ſame city an altar, which was very much frequented. Monuments repreſent to us peace under the figure of a woman crowned with laurel, olive, or chaplets of roſes, holding in one hand the caduceus, and in the other ears of corn, the ſymbol of plenty, which ſhe procures. Ariſtophanes gives her Venus and the Graces for her companions. See Concord and Tranquillity.

Peace, in *Geography*, an iſland on the coaſt of Nova Scotia, S. of Mirachi point.

Peace *River*, a large river of North America, which runs north-eaſterly into the Lake of the Hills. In the drieſt ſeaſon, it is a quarter of a mile wide. The lands on this river are inhabited by the Beaver and Rocky Mountain Indians, who are an uninformed and barbarous race of beings. Polygamy is practiſed among them, and the women are in the loweſt ſtate of debaſement. At their funerals, among other extravagant tokens of ſorrow, the women, if the deceaſed be a favourite ſon or huſband, cut off a finger at the firſt joint. Some of the old women have not a whole finger left. The men think it below their dignity to ſhew any mark of grief. Theſe perſons are great gameſters, and purſue this as their employment for ſeveral days and nights. Their habitations are formed by ſetting up a number of poles, united at the top, and expanded at the bottom in a circle of 12 or 15 feet diameter. Theſe are covered with dreſſed ſkins ſewed together. This buſineſs, and other drudgeries, are performed by the women, while the men ſit ſmoking at their eaſe.

PEACEE, a town of Hindooſtan, in Oude; 40 miles S. of Goorackpour.

PEACH-Tree, in *Botany* and *Gardening*. See Amygdalus.

Peach-*Tree*, in the *Materia Medica*. The fruit of the peach is known to be grateful and wholeſome, ſeldom diſagreeing with the ſtomach, unleſs this organ is not in a healthy ſtate, or the fruit has been eaten to exceſs. The flowers, including the calyx as well as the corolla, are the parts of the perſica uſed for medicinal purpoſes. Theſe have an agreeable but weak ſmell, and a bitteriſh taſte. They are uſed as a purge for children made into a ſyrup, and are by ſome recommended as great deſtroyers of worms; but there is a circumſtance attending them which is little taken notice of, and yet greatly alters their virtue. The cuſtom of gardeners is, to graft the peach upon the almond or the plum-tree, and the flowers partake of the nature of the ſtock; thoſe which are produced on peach-trees grafted on plum-ſtocks being much more purgative than thoſe from almonds; the reaſon of which ſeems plainly, that the plum is a purgative fruit, the almond not at all ſo. The flowers of the leaſt eſteemed ſorts of peaches are alſo uſually found to be the beſt for medicinal uſe.

In examining theſe flowers, they are found to contain more than three-fourths of a ſuperfluous humidity. The buds contain a little leſs than the blown flowers; which is very natural to be ſuppoſed, becauſe it is their being afterwards charged with a larger portion of humidity which makes them open. The buttons, or buds of the flowers, are found on experiment, however, to be ſomewhat more purgative than the flowers when open.

If four pounds of theſe flowers are diſtilled in a balneum Mariæ, they yield twelve or thirteen ounces of a whitiſh liquor, ſweet to the taſte, and of an agreeable ſmell, reſembling that of bruiſed peach kernels; and this is ſo ſtrong in the water, that a few drops of it will very agreeably ſcent a larger quantity of any thing. If the buds are uſed to this purpoſe, inſtead of the open flowers, the ſame ſort of liquor is drawn over; but it is of a ſomewhat coarſer and more earthy ſmell. The reſiduum of theſe diſtillations put into a retort, and diſtilled by a reverberatory fire, gradually raiſed to its ſeveral degrees, yields both acid and alkaline ſubſtances; and, finally, a red ſpirit comes over, full of fuliginous particles, and containing ſome oil, part of which ſwims at the top of the liquor, and the other part, which is heavier, ſinks to the bottom. This is what a chemical analyſis ſhews in theſe flowers, different from other vegetable matters. Spirits of wine draw a very weak tincture from theſe flowers; it is indeed much weaker than an infuſion of them in common water. An infuſion in water of half an ounce of freſh peach-flowers, or of a dram of dry ones, (for, as before obſerved, they contain three-fourths of ſuperfluous moiſture) is a very gentle and agreeable purge, and it is ſaid, when ſweetened with ſugar, to prove an uſeful purgative and anthelmintic for children.

This method of infuſion is much better for theſe and all other purgative flowers, than the taking of the expreſſed juice; for in that caſe there is always a large quantity of purgative matter remaining in the reſiduum; which water in a warm infuſion is able to take out. The infuſion of roſe or peach-flowers keeps alſo better than their expreſſed juice.

The juice always turns ſour very ſoon; but the infuſion, with the common caution of pouring a little oil on the ſurface, will keep good even for years.

When oil is uſed for this purpoſe, there ſhould always be care taken that it be ſuch as does not freeze eaſily; for in that caſe, the air gets in between the cake of frozen oil and the ſides of the veſſel, and ſpoils the liquor. Oil of almonds is greatly to be preferred to oil of olives on theſe occaſions; as it freezes with much more difficulty. Another way of preſerving the infuſions is, the evaporating about half the liquor; and thus they will often keep a long time: as infuſions keep better than the juices of plants, this ſeems to ſhew, that the former contain more of the principles than the latter.

The young leaves of the peach, made into an infuſion in the ſame manner as the flowers, are more purgative than they, but leſs agreeable: they are to be taken in the ſame manner. Mem. Acad. Par. 1714.

Theſe leaves are found to poſſeſs an anthelmintic power, and, from a great number of experiments, appear to have been given with invariable ſucceſs to children and adults. However, as the leaves and flowers of the perſica manifeſt in ſome degree the quality of thoſe of the lauro-ceraſus, they ought to be uſed with caution.

PEACH-*Colour*, the pale red colour of the bloſſoms of the peach-tree.

To give this beautiful colour to glaſs, add at different times, and in ſmall quantities, the powder of prepared manganeſe to the maſs for the making of lattimo, or milk-white glaſs, while in fuſion. This alone gives the peach-colour; but the metal muſt be immediately worked when of a right tinge, for the colour is very apt to go off.

PEACH-*Colour*, in the *Manege*. See BLOSSOM.

PEACH *Gall-Inſect*, in *Natural Hiſtory*, a ſmall gall-inſect, found in great plenty on the peach-tree. It is of an oblong figure, flat at the belly, and prominent on the back; pointed, and not unaptly reſembling in miniature a ſmall boat turned bottom upwards: their longer diameter is uſually extended in the ſame direction with the length of the branch; ſometimes a little obliquely, but ſcarcely ever perpendicular to that direction.

Their colour is uſually a faint brown, ſometimes it approaches to a coffee-colour, ſometimes to a bright cheſnut, but more frequently it has ſomething reddiſh in it. This inſect lives but a little while after it has laid its eggs, and its dried body makes an excellent covering and defence for them; and what is very remarkable is, that as this inſect is now immoveable, and cannot draw itſelf over its eggs, they are not thrown out behind its body, as the eggs of other animals; but as they are laid, are drawn under the belly, and evenly arranged there.

The eggs are ten or twelve days before they hatch, and when hatched, the young animals remain quiet under the cover of their mother's carcaſe for ſeveral days.

It is uſually about the beginning of June that the young inſects get at liberty from under the body of their parent; they may then be found running very nimbly all over the branches of the tree, but are not diſtinguiſhable otherwiſe than by examining the branches with a microſcope. The branches, thus covered with theſe young animals, are in a few days cleared again, and the inſects found in form of ſmall ſcales, covering the leaves, and now large enough to be ſeen by the naked eye.

Not only the gall-inſects of the peach, but all the other ſpecies, after a certain time, become immoveably fixed to the place where they are, and no longer able to uſe their legs. Their growth is very ſlow from the time of their hatching, through the months of July, Auguſt, September, and October: at the beginning of November they are found ſomewhat enlarged in breadth, but they are yet no thicker, and at this time they are all become of the ſame colour, which is ſomewhat reddiſh. In the beginning of March they begin to ſwell and be filled with the growing eggs; their backs become a little convex, and, viewed with a microſcope, appear covered with little tubercles; and one may, at this time, perceive ſeven or eight long threads, which run from ſeveral parts of their bodies: theſe faſten themſelves to the branch at a diſtance from the creature, and fix it immoveably in its place. In the beginning of April they become much more convex, and though they can no longer walk about, they yet have at this time ſufficient motion to ſhew an animal life. At this time, by very ſlow motions, they change their ſkin; and it is after this change that they aſſume ſo exactly the figure of galls, and grow ſo very quickly to their full ſize. Seven or eight days now make ſuch a change in them, that they are not to be known for the ſame animal; but it is not till the beginning of May that they arrive at their utmoſt ſize. About the 15th of May they are in a condition to lay, and as the eggs are diſcharged, the belly is puſhed cloſer and cloſer to the back; and when all are laid, becomes the ſhell before deſcribed, and the young ones are hatched under it, and become full of eggs, and do the ſame office afterwards to their young.

In the end of April the branches of the peach and other trees, covered with theſe inſects, will be found to be greatly frequented by a ſort of ſmall flies, beautiful enough to demand attention; their head, breaſt, body, and legs, are all of a deep red; they have only two wings, but thoſe very large, being nearly twice as long as their bodies: theſe, in the fly's common poſture, are croſſed on the back, and the upper almoſt entirely hides the under one; they are leſs tranſparent than thoſe of the common flies, and are of a duſky white, bordered with an edge of a fine bright and beautiful red: but what chiefly diſtinguiſhes them from all other ſpecies is, that they have two long white threads which run from their hinder part, and are of twice the length of their wings; between theſe there is alſo a remarkable part, a ſort of tail made like a piercer, and of a third or fourth part of the length of theſe threads. This is, like all other ſtings, thicker at its baſe than at its point, and is bent a little downwards. The antennæ of this fly are adorned with long bodies, hairy, and larger at their extremities than at their inſertions on the antennæ. It is eaſy at firſt ſight to conceive, that theſe are the flies that had been produced of worms fed in the bodies of the gall-inſects of a former year, and that they were now ſearching an opportunity to depoſit their eggs in the bodies of theſe little creatures, to be hatched into worms there, and thence to come out in flies, as they themſelves before had done.

The flies examined on the branches with a glaſs will alſo be found to introduce this ſeeming piercer always at the ſame place into the body of the gall-inſect, and this is that cleft in the hinder part of the body, out of which the young ones, when hatched, afterwards find their way. The flies, which lodge their eggs or young worms in the bodies of other inſects, if cruſhed at that ſeaſon, will be always found to contain ſuch eggs or ſmall worms; and the microſcope never fails to diſcover them in the matter cruſhed out of flies even ſmaller than theſe, but in theſe no obſervation ever ſhews any ſuch. See GALL-*Inſect-Fly*.

Notwithſtanding that the peach gall-inſect is the only ſpecies in which the male fly has been obſerved, there is no room to doubt but that the other ſpecies all have males of the ſame kind.

The orange gall-inſect has been obſerved not univerſally fecundated, but that there is only a part of the animals that lays eggs; probably the others are thoſe which hatch into the male flies; and the kermes, the nobleſt and moſt valuable of all the gall-inſects, is known often to produce a white winged fly, very like that of the peach gall-inſect. And Brennius, who gave ſome time ſince a hiſtory of the ſcarlet grain of Poland, the *coccus Polonicus*, a kind of pro-gall-inſect; though in the firſt account, he gave into the opinion of both ſexes being included in each of theſe animals, and that each was in itſelf ſufficient for the propagation of its ſpecies: yet afterwards, to his very great honour, added an account of his having diſcovered the male of this ſpecies, which he deſcribes to be a ſmall fly, with a red body and white wings bordered with red; a fly in all reſpects like the male of the peach gall-inſect. Reaumur's Hiſt. Inſ. tom. iv. p. 1, to 44.

PEACH *of the Corniſh Miners*, in *Mineralogy*. See CHLORITE. N. B. Under that article, read *peach* for *pearls*.

PEACH *Water*. See WATER.

PEACH, *Wolf's*. See LYCOPERSICON.

PEACH *Iſland*, in *Geography*, an iſland of Upper Canada, in lake St. Clair, about ſeven miles higher up than Detroit, nearly oppoſite to the communication of the Grand Marais with that lake. It contains from 60 to 100 acres of land fit for tillage; the other parts being meadow and marſh. There is little wood in this iſland; nor is it improved.

PEACHAM, HENRY, in *Biography*, author of a book, entitled "The complete Gentleman," publiſhed in the reign of James I. It treats of "nobilitie in generall; of dignitie and neceſſitie of learning in princes and nobilitie; the time of learning; the dutie of parents in their children's education; of a gentleman's carriage in the univerſitie; of ſtile in ſpeaking, writing, and reading hiſtory; of coſmography; of memorable obſervation in the ſurvey of the earth; of geometry; of poetry; of muſicke; of ſtatues and medalls; of drawing and painting in oyle; of ſundry blazonnes both ancient and modern; of armory or blazing armes; of exerciſe of body; of reputation and carriage; of travaile; of warre; of fiſhing."

He was certainly a man of general knowledge, good taſte, and acute obſervation. He reſided a conſiderable time in Italy, where he learnt muſic of Orazio Vecchi. He was intimate with all the great maſters of the time at home; has characterized their ſeveral ſtyles, as well as thoſe of many on the continent. His opinions concerning their works are very accurate, and manifeſt great knowledge of all that was underſtood at the time reſpecting practical muſic. He ſeems to have been a travelling tutor, for which office he appears to have been particularly well qualified. But with all his accompliſhments, he is ſaid to have been reduced to poverty in his old age, and chiefly to have ſubſiſted by writing little penny books, which are the common amuſement of children.

PEACHAM, in *Geography*, a poſt-town of America, in Caledonia county, Vermont, weſt of Barnet, on Connecticut river; containing 873 inhabitants.

PEACOCK, in *Aſtronomy*. See PAVO.

PEACOCK, REGINALD, in *Biography*, a worthy prelate, was ſucceſſively biſhop of St. Aſaph and Chicheſter, by favour of Humphrey, the good duke of Gloceſter; but he was depoſed for reſiſting the papal authority, and denying the doctrine of tranſubſtantiation, with other articles of the Roman Catholic faith. He was not equal to ſuffering in a righteous cauſe, but recanted his notions, and his books were publicly burnt. He then retired to an abbey, probably mortified and aſhamed of his timidity, where he died about the year 1486.

PEACOCK, in *Ornithology*. See PAVO.

Peacocks were firſt brought from India, where they are ſtill found, in the wild ſtate, in vaſt flocks, in the iſlands of Ceylon and Java. From India they were removed to Greece, and being the birds ſacred to Juno, were preſerved about the temple of this deity at Samos: it is therefore probable, that they were brought here originally for the purpoſes of ſuperſtition, and afterwards cultivated for the uſes of luxury. The peacock frequently accompanies the ſtatues of Juno, and it was from her ſuperior love to it, that ſhe placed in its tail the eyes of Argus, after Mercury had put him to death.

Peacock's creſts were anciently worn among the ornaments of the kings of England.

PEACOCK'S *Tail*. See TAIL.

PEACOCK-*Fiſh*, in *Ichthyology*, one of the larger ſpecies of the *turdus*, or *wraſſe*, but of a middle nature between the long and the flat-bodied kinds; its uſual ſtandard, as to ſize, is about three pounds weight; and its colour on the back a mixture of blackiſh and a duſky blue; the blue is diſpoſed in three or four longitudinal parallel lines, on a duſky blackiſh ground; about the head and gills the blue lines are more bright and numerous; its lower jaw is almoſt wholly blue, and its belly is of a fine ſaffron colour or reddiſh yellow; it has thick lips, and very ſharp, though not very large teeth; its back-fin is, on the anterior part, of a fine deep blue, with an edge of purple, and ſometimes of yellow; and the reſt of the fin is red at the bottom and yellow at the top, and in the middle is finely variegated with blue ſpots; the foremoſt nerves of the back-fin are rigid and prickly, and have ſoft and flexile rays accompanying them beyond the limb or edge of the fin, and of more than their own length; its gill-fins are a mixed red and yellow, and its belly-fin behind the anus of a pale fleſh-colour, with a variegation of blue and yellow; the other belly-fins are of the ſame colour, and the tail is wholly blue. It is a moſt remarkably beautiful fiſh, and from the ſpots and variegations of its fins has obtained its name. See Chætodon and Labrus.

PEAK, or Peek, in *Sail-making,* the upper corner of triangular ſails, and upper outer corner of fore and aft ſails.

Peak, in *Geography,* a mountain of England, giving name to a diſtrict in the county of Derby, between the Derwent and the Dove, which laſt river ſeparates it from Staffordſhire. It is mountainous, rocky, and barren, but abounds in mines of lead, iron, coal, and antimony: it alſo furniſhes mill-ſtones and grind-ſtones.

Peak *d'Etoile.* See *New* Hebrides.

Peaks *of Otter,* the higheſt part of the Blue Ridge, in the weſt part of Virginia, or perhaps any other in North America. From its baſe its height is about 4000 feet.

PEAKE Bay, a bay on the ſouth coaſt of Jamaica. N. lat. 17° 59′. W. long. 76° 38′.

PEAN, in *Heraldry,* is when the field of a coat of arms is ſable, and the powderings or.

PEANJEE, in *Geography,* a town of Pegu, on the Irawaddy; 15 miles S. of Prone.

PEANTIDES, the name of a ſtone to which the ancients attributed great virtues for promoting delivery.

Theſe ſtones were found in Macedonia and other places; and all the deſcription we have of them is, that they reſembled water congealed by froſt. Probably the ancients meant by this name the *ſtalactitæ,* or ſtony icicles, which, as they hang from the roofs of caverns, greatly reſemble the droppings of water from the eaves of houſes congealed in froſty weather.

PEAR, in *Orcharding,* a fine rich ſort of fruit, which is obtained from an orchard-tree of the ſame name, and from the juice of which the liquor called perry is prepared. See Pear-*Tree,* below.

Pear-*Tree,* in *Botany* and *Gardening.* See Pyrus.

Pear-*Tree,* a fruit tree of the orchard kind. There are many ſorts of this tree; but for the purpoſe of perry, the ſquaſh is in much the higheſt eſteem. It is an early fruit, remarkable for the tenderneſs of its fleſh. If it drops ripe from the tree, it burſts to pieces with the fall. The liquor made from this fruit is pale, ſweet, yet remarkably fine, and of a ſtrong body; a moſt excellent liquor, if duly manufactured from a ſoil which ſuits it. The oldfield is a favourite old pear, remarkable for the elegant flavour of its liquor. The barland pear is in great repute, as producing a perry which is eſteemed ſingularly beneficial in nephritic complaints; as is the red pear for producing liquor of ſingular ſtrength. The huffcap and the ſack are other pears which have been uſually grafted: and beſides theſe, and a variety of others, great numbers of kernel fruits are found among the pear-trees in Herefordſhire and other countries. See Orchard and Perry.

Sorts.—Mr. Knight ſtates, in his valuable Treatiſe on the Culture of the Apple and Pear, that "the experiments he has made on the pear have not been nearly ſo numerous as thoſe on the apple, and have been confined to a ſingle variety, the Teinton ſquaſh; but they have been fully ſufficient to convince him, that the diſeaſes of both chiefly ariſe from the debility of old age, and will be found equally incurable. Though the pear is more properly a naturalized than an indigenous fruit in this country, it is much more hardy than the apple, and may certainly be cultivated in almoſt every part of England with nearly as much ſucceſs as in Herefordſhire. Like the apple it grows with the greateſt luxuriance in ſtrong deep ſoils, and in theſe the fineſt liquors are at preſent obtained from it; but it will flouriſh in every variety, where it is not incommoded with water. Its culture differs ſo little from that of the apple, that the ſame rules are in general equally applicable to both. It is moſt ſucceſsfully propagated on ſtocks of its own ſpecies, but it will ſucceed in ſome degree on thoſe of the quince, the medlar, the whitebeam, the common ſervice, and the hawthorn; and probably on many others. When grafted on its own ſeedling ſtocks, which alone he would recommend, the operation ſhould always be performed near the ground, on account of the reclining top-heavy growth of the young ſtocks. In raiſing ſtocks from the ſeeds of this fruit, a light, ſoft, loamy ſoil ſhould be choſen, which is naturally of good quality, but which has not been recently manured. In this the ſeeds, like thoſe of the crab-tree, ſhould be covered about an inch deep, as ſoon as they are taken from the fruit." And "much attention muſt be paid to them during the early part of the firſt ſummer, or great numbers will periſh. They muſt be kept clear from weeds, and be regularly watered in dry weather; and if the mould be frequently ſtirred between the plants, it will be of great advantage to them: after the middle of Auguſt, they become more hardy, and little care or attention will be required from the planter.

"A ſufficient number of varieties of this fruit, in a good ſtate of growth, are in cultivation; but few of them poſſeſs any high degree of merit. The greater part are extremely productive of juice, and require to be ground ſoon after they fall, or are blown from the trees. The produce of ſome of them, when it has been nicely manufactured from well ripened fruit, often poſſeſſes great excellence; but it is often at the ſame time ſweet and acetous; and if, owing to an unfavourable ſeaſon, the fruit has not been properly ripened, and an acceſs of fermentation cannot be prevented, the liquor becomes ſour and unpalatable, and ſcarcely good enough to anſwer the meaneſt purpoſes of the farm-houſe." He is "much diſpoſed to doubt whether a ſingle perry-pear, poſſeſſing nearly the greateſt degree of excellence of which this fruit is capable, has yet been in cultivation. It appears highly probable that firmer fruits, which might be kept ſome time, or left under the trees to attain a more perfect and regular maturity, are likely to afford a more permanent and generous liquor. One pear, which in ſome degree anſwers this deſcription, has been much cultivated, the longland; and though its produce, being without the fine flavour which is found in ſome others, is little attended to by the merchant, it has qualities which render it extremely valuable to the farmer: the fruit may be kept ſome time without ſuſtaining any great degree of injury, when buſineſs of more importance occupies his attention: the liquor obtained from it is never very fine, but it is rarely below mediocrity: it poſſeſſes more body than is generally found in perry, and retains many of its good qualities in every different ſoil and ſituation. It is a fruit he ſhould ſtrongly recommend for culture in cold and expoſed ſituations, for which the hardineſs of its bloſſom renders it peculiarly well calculated; but he is afraid it is advancing nearly to that period when young trees can no longer be raiſed with advantage to the planter."

It is noticed, that "the pear is an extremely long-lived tree, and the ſame variety may in conſequence be very long kept in cultivation. At what period the Teinton ſquaſh firſt ſprang from the ſeed, probably cannot now be aſcertained; but he ſuſpects from its preſent diſeaſed and worn out ſtate, that it exiſted at leaſt as early as the beginning of the ſixteenth century. For another kind, the barland, which was much cultivated in the early part of the ſeventeenth century, ſtill retains a large ſhare of health and vigour, and the identical trees which ſupplied the inhabitants of Herefordſhire in the ſeventeenth century with liquor, are likely to do the ſame good office to thoſe of the nineteenth. He ſuſpects, however, that this variety naturally poſſeſſed a greater degree of durability than is common to the ſpecies; and that its lofty ſpiral growth, by rendering it difficult to get grafts from the extremities of the bearing branches, has, in cultivation, made it ſtill more durable. It is yet capable of being propagated; but trees nearly of the ſame ſtature with thoſe which now abound, muſt not again be expected. The tree, which is ſaid to have been the original, grew, he ſays, in a field called the Barlands, in the pariſh of Boſbury, and was blown down a few years ago."

"But though he does not think very highly of any of the perry-pears which are now cultivated, he does not know that he can point out the means of acquiring better. Thoſe which he has employed to obtain improved kinds of apple, appear to him to be wholly improper. Every variety of that fruit, which poſſeſſes colour and richneſs, is capable of making fine cider, but a good perry-pear requires an aſſemblage of qualities, which will be rarely found in the ſame fruit. It muſt contain a large proportion of ſugar, or its juice can never poſſeſs ſufficient ſtrength; and unleſs it be at the ſame time extremely aſtringent, the liquor produced from it will be acetous whenever it ceaſes to be ſaccharine. In the latter ſtate it will agree with few conſtitutions, in the former with none. The juice of the beſt perry-pears is ſo harſh and rough, as to occaſion a long continued heat and irritation in the throat, when the fruit is attempted to be eaten; yet by being ſimply preſſed from the pulp, it becomes rich and ſweet, without more roughneſs than is agreeable to almoſt every palate. This circumſtance appears extraordinary, but it does not ſtand alone in the vegetable world." There are many caſes in which ſimilar changes take place with acrid vegetable ſubſtances. It is ſtated that "the defects of the apple and pear, when raiſed from ſeed, are generally of oppoſite kinds: in the former the fruit is uſually harſh and ſour, in the latter it is apt to be, when thoroughly ripe, ſweet and inſipid. The mode of cultivation therefore, which would improve the one by bringing it nearer to the highly cultivated ſtate, and leſſening its harſhneſs, would not improbably be injurious to the other by producing the ſame effects."

It is ſtated that "an eſtimate may be formed in the apple of the merit of the fruit by the leaf and growth of the ſeedling tree, but in the pear theſe ſcarcely afford the ſlighteſt indication of the future produce. The leaves of thoſe plants which will afterwards afford large rich fruits for the deſert are often ſmall and thin, and the ſtems will be covered with thorns; whilſt others, whoſe leaves and growth ſhew every mark of a high ſtate of cultivation, will ſometimes produce fruits that are ſmall and worthleſs."

It is not known that "better means can be uſed in obtaining new varieties of this fruit, than ſowing a large quantity of ſeeds from healthy trees of an orchard in which the beſt kinds only have been planted, and afterwards ſelecting the plants of the moſt luxuriant and vigorous growth. But as no eſtimate can be formed of the value of their future produce, it will be prudent to retain a conſiderable number till their fruits be known: few of which, he is afraid, muſt be expected to anſwer the wiſhes of the planter.

"He has, during the laſt twelve years, examined a very large number of ſeedling pears, and has a conſiderable variety growing on a farm he occupies, but he has never diſcovered more than one kind which he thought capable of making fine perry. The greater part of theſe, however, appeared to him to have ſprung from the ſeeds of rich eatable pears, and ſome of them bore a very cloſe reſemblance to the fruits of old grafted trees in the neighbouring orchards. There is little reaſon to believe that the reſemblance would have been leſs between the parent and the ſeedling fruit, had the former been eminent for the production of fine perry; and it therefore appears probable, that good new kinds may readily be obtained from the ſeeds of the beſt now cultivated. But even if few ſhould be found capable of affording fine perry, the produce of all will be valuable to the farmer to mix with crabs, or apples which have been blown prematurely from the tree. The rapid ſweetneſs of the juice of the pear is corrected by the acidity of theſe, and the liquor produced by the mixture often produces much more merit, than could have been expected from the ingredients. It will perfectly ſupply the place of ſmall beer, and may be brought into the market at leſs than half the price, with ſufficient profit to the grower."

And it is ſaid that "the time which ſeedling trees will require to attain ſufficient maturity to produce fruit, appears to vary much in different varieties. He has one plant which produced fruit at ſixteen years old, and another which, from the concurrent teſtimony of many old people, who remember its firſt bloſſoms, appears to have remained unproductive through the firſt ſeventy years of its exiſtence. It has ſince borne tolerably well; but its fruit is always without ſeeds, or internal cavity; and it appears to ſet with difficulty, much the greater part of the bloſſoms being conſtantly unproductive. Poſſibly its long continued barrenneſs, and the defects in its fructification, may both have ariſen from ſome incidental imperfection in the organization of the plant. The fruit is in other reſpects perfect, and poſſeſſes great merit as a pear for the table."

It is ſtated that the directions he has given for planting the apple, are in every reſpect applicable to the pear; except that this tree being of more luxuriant and lofty growth, will require wider intervals. See APPLE-*Tree* and ORCHARD.

Planting.—In the moſt cloſely planted orchards the rows ſhould not "be put at leſs than eighteen yards diſtance, nor the trees nearer than eight or nine to each other; and when the ground is to remain in tillage, intervals of twenty-five, or thirty yards, ſhould be allowed between the rows. Attention muſt alſo be paid to the forms and ſtature of the different varieties, and as the fruit of theſe is rarely mixed with a view to make fine perry, trees of one kind ſhould occupy each row." And that as "in ſome kinds the fruit grows only on the outſide of thoſe branches which are expoſed to the ſun and air; while in others it occupies every part of the tree; the former will of courſe require to be planted at greater diſtances than the latter."

Farther, "as the produce of the pear-tree, though of the ſame variety, and growing on the ſame ſtock, ripens extremely irregularly; the planter muſt therefore have a conſiderable number of trees of each kind he plants, or he will rarely have a ſufficient quantity ready to be ground at the ſame time. Even when the fruit has fallen ſpontaneouſly from the trees, a fourth at leaſt of ſome kinds will be found immature, or decaying, and totally unfit to make fine perry;

and ſhould be (though it rarely or never is) ſeparated from the reſt." It is to this want of perfect and regular maturity in the fruit that Mr. Knight aſcribes a defect, which perry is ſeldom found wholly free from, which is that of a crude and harſh acid which dwells on the palate, and which diſguſts the beſt judges of vinous liquors; and to the ſame cauſe it may be owing, that perry, when genuine, does not agree with ſo many conſtitutions as cider. It is noticed that "the pear requires a certain ſtate of maturity to afford perry in the greateſt ſtate of perfection: it ſhould be ripe without being mellow, or decaying; when it has not obtained the proper ſtate of ripeneſs, an exceſs of fermentation cannot be prevented, and when it has exceeded it, the liquor rarely ferments kindly, and is extremely apt to become ſour; probably by having loſt too great a proportion of its aſtringency; hence few kinds are found to improve by being kept after they have fallen from the trees."

Pruning.—"This is not often wanted in the culture of the pear-tree, which is rarely much incumbered with ſuperfluous branches; but in ſome kinds, whoſe form of growth reſembles the apple-tree, it will ſometimes be found beneficial. The directions in this caſe are the ſame as thoſe for the apple. See APPLE and ORCHARD.

Pear-trees are ſubject to ſimilar diſeaſes with thoſe of the apple; "the blights of the trees, like thoſe of the apple, ariſe either from inſects or unfavourable weather, or a combination of both. The bloſſoms are often rendered abortive, by a ſmall brown beetle, preciſely ſimilar to that found on the apple-tree, and probably of the ſame ſpecies; and a conſiderable quantity of its fruit is frequently deſtroyed by the *larvæ* of a ſmall green four-winged fly. Each fruit which contains the latter inſects becomes in a few days rounder than thoſe in the natural ſtate, and grows with much greater rapidity; but it falls off early in the ſummer, and if it be examined whilſt growing, it will be found full of ſmall grubs." But "the pear-tree ſuffers more frequently from cold than from inſects, and therefore thoſe varieties whoſe bloſſoms are produced rather late in the ſpring, and are preceded by the leaves, are generally moſt productive of fruit; and ſome kinds of the pear, as of the apple, are much more ſubject to injury, both from inſects and unfavourable weather, than others. He has one ſeedling tree whoſe bloſſoms appear capable of bearing the moſt unfavourable weather without injury, and which has not once failed to produce a good crop in the memory of the oldeſt inhabitant of the village in which it ſtands. The fruit is rather too ſweet to make good perry, unleſs in mixture with other kinds; but it nevertheleſs forms a very valuable variety for cold and expoſed ſituations, as it ripens ſomewhat early in the autumnal ſeaſon of the year." In the Report of the State of Agriculture in Herefordſhire, it is ſtated that the pear, though in common producing an inferior liquor, has many advantages over the apple for general uſe. It is capable of ſucceeding in a greater variety of ſoil, is more productive of fruit, and leſs liable, eſpecially in the perry kinds, to depredations. Beſides, it has a more ornamental effect, and is of courſe better calculated for particular ſituations. The produce of each full-grown tree, will moſtly be in the proportion of about twenty gallons of liquor. See APPLE-*Tree*.

The particular methods of preparing pears in the manufacture of perry, will be conſidered hereafter under the proper head. See PERRY.

PEAR, *Avocado*, or *Alligator*, a ſpecies of *Laurus*; which ſee.

PEAR, *Bachelor's*, a ſpecies of the *Solanum*; which ſee.

PEAR, *Garlic*. See CRATEVA.

PEAR, *Prickly*, or *Indian Fig*, *Opuntia*. This, in the Linnæan ſyſtem, is a ſpecies of *Cactus*; which ſee.

PEARCE, ZACHARY, in *Biography*, a learned prelate of the church of England, was born at London in the year 1690. The earlier part of his education he received in a private ſchool at Great Ealing, whence, in 1704, he was removed to Weſtminſter ſchool, then under the management of Dr. Buſby. Here he remained ſix years, and greatly diſtinguiſhing himſelf, he was elected one of the king's ſcholars. In 1710 he went to Trinity college, Cambridge. He purſued his academic ſtudies with great diligence and ſucceſs, and obtained a high reputation as a claſſical ſcholar. During the firſt years of his reſidence at Cambridge, he occaſionally amuſed himſelf with the lighter ſpecies of compoſition, ſome of which he ſent to the Guardian and Spectator. In 1716 he publiſhed, from the univerſity preſs, an edition of "Cicero de Oratore," with notes and emendations; which, at the deſire of a friend, he dedicated to lord chief juſtice Parker, a circumſtance which laid the foundation of his future fortunes. He was firſt elected a fellow of Trinity college, and waiting on lord Parker, to thank him for his intereſt on that occaſion, his lordſhip preſented him with a purſe containing fifty guineas. In the year 1717, Mr. Pearce entered into deacon's orders; and in the following year he was ordained prieſt. It had always been his wiſh to devote himſelf to the clerical profeſſion; but as he himſelf has told us, he delayed to do ſo till he had attained his twenty-ſeventh year, in order that he might, by a due degree of preparation, attain to ſo much knowledge of that ſacred office, as ſhould be ſufficient to anſwer all the good purpoſes for which it was deſigned. In 1718, lord Parker having been appointed lord chancellor, Mr. Pearce was invited to live with him in the capacity of domeſtic chaplain; which invitation he gratefully accepted. In 1719 he was preſented to the rectory of Stapleford-Abbots, in Eſſex, to which preferment the lord chancellor added, in the following year, that of St. Bartholomew, behind the Royal Exchange, in London. Soon after this, Mr. Pearce had the honour of being appointed chaplain to his majeſty. In the year 1721 he married a lady poſſeſſed of a conſiderable fortune, by whom he had ſeveral children, all of whom died very young. About a year after his marriage, he was preſented with the vicarage of St. Martin's, and in this prominent ſituation it was thought right he ſhould take his doctor's degree; but as he was not of ſufficient ſtanding at the univerſity, application was made for him to Dr. Wake, archbiſhop of Canterbury, who granted him that title by his diploma. In 1724 Dr. Pearce dedicated to his patron, now the earl of Macclesfield, his edition of Longinus on the Sublime, with a new Latin verſion and notes; which, by the maſterly manner of its execution, contributed greatly to the increaſe of his reputation as a ſcholar and critic. To the ruin of the earl of Macclesfield, which happened in 1725, it was in ſome meaſure owing that ſeveral years elapſed, from this period, before our author received any additional preferment; and for the next he was indebted to the patronage of queen Caroline, though he did not obtain it till after her deceaſe. In the year 1739 he was nominated dean of Wincheſter by ſir Robert Walpole, to whoſe favour he had been recommended by the late queen. In 1744 the dean was elected prolocutor of the lower houſe of convocation for the province of Canterbury; and in 1748 he was promoted to the biſhopric of Bangor. It is generally believed that he was really averſe from accepting the epiſcopal dignity, and he was ſtill more reluctant to comply with the ſolicitations of his friends, by being promoted to the biſhopric of Rocheſter, together with the deanery of Weſtminſter. Twice after this he might have been raiſed to the high dignity of the biſhopric of London, but he declined the honour. In a ſhort time after the ſecond offer, being at the advanced age of ſeventy-three, and thinking himſelf unable properly to diſcharge the duties of his ſtation, he informed his friend, lord Bath, of his determination to reſign both his biſhopric and deanery, and to retire from the active duties of life; at the ſame time ſoliciting his lordſhip to requeſt for him the honour of a private audience from his majeſty for that purpoſe. This favour was granted to him, and the king, after having taken ſome time to deliberate, and to conſult his legal adviſers on the ſubject, ſignified his conſent, and the biſhop actually kiſſed hands on the occaſion. A diſpute, however, occurred between lord Bath and his majeſty's miniſters with reſpect to a ſucceſſor, which in a manner obliged the king to ſend again for Dr. Pearce, and tell him he muſt think no more about reſigning his biſhopric. In 1768 he did, however, obtain the king's conſent to his reſigning the deanery of Weſtminſter, and from that time he diſcharged his epiſcopal functions, and purſued his private ſtudies, with all his remaining vigour till the year 1773, when he was ſeized with paralytic affections, that continued to increaſe till his death, which took place in June 1774, when he had attained to the 84th year of his age. Having no children, and having loſt his wife the year before his own death, he made his brother, William Pearce, eſq. his heir and executor. He bequeathed his library to the dean and chapter of Weſtminſter, excepting ſuch books as they already had, and theſe, with his MSS., he gave to his chaplain the reverend John Derby. He left by his will ſeveral legacies to private perſons, and to public charities; but his principal legacy was to a college at Bromley, in Kent, which had been founded by biſhop Warner in 1666, for twenty widows of clergymen who ſtood in need of aſſiſtance. "The fabric is neat, the apartments are commodious, and the condition of the inhabitants ſuch as infers no degradation of civil rank. The revenue aſſigned by the founder was, in his time, not only competent but liberal; yet, by the alterations which the laſt century has produced in the modes of life, and the ſyſtem of expence, what was then ample is now become ſcanty, and biſhop Pearce left 5000*l.*, not to increaſe the number, but to advance the happineſs of the ſociety, by ſuch an augmentation of revenue as might reſcue them from penury. In this charity there is no oſtentation; his benefaction ſcarcely continues his name, but ſinks ſilently into the ancient fund, and thoſe who ſhall enjoy the plenty which it reſtores, will, in a few years, hardly know to whom they owe it."

Dr. Pearce was firſt known to the public by philological learning, which he continued to cultivate with advanced age. "Cicero de Oratore" was publiſhed by him when he was bachelor of arts, and "Cicero de Officiis" when he was dean of Wincheſter. He did not confine his attention to the learned languages: he was particularly ſtudious of Milton's poetry; and when Dr. Bentley publiſhed his imaginary emendations of the "Paradiſe Loſt," Dr. Pearce wrote a vindication of the eſtabliſhed text. In domeſtic life he was quiet and placid, not at all difficult to be pleaſed, nor inclined to haraſs his attendants or inferiors by peeviſhneſs or caprice. In his parochial cure he was punctually diligent, and very ſeldom omitted to preach. He was author of ſeveral works beſides thoſe already mentioned: among theſe were "The Miracles of Jeſus vindicated;" and "Two Letters to Dr. Waterland upon the Euchariſt;" but his great work was not publiſhed till 1777, under the title of "A Commentary, with Notes, on the Four Evangeliſts, and the Acts of the Apoſtles, together with a new Tranſlation of St. Paul's firſt Epiſtle to the Corinthians, with a Paraphraſe and Notes," in 2 vols. 4to. This work is unqueſtionably the reſult of many years' ſtudious application, and it reflects laſting honour upon his learning, critical talents, and intimate knowledge of the ſenſe and ſpirit of the ſacred writings. It now ranks high among theological ſtudents; but either from the largeneſs of the number printed, or from ſome other cauſe, unknown to the writer of this article, the commentary was for many years almoſt a drug on the bookſellers' ſhelves. The copy from whence the foregoing particulars have been chiefly extracted was purchaſed as low as twelve ſhillings. Its value at preſent is better appreciated. Mr. Derby, his lordſhip's chaplain, gave likewiſe to the public four volumes of his lordſhip's ſermons, on ſubjects of high importance to the preſent and future welfare of mankind. Biſhop Pearce was author of N° 121 of the Guardian; and of 572 in vol. viii. of the Spectator, and alſo of N 633 in the ſame volume, "On the Eloquence of the Pulpit."

PEARCH, or Perch, in *Ichthyology*. See Perca.

PEARL, Perla, or *Margarita*, in *Natural Hiſtory*, a hard, white, ſmooth, ſhining body, uſually roundiſh, found in a teſtaceous fiſh, of the oyſter kind; and is ranked in the number of gems.

The fiſh in which the pearls are found, is three or four times the ſize of the common oyſters; and is called by naturaliſts, the "concha margaritifera." The Eaſt India pearl-ſhell is the "matrix perlarum" (mother of pearl) of Rûmphius, or the "mytilus margaritiferus" of Linnæus; and therefore the general term pearl-oyſter muſt be erroneous. Some alſo are found in a ſpecies of mya, or muſcle. That pearls are not peculiar to one kind of ſhell-fiſh, as many have believed, was known to Pliny, who ſays, "quo apparet, non uno conchæ genere naſci." Many very good pearls have been found in Colcheſter oyſters: and real pearls are found under the ſhell of the ſea-hare (aplyſia).

This fiſh is common in the gulf of Perſia, near Ormus and Bahrein iſland; about cape Comorin, on the coaſt of the iſland of Ceylon; in the Bornean iſlands; in Saxony, and in Scotland, and alſo in South America.

The ancients called theſe pearls *uniones*, apprehending that there never was but one in an oyſter; but there have been ſometimes found ſeven in a ſhell; and an author, who treats well of their production, pretends to have ſeen a hundred and fifty in the ſame fiſh, but thoſe in different degrees of perfection. The moſt perfect drop out firſt; the reſt remaining longer at the bottom of the ſhell.

An ingenious writer (Henry J. Le Beck, eſq.) has, in the 5th volume of the Aſiatic Reſearches, given a particular account of the pearl-fiſhery at Ceylon, and alſo of the animal incloſed in the mytilus margaritiferus, from which the pearl is obtained. "This animal," he ſays, "is faſtened to the upper and lower ſhells by two white flat pieces of muſcular ſubſtance, which are called by Houttuin *ears*, and extend about two inches from the thick part of the body, growing gradually thinner. The extremity of each ear lies looſe, and is ſurrounded by a double brown fringed line. Theſe lie almoſt the third of an inch from the outer part of the ſhell, and are continually moved by the animal. Next to theſe, above and below, are ſituated two other double fringed moveable ſubſtances, like the bronchiæ of a fiſh. Theſe ears and fringes are joined to a cylindrical piece of fleſh, of the ſize of a man's thumb, which is harder, and of a more muſcular nature than the reſt of the body. It lies about the centre of the ſhells, and is firmly attached to the middle of each. This, in fact, is that part of the pearl fiſh which ſerves to open and ſhut the ſhells. Where this column is faſtened, we find on the fleſh deep impreſſions, and on the ſhell various nodes of round or oblong forms, like imperfect pearls. Between this part, and the hinge (*cardo*), lies the principal body of the animal, ſeparated from the reſt, and ſhaped like a bag. The mouth is near the hinge of the ſhell, enveloped in a veil, and has a double flap or lip on each ſide; from whence we obſerve the throat (œſophagus) deſcending like a thread to the ſtomach. Cloſe to the mouth there is a carved browniſh tongue, half an inch in length, with an obtuſe point; on the concave ſide of this deſcends a furrow, which the animal opens and ſhuts, and probably uſes to convey food to its mouth. The tongue is ſuppoſed to be uſed in the exerciſe of the locomotive power of the pearl-fiſh. That they have this power is well known to the divers, who obſerve that they alter their abode in ſearch of food, and alſo when diſturbed by an enemy. In the latter caſe, it is ſaid, they commonly deſcend from the ſummit of the bank to its declivity. Near the middle of the tongue are two blueiſh ſpots, which ſeem to be the eyes. In a pretty deep hole near the baſe of the tongue, lies the beard (*byſſus*), faſtened by two fleſhy roots, and conſiſting of almoſt one hundred fibres, each an inch long, of a dark green colour, with a metallic luſtre; they are undivided, parallel, and flattened. In general the byſſus is more than three quarters of an inch, without the cleft (*rima*); but if the animal is diſturbed, it contracts it conſiderably. The top of each of theſe threads terminates in a circular gland or head, like the ſtigma of many plants. With this byſſus they faſten themſelves to rocks, corals, and other ſolid bodies; by it the young pearl fiſh cling to the old ones; and with it the animal procures its food, by extending and contracting it at pleaſure. Small ſhell-fiſh, on which they partly live, are often found clinging to the former. The ſtomach lies cloſe to the root of the beard, and has, on its lower ſide, a protracted obtuſe point. Above the ſtomach are two ſmall red bodies, like lungs; and from the ſtomach goes a long channel or gut, which takes a circuit round the muſcular column above-mentioned, and ends in the anus, which lies oppoſite to the mouth, and is covered with a ſmall thin leaf, like a flap. Though the natives pretend to diſtinguiſh the ſexes by the appearance of the ſhell, I could not find any genitalia. The large flat ones they call males, and thoſe that are thick, concave, and vaulted, they call females, or *pedoo-chippy;* but, on a cloſe inſpection, I could not obſerve any viſible ſexual difference.

"It is remarkable that ſome of theſe animals are as red as blood, and that the inſide of the ſhell has the ſame colour, with the uſual pearly luſtre, though my ſervants found a reddiſh pearl in an oyſter of this colour; yet ſuch an event is very rare. The divers attribute this redneſs to the ſickneſs of the pearl fiſh; though it is moſt probable that they had it from their firſt exiſtence. In the ſhade they will live twenty-four hours after being taken out of the water. This animal is eaten by the lower claſs of Indians, either freſh in their curries, or cured by drying; in which ſtate they are exported to the coaſt; though I do not think them by any means palatable.

"The pearls are only in the ſofter part of the animal, and never in that firm muſcular column above-mentioned. We find them in general near the earth, and on both ſides of the mouth."

The formation of pearls has puzzled both ancient and modern naturaliſts, and given occaſion to a great number of hypotheſes, many of them wild and extravagant enough.

Pliny, and from him Solinus, &c. will have them to be formed of the dew: the fiſh, ſay they, riſes every morning to the ſurface of the water, and there opens its ſhell, to imbibe the dew of heaven; which, like a liquid pearl, inſinuating into the body of the pearl-oyſter, fixes by its ſalts, and there aſſumes the colour, hardneſs, and form of pearl; as ſome other liquors are converted into cryſtals in the earth, or the juice of flowers into honey and wax in the body of the bee; but the pearl-oyſters grow faſt to the rocks, and nobody ever yet ſaw any of them appear on the ſurface of the water.

The ſame abſurd opinion is maintained by the natives of Ceylon, and very ſimilar to it is the account of the formation of pearls recorded in one of the Sanſcrit books of the Brahmans.

Others will have pearls to be the eggs of the fiſhes they are found in; but neither does this conſiſt with the phenomena: for pearls are found throughout the whole ſubſtance of the oyſter; in the head, the coat that covers it, the circular muſcles that terminate it in the ſtomach, and, in general, all the fleſhy and muſculous parts; ſo that there is no appearance that pearls ſhould be in the oyſters, what the eggs and ſpawn are in fowls and fiſhes. For beſides that there is no particular place deſtined for their formation, anatomiſts have not been able to find any thing about them that bears any relation to what paſſes in this reſpect in other animals.

Mr. Chemnitz, a celebrated conchologiſt at Copenhagen, ſuppoſes that the pearl is formed by the oyſter, in order to defend itſelf from the attacks of the *pholades* and *boreworms*. But we may be aſſured that in this ſuppoſition he miſtakes; for although theſe animals often penetrate the lower layers of the pearl ſhell, and there occaſion hollow nodes, yet on examination it will be found, that they are never able to pierce the firm layer with which the inſide of the ſhell is lined. How then can the pearls be formed as a defence againſt exterior worms, when, even on ſhells that contain them, no worm-holes are to be ſeen? It is, therefore, more probable theſe worms take up their habitations in the nodes, in order to protect themſelves from the attacks of an enemy, than that they are capable of preying on an animal ſo well defended as the pearl-fiſh is.

Others with M. Geoffroy the younger, rank pearls among the bezoars; as comprehending, under that claſs, all ſtones formed in layers or ſtrata in the bodies of animals. See Bezoar.

M. Reaumur has a very curious piece on the ſubject of the formation both of the ſhells and pearls, in the Memoirs of the French Academy, anno 1717. He obſerves that pearls are formed like other ſtones in the animals; as thoſe, *e. gr.* in the bladder, kidnies, &c. and that they are apparently the effects of a diſeaſe of the fiſh. In effect, they are all formed of a juice extravaſated out of ſome broken veſſels, and detained, and fixed among the membranes.

To evince the poſſibility of this, he ſhews that the ſhells of ſea-fiſh, as well as thoſe of ſnails, &c. are wholly formed of a glutinous ſtony matter, oozing out of the body of the animal. Now it is no wonder that an animal, which has veſſels wherein circulates a ſufficient quantity of ſtony juice to build, thicken, and extend a ſhell, ſhould have enough to form ſtones alſo, in caſe the juice, deſtined for the growth of the ſhell, ſhall chance to overflow, and burſt forth in any cavity of the body, or among the membranes.

To confirm this ſyſtem, he obſerves, that the inner ſurface of the common pearl-muſcle, found on the coaſts of Provence, is of a pearl, or mother of pearl colour, from one part of its extent, which he determines, to another; after which it becomes reddiſh: now there are pearls of two colours found in the ſhell; and the colours of the pearls are preciſely the ſame with thoſe of the ſhell ; nay, more, each kind of coloured pearl is found in the correſponding coloured part of the ſhell ; which ſhews, that, in the ſame place wherein the tranſpiration of a certain juice had formed, and would have continued to form a coat or layer of ſhell of a certain colour ; the veſſels which conveyed that juice being broken, there is formed a little maſs or collection of the juice, which, hardening, becomes a pearl of the ſame colour with the part of the ſhell to which it correſponds.

Add to this, that the ſilver, or pearl-coloured part of the ſhell, is formed of ſtrata, or layers, over one another, like an onion ; and the reddiſh part of little cylindrical ſhort fibres applied againſt one another. The pearls of the two colours have alſo this difference of texture ; not but they are both compoſed of concentric couches ; but thoſe of the reddiſh pearls are much leſs ſenſible ; and, beſides, they have threads, which, like radii, proceed from their centre to their circumference. Theſe circumſtances ſeem effectually to determine the formation of pearls, and to eſtabliſh the new ſyſtem beyond contradiction.

The extravaſations above-mentioned may be cauſed by heterogeneous bodies, ſuch as ſand, coming in with the food, which the animal, to prevent diſagreeable friction, covers with its glutinous matter, and which, as it is ſucceſſively ſecreted, forms many regular lamellæ, in the manner of the coats of an onion, or like different ſtrata of bezoars, only much thinner ; this is probable, for if we cut through the centre of a pearl, we often find a foreign particle, which ought to be conſidered as the nucleus, or primary cauſe of its formation. The looſe pearls may originally have been produced within the body, and on their increaſe may have ſeparated and fallen into the cavity of the ſhell. Thoſe compact ones, fixed to the ſhells, ſeem to be produced by ſimilar extravaſation, occaſioned by the friction of ſome roughneſs on the inſide of the ſhell. Theſe and the pearl-like nodes have a different aſpect from the pearls, and are of a darker and bluer colour. In one of the former we found a pretty large true oval pearl, of a very clear water, while the node itſelf was of a dark blueiſh colour. The yellow or gold-coloured pearl, is the moſt eſteemed by the natives ; ſome have a bright red luſtre ; others are grey or blackiſh, without any ſhining appearance, and of no value. Sometimes when the grey lamella of a pearl is taken off, under it is found a beautiful genuine one, but it oftener happens that after having ſeparated the firſt coat, you find a worthleſs impure pearl. We tried ſeveral of them, taking one lamella off after another, and found clear and impure by turns ; and in an impure pearl we met with one of a clear water, though in the centre of all we found a foreign particle. The largeſt and moſt perfect pearl which we ſaw during our ſtay at Condatchy, was about the ſize of a ſmall piſtol-bullet, though we have been told ſince our departure, many others of the ſame ſize have been found. The ſpotted and irregular ones are ſold cheap, and are chiefly uſed by the native phyſicians as an ingredient in their medicines.

As to the formation of the pearl-fiſh, though it is the moſt natural opinion, that this fiſh, like all others, produces eggs or ſpawn, whoſe exterior ſurface at firſt is ſoft and viſcous, but changes, and hardens, by degrees, into a ſhell ; yet we muſt not leave unmentioned the popular, though erroneous hypotheſis, of the Parawas ; *viz.* that in rainy weather, the brooks of the neighbouring lands that empty themſelves all along the coaſts, run near two leagues on the ſurface of the ſea without mixing therewith. For a while the ſuſpended water, they ſay, retains its natural colour and ſweetneſs : but at length, the heat of the ſun, condenſing it, forms it into a kind of light tranſparent froth ; this done, it preſently divides into an infinity of parts, each of which appears as if animated ; moving this way and that like inſects. The fiſhes ſometimes catch at them as they paſs by ; but they ſoon abandon them. By degrees their ſkin thickening and hardening, they at length become heavy enough to ſink to the bottom, and aſſume the figure of pearl-oyſters.

We way judge with greater or leſs probability by the appearance of the pearl-ſhells, whether they contain pearls or not. Thoſe that have a thick calcareous cruſt upon them, to which zoophytes of various kinds are faſtened, have arrived at their full growth, and commonly contain the beſt pearls ; but thoſe that appear ſmooth, contain either none, or only ſmall ones.

The art of forcing ſhell-fiſh to produce pearls was known, in the firſt centuries of the Chriſtian era, to the inhabitants of the coaſts of the Red ſea, as we are told by the philoſopher Apollonius, (Philoſtrat. in Vita Apollon. lib. iii. c. 57, edit. Olearii, p. 139.) who thought that circumſtance worthy of particular notice. The Indians dived into the ſea, after they had rendered it calm, and perhaps clearer, by pouring oil into it. They then enticed the fiſh by means of ſome bait to open their ſhells ; and having pricked them with a ſharp-pointed inſtrument, received the liquor that flowed from them, in ſmall holes made in an iron veſſel, in which they hardened into real pearls. Olearius ſays, that this account is to be found in no other author : but it has at leaſt been copied by Tzetzes, whoſe words may in ſome meaſure ſerve as an explanation. Tzetzes Variorum, lib. ii. ſegm. 373.

We are as yet too little acquainted with ſhell-fiſh to be able to determine with certainty, how much truth there really may be in this relation : but we have great reaſon to conjecture from it, that the people who lived on the borders of the Red ſea were then acquainted with the method of forcing ſhell-fiſh to produce pearls ; and as the arts in general of the ancient Indians have been preſerved without much variation, the proceſs employed by the Chineſe at preſent, to cauſe a certain kind of muſcles to form pearls, ſeems to confirm the account given by Philoſtratus. In the beginning of the ſummer, at the time when the muſcles repair to the ſurface of the water and open their ſhells, five or ſix ſmall beads, made of mother of pearl, and ſtrung on a thread, are thrown into each of them. At the end of a year, when the muſcles are drawn up and opened, the beads are found covered with a pearly cruſt, in ſuch a manner, that they have a perfect reſemblance to real pearls. The truth of this information cannot be doubted, though ſome experiments made in Bohemia for the ſame purpoſe were not attended with ſucceſs. It has been confirmed by various perſons, and it is very probable, that ſome operations and ſecrets, without which the proceſs would prove fruitleſs even in China, may be unknown to the Europeans. Beſides, many obſervations are known, which ſeem to ſhew the poſſibility of ſuch an effect being produced. Profeſſor Fabricius ſays, that he ſaw in the poſſeſſion of ſir Joſeph Banks, at London, large chamæ, brought from China, in which there were ſeveral bits of iron wire, incruſted with a ſubſtance of a perfect pearly nature. Theſe bits of wire, he ſaid, had been ſharp, and it appeared as if the muſcles, to ſecure themſelves againſt the points of the wire, had covered them with this ſubſtance, by which means they had been rendered blunt. May not therefore the proceſs employed by the ancients be ſtill practiſed ? And may not theſe bits of wire have been the ſame as thoſe ſpikes uſed by the people in the neighbourhood of the Red ſea for pricking muſcles, and which perhaps ſlipped from the hands of the Chineſe workmen and remained in the animals?

The invention therefore of Linnæus cannot be called altogether new. That great man informed the king and council in the year 1761, that he had diſcovered an art by which muſcles might be made to produce pearls, and he offered to diſcloſe the method for the benefit of the kingdom. This however was not done, but he diſpoſed of his ſecret to one Bagge, a merchant at Gottenburg, for the ſum of eighteen thouſand copper dollars, which make about five hundred ducats. In the year 1780, the heirs of this merchant wiſhed to ſell to the higheſt bidder the ſealed up receipt: but whether the paper was purchaſed, or who bought it, we do not know; for profeſſor Retzius at Lund, of whom we enquired reſpecting it, could not inform us. Dr. Stover, in his Life of Linnæus, vol. i. p. 360, ſays that the manuſcript containing this ſecret is in the poſſeſſion of Dr. J. E. Smith, in England. In the year 1763, it was ſaid in the German newſpapers, that Linnæus was ennobled on account of this diſcovery, and that he bore a pearl in his coat of arms; but both theſe aſſertions are falſe, though profeſſor Fabricius conjectures that the firſt may be true. Linnæus received his patent of nobility, which, together with his arms, we have ſeen, in the year 1756, conſequently long before he ſaid any thing reſpecting that diſcovery, of which the patent does not make the leaſt mention. What in his arms has been taken for a pearl, is an egg, by which Mr. Tilas, whoſe buſineſs it then was to blazon the arms of ennobled families, meant to repreſent all nature, after the manner of the ancient Egyptians. The arms are divided into three fields, each of which, by the colour which forms the ground, expreſſes one of the kingdoms of nature; the red ſignifying the animal, and the green the vegetable, &c. Over the helmet, by way of creſt, is placed the *linnæa*: that beautiful little moth, the *phalæna linneella*, ſhining with its ſilvery colours, is diſplayed around the border inſtead of feſtoons; and below is the following motto, "Famam extendere factis." Linnæus once ſhewed us, among his collection of ſhells, a ſmall box filled with pearls, and ſaid, "Hos uniones confeci artificio meo; ſunt tantum quinque annorum, et tamen tam magni." "Theſe pearls I made by my art, and though ſo large, they are only five years old." They were depoſited near the mya margaritiferæ, from which moſt of the Swediſh pearls are procured; and the ſon, who was however not acquainted with his father's ſecret, ſaid the experiments were made only on this kind of muſcle, though Linnæus himſelf aſſured us that they would ſucceed on all kinds.

We conjecture that Linnæus alluded to this art in his writings ſo early as the year 1746, or long before he ever thought of keeping it a ſecret. The paſſage we mean is in the ſixth edition of his "Syſtema Naturæ," where he ſays "Margarita. Teſtæ excreſcentia latere interiore, dum exterius latus perforatur." See the article LINNÆUS.

That pearls are produced when the ſhells have been pierced or injured in a certain manner, is highly probable, and has been in modern times often remarked. It appears alſo, that the animal has the power of ſometimes filling up ſuch openings with a calcareous ſubſtance, which it depoſits in them. This ſubſtance aſſumes the figure of the orifice, and the animal particles it contains give it its brightneſs and luſtre. Pearl-fiſhers have long known that muſcles, the ſhells of which are rough and irregular, or which exhibit marks of violence, commonly contain pearls, though they are found alſo in others, in which the ſame appearances are not obſerved. We are perfectly aware that experiments which ſome have made by piercing the ſhells of muſcles, have been unſucceſsful; but this does not prove that it is impoſſible to procure pearls in that manner. Thoſe who made them did not perhaps pierce the proper part of the ſhell; perhaps they made the orifice ſo large that it weakened the animal; and they may not have choſen the propereſt ſeaſon of the year. The ſtrongeſt objection, however, which can be made on this ſubject, is the undeniable truth that the proper valuable pearls are not found adhering to the ſhell, but in the body only; and that therefore thoſe calcareous balls which fill up holes, cannot be perfect pearls. But from the words of Linnæus above quoted, we are led to conjecture, that he only made a hole in the ſhell without piercing it quite through. Linnæus alſo may have done ſome injury to the animal itſelf, when it opened its ſhell; for it is certain that teſtaceous animals are ſtrong-lived, and can eaſily ſuſtain any violence. It appears by the Tranſactions of the Swediſh Academy, that ſome have been of opinion that ſhell-fiſh might be made to produce pearls by a particular kind of nouriſhment; and Liſter thinks that theſe excreſcences would be more abundant, were the muſcles placed in water impregnated with calcareous matter; but profeſſor Linnæus ſeems certain that his father employed none of theſe methods. Beckmann's Hiſt. of Inventions, vol. ii.

The perfection of pearls, whether round, in form of pears or olives, or irregular, conſiſts chiefly in the luſtre and clearneſs of the colour, which jewellers call the *water*. There are ſome whoſe water is white, which are thoſe moſt eſteemed in Europe; the waters of others border on the yellow, which ſome Indians and Arabs prefer to the white; others are of a lead colour; others border on black; and others are quite black. They are all liable to change with wearing: in eighty or a hundred years they uſually become of little value, eſpecially the white ones, which often turn yellow, and ſpoil in forty or fifty years' time.

The difference of colours, doubtleſs, ariſes from the different parts of the oyſter in which they are formed. When the ſeed happens to be thrown into the meſentery or liver, or the parts correſponding thereto, it is no wonder if the impurities of the blood change the natural white.

The oriental pearls are the fineſt, on account of their largeneſs, colour, and beauty, being of a ſilver white; whereas the occidental pearls ſeldom exceed the colour of milk.

In Europe pearls are ſold by the carat-weight, the carat containing four grains. In Aſia, the weights uſed for pearls are different, in different ſtates.

The value of pearls increaſes as the ſquare of their weight: thus, the price of a pearl of one carat being ſettled at 8*s.* to find the price of a pearl weighing ſix carats; firſt find the ſquare of 6, *viz.* 36; which multiplied by 8, gives 288 ſhillings, or 14*l.* 8*s.* the price required.

The term pearl is only properly applied to what grows independent of the ſhell. The ſhell itſelf is rather called *nacre of pearl*: thoſe pieces which have grown thereto, and have ſince been ſeparated by the addreſs of the workman, are called *wens of pearls*; which are, in effect, nothing but roundiſh excreſcences, or pieces of the ſhell, though frequently uſed for real pearl.

Pearls, F. Bouhours obſerves, have this advantage over precious ſtones dug out of rocks, &c. that the latter owe their luſtre to the induſtry of men; nature only, as it were, hews them out, and leaves the finiſhing of them to art: but the former are born with that beautiful water which gives them their value. They are found perfectly poliſhed in the abyſſes of the ſea; and nature has put the laſt hand to them before they are ſeparated from their mother.

Pearls have been uſed as ornaments from the earlieſt ages.

In the time of Job pearls were accounted to be of great value. Job, ch. xxviii. v. 18.

Pearls of unuſual figures, *i.e.* neither round, nor in the pear form, are called *baroguas*, and our's *Scotch pearls:* thoſe of unuſual ſizes are called *parangons;* ſuch as were that of Cleopatra, valued by Pliny at centies HS, or 80,000*l.* ſterling; that brought in 1574 to Philip II. of the ſize of a pigeon's egg, valued at 14,400 ducats; that of the emperor Rudolph, mentioned by Boetius, called *la peregrina*, or *the incomparable*, of the ſhape of a muſcade pear, and weighing thirty carats; and that mentioned by Tavernier, in the hands of the emperor of Perſia, in 1633, bought of an Arab for 32,000 tomans, which, at 3*l.* 9*s.* the toman, amounts to 110,400*l.* ſterling.

That pearls are calcareous is inferred from Cleopatra's having been able to diſſolve her's in vinegar, and by theſe means to gain a wager from her lover, as we are told by Pliny (lib. ix. cap. 35.), and Macrobius (Saturn. lib. ii. cap. 15.) She muſt, however, have employed ſtronger vinegar than that which we uſe for our tables, as the pearls, on account of their hardneſs and their natural enamel, cannot be eaſily diſſolved by a weak acid. Cleopatra, perhaps, broke and pounded the pearls; and it is probable that ſhe afterwards diluted the vinegar with water, that ſhe might be able to drink it; though diſſolved calx deſtroys acids and renders them imperceptible to the tongue. We are told that the diſſipated Clodius gave to each of his gueſts a pearl diſſolved in vinegar to drink; "ut experiretur in gloria palatii," ſays Pliny, "quid ſaperent margaritæ; atque ut miré placuere, ne ſolus hoc ſciret, ſingulos uniones convivis abſorbendos dedit." Horace (lib. ii. ſat. 3.) ſays the ſame. Caligula, alſo, "margaritas pretioſiſſimas aceto liquefactas ſorbebat." Suet. cap. 37. That pearls are ſoluble in vinegar is remarked in Pauſanias, l. viii. c. 18. and Vitruvius, l. viii. c 3.

Pearls have been reckoned of ſome uſe in medicine; but they were only the ſmalleſt ſort, called *ſeeds of pearls*, that were uſed. The quality required was, that they ſhould be white, clear, and tranſparent; and truly oriental. They ſerved to make cordial potions, formerly much valued, but now fallen from their ancient reputation; and ſcarcely ordered by any but charlatans.

The ladies alſo uſe certain preparations of pearls, as they are made to believe, for their complexions: ſuch as the whites of pearls; flowers, eſſences, ſpirits, tinctures, &c. of pearl; but they are all apparently deceits.

PEARLS, *Ounce.* See OUNCE.

PEARL-*Fiſhery.* Pearls are taken in the ſeas of the Eaſt Indies, in thoſe of America, and in ſome parts of Europe.

PEARL-*Fiſheries of the Eaſt are,* 1. The iſland of Bahrein, or Baharem, in the Perſian gulf; this the Portugueſe were maſters of while they held Ormus and Maſcati; but it has been returned to the ſophi of Perſia, ſince the time that prince, with the aſſiſtance of the Engliſh, took from them Ormus, and the Arabs Maſcati. The revenue ariſing from this fiſhery to the ſcheik of Buſheer, has been diminiſhed by the pretenſions of the Houls, a ſtrong Arabian tribe between Gombron and Cape Burdiſtan, who refuſed to pay for the permiſſion of fiſhing. See BAHREIN.

2. The fiſhery of Catiſa, on the coaſt of Arabia Felix, over-againſt Bahrein.

3. That of Manaar, a ſea-port in the iſle of Ceylon. The pearls here fiſhed are the fineſt in all the Eaſt for their water, and roundneſs; but they ſeldom exceed two carats. See *Manner of Fiſhing for* PEARLS *in the Eaſt Indies*, farther on.

Laſtly, there are pearls fiſhed on the coaſt of Japan; but they are coarſe and irregular, and little valued.

The pearls of Bahrein and Catiſa are thoſe that were formerly ſold in the Indies; they border a little on the yellow, but the Eaſtern people do not value them the leſs for it: they eſteem it the ſign of their being ripe, and mature; and are perſuaded, that thoſe which have this yellowiſh tincture naturally never change their colour; and that, on the contrary, thoſe of the white water do not hold above thirty years before the pearl aſſumes a filthy yellow colour, by reaſon of the heat of the climate, and the ſweat of the perſons who wear them. Some of the pearls, taken near the iſles of Bahrein on the Arabian ſide, weigh 50 grains, but thoſe are eſteemed large which weigh from 10 to 12 grains.

PEARL, *American, Fiſheries*, are all in the great gulf of Mexico, along the coaſt of the Terra Firma. There are five of them.

1. The fiſhery of Cubagna, an iſland five leagues from New Andaluſia, in 10½ deg. north lat.

2. That of the iſland Marguerites, or Pearl Iſland.

3. That of Comogote near the Terra Firma.

4. That of the river De la Hach, called La Reneheria.

5. That of St. Martha, ſixty leagues from the river de la Hach.

The pearls of theſe three laſt fiſheries are uſually of a good weight, but ill formed and of a livid water. Thoſe of Cubagna ſeldom exceed five carats, but are found in abundance. But the greateſt quantity, and the fineſt, both with regard to weight and water, are thoſe of the iſland of Marguerites.

PEARL-*Fiſhery*, in Chineſe Tartary, is near the city Nipehoa, ſituate on a lake of the ſame name: the pearls here are leſs beautiful than thoſe of Baharem, and the fiſhery leſs plentiful. It was this fiſhery that occaſioned the war between the Chineſe and Muſcovites, terminated towards the end of the 17th century, by the Jeſuits Pereira and Gerbillon; when the lake, which is of great extent, was divided between the two nations, each of which had pretended to the whole.

The Turks or Tartars call this valued product "Margion," ſignifying a globe of light; from which, and the Perſian name "Mervarid," *i.e.* the offspring of light, was derived "Marguerite," the appellation in ſouthern Europe.

There are ſome pearl fiſheries alſo in the South ſea, but they are very inconſiderable. The fiſheries of the Bornean iſlands were noted in the time of Magalhaens; Pigafetta, his companion, reporting, that a Bornean monarch poſſeſſed two pearls, found here, as large as pullets' eggs.

PEARL-*Fiſheries* of Europe are in ſome places on the coaſt of Scotland, particularly in the rivers Teith and Ythan, which furniſh a large kind of mya or muſcle, and pearls, ſome of which are in the ſhape of a pear, and others pink on one ſide; and in a river of Saxony called Elſter, where the ſhells are about ſix inches long, but the pearls found here are no ways comparable to thoſe of the Eaſt Indies, or of America; though they ſerve for necklaces, which are ſold ſometimes for a thouſand crowns, and upwards. See an account of pearl fiſhing, in the north of Ireland, Philoſ. Tranſ. N° 198.

PEARLS, *Manner of fiſhing for, in the Eaſt Indies; particularly in the iſle of Ceylon.* About 12 miles from Manaar, and in the gulf ſo called, lies the bay of Condatchy, where all the boats are collected for the pearl-fiſhery. At this time the bay is crowded with ſmall veſſels, and the beach preſents an aſtoniſhing multitude of people from every quarter of India. Several thouſands of people of different colours, countries, caſts, and occupations, continually paſſing and repaſſing; vaſt numbers of ſmall tents and huts erected on the ſhore, with the bazar or market place before them; a multitude of boats returning in the afternoon from the pearl banks; the anxious countenances of the boat-owners, while the boats are approaching the ſhore, and the eagerneſs and avidity with which they run to them when arrived, in hopes of a rich cargo; the vaſt number of jewellers, brokers, merchants, of all colours and all deſcriptions, both natives and foreigners, who are occupied in ſome way or other with the pearls, ſome ſeparating and aſſorting them, others weighing and aſcertaining their number and value, while others are hawking them about, or drilling and boring them for future uſe:—all theſe circumſtances tend to impreſs the mind with the value and importance of that object, which can of itſelf create this ſcene. The banks, where the fiſhery is carried on, extend ſeveral miles along the coaſt from Manaar ſouthward of Arippo, Condatchy, and Pomparipo. The principal bank is oppoſite to Condatchy, and lies out at ſea about 20 miles. The firſt buſineſs, previous to the commencement of the fiſhery, is to ſurvey the different oyſter banks, to aſcertain the ſtate of the oyſters, and to make a report on the ſubject to government. If the quantity is found to be ſufficient, and in a proper ſtate of maturity, the particular banks to be fiſhed that year are put up for ſale to the higheſt bidder, and are uſually purchaſed by a black merchant. Sometimes the government deems it more advantageous to fiſh the banks on its own account, and to diſpoſe of the pearls afterwards to the merchants. When this plan is adopted, boats are hired for the ſeaſon on account of government from different quarters, at a variable price, but uſually from five to eight hundred pagodas for each boat. When this plan was purſued, as it generally was by the Dutch, the governor and council of Ceylon claimed a certain *per centage* on the value of the pearls:—or if the fiſhing of the banks was diſpoſed of by public ſale, they bargained for a ſtipulated ſum to themſelves over and above what was paid on account of government. This perquiſite was claimed on account of their trouble in ſurveying and valuing the banks. As it would not be expedient to fiſh the whole of the banks in one year, they are divided into three or four different portions, one portion of which is fiſhed annually in ſucceſſion. By this contrivance a ſufficient interval is allowed for the oyſters to attain their proper growth; and as the portion firſt uſed generally recovers its maturity by the time the laſt portion has been fiſhed, the fiſhery becomes almoſt regularly annual. The oyſters are ſuppoſed to attain their completeſt ſtate of maturity in ſeven years; for if they be left too long, the pearls become ſo large and ſo diſagreeable to the fiſhes, that they vomit and throw them out of the ſhell.

The fiſhing ſeaſon commences in February, and ends about the beginning of April. The period allowed the merchant for fiſhing the banks is ſix weeks, or at the moſt two months; but the interruptions that occur prevent the fiſhing days from exceeding more than about 30. In a bad ſeaſon, the purchaſer of the fiſhery is allowed a few days more as a favour. The number of holidays obſerved by perſons of different nations and ſects, is one principal cauſe of a conſiderable interruption. Many of the divers are of a black race, denominated Marawas and Parawas, that inhabit the oppoſite coaſt of Tutucoreen: theſe people, though of the Malabar caſt, are Roman Catholics, and leave off work on Sundays to attend prayers at the chapel of Arippo. But if ſtormy days, or Hindoo and Mahometan feſtivals (which are never neglected on any account by the natives) occur to interrupt the regular courſe of fiſhing, the farmer is ſometimes deſirous that the Catholic Marawas ſhould make up for loſt time by working on Sundays; but he cannot compel them to do this without an order from the chief civil officer of the government, who is appointed to ſuperintend the fiſhery. The boats and donies employed in the fiſhery do not belong to Ceylon, but are brought thither from different parts of the continent; particularly Tutucoreen, Caracal, and Negapatam, on the Coromandel coaſt; and Colang, a ſmall place on the Malabar coaſt, between Cape Comorin and Anjanga. The divers from Colang are accounted the beſt, and are only rivalled by the Lubbahs, a tribe of Moors, who remain on the iſland of Manaar, in order to be trained in this art. Before the fiſhery begins all the boats rendezvous at Condatchy, and are here numbered and contracted for.

During the ſeaſon, all the boats regularly ſail out and return together. A ſignal gun is fired at Arippo about ten o'clock at night, when the whole fleet ſets ſail with the land-breeze. They reach the banks before day-break, and at ſun-riſe commence fiſhing. In this they continue buſily occupied till the ſea-breeze, which ariſes about noon, warns them to return to the bay. As ſoon as they appear within ſight, another gun is fired, and the colours hoiſted, to inform the anxious owners of their return. When the boats come to land, their cargoes are immediately taken out, as it is neceſſary to have them completely unloaded before night. Whatever may have been the ſucceſs of their boats, the owners ſeldom wear the looks of diſappointment; for, although they may have been unſucceſsful one day, they look with the moſt complete aſſurance of better fortune to the next; as the Brahmins and conjurers, whom they implicitly truſt in defiance of all experience, underſtand too well the liberality of a man in hopes of good fortune, not to promiſe them all they can deſire.

Each of the boats carries twenty men, with a *Tindal* or chief boatmen, who acts as pilot. Ten of the men row and aſſiſt the divers in re-aſcending. The other ten are divers; they go down into the ſea by five at a time; when the firſt five come up the other five go down; and, by this method of alternately diving, they give each other time to recruit themſelves for a freſh plunge.

In order to accelerate the deſcent of the divers, large ſtones are employed: five of theſe are brought in each boat for the purpoſe; they are of a reddiſh granite, common in this country, and of a pyramidal ſhape, round at top and bottom, with a hole perforated through the ſmaller end ſufficient to admit a rope. Some of the divers uſe a ſtone ſhaped like a half moon, which they faſten round the belly when they mean to deſcend, and thus keep their feet free.

Theſe people are accuſtomed to dive from their very infancy, and fearleſsly deſcend to the bottom in from four to ten fathoms water, in ſearch of the oyſters. The diver, when he is about to plunge, ſeizes the rope, to which one of the ſtones we have deſcribed is attached, with the toes of his right foot, while he takes hold of a bag of net-work with thoſe of his left; it being cuſtomary among all the Indians to uſe their toes in working or holding as well as their fingers; and ſuch is the power of habit, that they can pick up even the ſmalleſt thing from the ground with their toes almoſt as nimbly as an European could with his fingers. The diver, thus prepared, ſeizes another rope with his right hand, and holding his noſtrils ſhut with the left, plunges into the water, and by the aſſiſtance of the ſtone ſpeedily reaches the bottom. He then hangs the net round his neck, and with much dexterity, and all poſſible diſpatch, collects as many oyſters as he can while he is able to remain under water, which is uſually about two minutes. He then reſumes his former poſition, makes a ſignal to thoſe above by pulling the rope in his right hand, and is immediately by this means drawn up and brought into the boat, leaving the ſtone to be pulled up afterwards by the rope attached to it.

The exertion undergone during this proceſs is ſo violent, that, upon being brought into the boat, the divers diſcharge water from their mouths, ears, and noſtrils, and frequently even blood. But this does not hinder them from going down again in their turn. They will often make from forty to fifty plunges in one day; and at each plunge bring up about a hundred oyſters. Some rub their bodies over with oil, and ſtuff their ears and noſes to prevent the water from entering; while others uſe no precautions whatever. Although the uſual time of remaining under water does not much exceed two minutes, yet there are inſtances known of divers who could remain four and even five minutes, which was the caſe with a Caffre boy the laſt year we viſited the fiſhery. The longeſt inſtance ever known was that of a diver who came from Anjanga in 1797, and who abſolutely remained under water full ſix minutes.

This buſineſs of a diver, which appears ſo extraordinary and full of danger to an European, becomes quite familiar to an Indian, owing to the natural ſuppleneſs of his limbs, and his habits from his infancy. His chief terror and riſk ariſe from falling in with the ground-ſhark while at the bottom. This animal is a common and terrible inhabitant of all the ſeas in theſe latitudes, and is a ſource of perpetual uneaſineſs to the adventurous Indian. Some of the divers, however, are ſo ſkilful as to avoid the ſhark even when they remain under water for a conſiderable time. But the terrors of this foe are ſo continually before their eyes, and the uncertainty of eſcaping him ſo great, that theſe ſuperſtitious people ſeek for ſafety in ſupernatural means. Before they begin diving, the prieſt, or conjurer, is always conſulted, and whatever he ſays to them is received with the moſt implicit confidence. The preparation which he enjoins them conſiſts of certain ceremonies according to the caſt and ſect to which they belong, and on the exact performance of theſe they lay the greateſt ſtreſs. Their belief in the efficacy of theſe ſuperſtitious rites can never be removed, however different the event may be from the predictions of their deluders: government therefore wiſely gives way to their prejudices, and always keeps in pay ſome conjurers to attend the divers and remove their fears. For though theſe people are ſo ſkilful and ſo much maſters of their art, yet they will not on any account deſcend till the conjurer has performed his ceremonies. His advices are religiouſly obſerved, and generally have a tendency to preſerve the health of the devotee. The diver is uſually enjoined to abſtain from eating before he goes to plunge, and to bathe himſelf in freſh water immediately after his return from the labours of the day.

The conjurers are known in the Malabar language by the name of *Pillal Karras*, or *binders of ſharks*. During the time of the fiſhery, they ſtand on the ſhore from the morning till the boats return in the afternoon, all the while muttering prayers, diſtorting their bodies into various ſtrange attitudes, and performing ceremonies to which no one, not even themſelves we believe, can attach any meaning. All this while it is neceſſary for them to abſtain from food or drink, otherwiſe their prayers would be of no avail. Theſe acts of abſtinence, however, they ſometimes diſpenſe with, and regale themſelves with *toddy*, a ſpecies of liquor diſtilled from the palm tree, till they are no longer able to ſtand at their devotions.

Some of the conjurers frequently go in the boats with the divers, who are greatly delighted at the idea of having their protectors along with them; but in our opinion, this fancied protection renders the divers more liable to accidents, as it induces them to venture too much and without proper precautions, in full confidence of the infallible power of their guardians. It muſt not however be imagined that theſe conjurers are altogether the dupes of their own arts, or that they accompany their votaries to the fiſhery merely from an anxious care of their ſafety; their principal purpoſe in going thither is, if poſſible, to filch a valuable pearl. As this is the caſe, it is evident that the ſuperintendant of the fiſhery muſt look upon their voyages with a jealous eye; ſuch, however, is the devoted attachment of their votaries, that he is obliged to paſs it over in ſilence, or at leaſt to conceal his ſuſpicions of their real intentions. He muſt alſo never hint a doubt of their power over the ſharks, as this might render the divers ſcrupulous of committing themſelves to the deep, or indeed deter them from fiſhing at all. The conjurers reap here a rich harveſt; for, beſides being paid by the government, they get money and preſents of all ſorts from the black merchants and thoſe ſucceſsful in fiſhing up the oyſters.

The appearance of a ſingle ſhark is ſufficient to ſpread diſmay among the whole body of divers; for as ſoon as one of them ſees a ſhark he inſtantly gives the alarm to his companions, who as quickly communicate it to the other boats; a panic ſpeedily ſeizes the whole, and they often return to the bay without fiſhing any more for that day. The ſharks which create all this alarm ſometimes turn out to be nothing more than a ſharp ſtone on which the divers happen to alight. As falſe alarms excited in this manner prove very injurious to the progreſs of the fiſhery, every means is employed to aſcertain whether they are well or ill founded; and if the latter be the caſe, the authors of them are puniſhed. Theſe falſe alarms occurred more than once in the courſe of the laſt two or three ſeaſons.

The divers are paid differently according to their private agreement with the boat-owners. They are paid either in money, or with a proportion of the oyſters caught, which they take the chance of opening on their own account; the latter is the method moſt commonly adopted. The agreements with the people who hire out the boats are conducted much in the ſame manner. They contract either to receive a certain ſum for the uſe of their boats, or pay the chief farmer of the banks a certain ſum for permiſſion to fiſh on their own account. Some of thoſe who purſue the latter plan are very ſucceſsful and become rich; while others are great loſers by the ſpeculation. Oyſter lotteries are carried on here to a great extent; they conſiſt of purchaſing a quantity of the oyſters unopened, and running the chance of either finding or not finding pearls in them. The European officers and gentlemen, who attend here upon duty or through curioſity, are particularly fond of theſe lotteries, and very frequently make purchaſes of this ſort.

The boat-owners and merchants are very apt to loſe many of the beſt pearls while the boats are on their return to the bay from the banks, as the oyſters, when alive and left for ſome time undiſturbed, frequently open their ſhells of their own accord: a pearl may then be eaſily diſcovered, and the oyſter prevented by means of a bit of graſs or ſoft wood from again cloſing its ſhell, till an opportunity offers of picking out the pearl. Thoſe fellows who are employed to ſearch among the fiſh alſo commit many depredations, and even ſwallow the pearls to conceal them; when this is ſuſpected, the plan followed by the merchants is to lock the fellows up, and give them ſtrong emetics and purgatives, which have frequently the effect of diſcovering the ſtolen goods.

As ſoon as the oyſters are taken out of the boats, they are carried by the different people to whom they belong, and placed in holes or pits dug in the ground to the depth of about two feet, or in ſmall ſquare places cleared and fenced round for the purpoſe; each perſon having his own ſeparate diviſion. Mats are ſpread below them to prevent the oyſters from touching the earth; and here they are left to die and rot. As ſoon as they have paſſed through a ſtate of putrefaction, and have become dry, they are eaſily opened without any danger of injuring the pearls, which might not be the caſe if they were opened freſh, as at that time to do ſo requires great force. On the ſhell being opened, the oyſter is minutely examined for the pearls; it is uſual even to boil the oyſter, as the pearl, though commonly found in the ſhell, is not unfrequently contained in the body of the fiſh itſelf.

The ſtench occaſioned by the oyſters being left to putrefy is intolerable; and remains for a long while after the fiſhery is over. It corrupts the atmoſphere for ſeveral miles round Condatchy, and renders the neighbourhood of that country extremely unpleaſant till the monſoons and violent ſouth-weſt winds ſet in and purify the air. The nauſeous ſmell, however, is not able to overcome the hopes of gain: for months after the fiſhing ſeaſon, numbers of people are to be ſeen earneſtly ſearching and poring over the ſands and places where the oyſters had been laid to putrefy; and ſome are now and then fortunate enough to find a pearl that amply compenſates their trouble in ſearching after them. In 1797 while Mr. Andrews was collector, a Cooly, or common fellow of the loweſt claſs, got by accident the moſt valuable pearl ſeen that ſeaſon, and ſold it to Mr. Andrews for a large ſum.

The pearls found at this fiſhery are of a whiter colour than thoſe got in the gulf of Ormus, on the Arabian coaſt, but in other reſpects are not accounted ſo pure, or of ſuch an excellent quality; for though the white pearls are more eſteemed in Europe, the natives prefer thoſe of a yellowiſh or golden caſt. Off Tutucoreen, which lies on the Coromandel coaſt, nearly oppoſite to Condatchy, there is another fiſhery; but the pearls found there are much inferior to thoſe two ſpecies we have mentioned, being tainted with a blue or greyiſh tinge.

In preparing the pearls, particularly in drilling and ſtringing them, the black people are wonderfully expert. We were very much ſtruck with the inſtrument they employ in drilling, as well as the dexterity with which they uſe it. A machine made of wood, and of a ſhape reſembling an obtuſe inverted cone, about ſix inches in length, and four in breadth, is ſupported upon three feet, each twelve inches long. In the upper flat ſurface of this machine holes or pits are formed to receive the larger pearls, the ſmaller ones being beat in with a little wooden hammer. The drilling inſtruments are ſpindles of various ſizes according to that of the pearls; they are turned round in a wooden head by means of a bow handle to which they are attached. The pearls being placed in the pits which we have already mentioned, and the point of the ſpindle adjuſted to them, the workman preſſes on the wooden head of the machine with his left hand, while his right is employed in turning round the bow handle. During the proceſs of drilling, he occaſionally moiſtens the pearl by dipping the little finger of his right hand in a cocoa-nut filled with water, which is placed by him for that purpoſe; this he does with a dexterity and quickneſs which ſcarcely impedes the operation, and can only be acquired by much practice.

They have alſo a variety of other inſtruments both for cutting and drilling the pearls. To clean, round, and poliſh them to that ſtate in which we ſee them, a powder made of the pearls themſelves is employed. Theſe different operations in preparing the pearls occupy a great number of the black men in various parts of the iſland. In the black town or pettah of Columbo in particular, many of them may every day be ſeen at this work, which is well worth the attention of any European who is not already acquainted with it.

As the pearl fiſhery has been formerly, without due conſideration, exhauſted by the avarice of the Dutch, it is not perhaps at preſent ſo productive as it once was. However, the revenue which government derives from it is ſtill conſiderable, and may by good management be increaſed. Pearls are conſidered as the next ſtaple of the iſland to cinnamon; the concourſe of people attracted by it affords a facility for diſpoſing of the other produce; and by proper management, advantage might be taken of the opportunity here offered to introduce Britiſh manufactures into various parts of India. Percival's Account of Ceylon. Aſiatic Reſearches, vol. v. p. 393, &c.

Pearl, *Manner of fiſhing for, in the Weſt Indies.* The ſeaſon for fiſhing there is uſually from October to March. In this time there ſet out from Carthagena ten or twelve barks, under the convoy of a man of war called l'Armadilla. Each bark has two or three ſlaves for divers.

Among the barks there is one called Capitana; to which all the reſt are obliged to bring at night what they have caught in the day, to prevent frauds. The divers never live long, by reaſon of the great hardſhips they ſuſtain; continuing ſometimes under water above a quarter of an hour. The method is the ſame as in the Eaſt Indian fiſheries.

The Indians eſteemed pearls before the diſcovery of America; and when the Spaniards arrived there, they found great quantities ſtored up, which the Americans ſet great value on. But they were almoſt all imperfect, and their water yellow and ſmoky, becauſe they uſed fire in opening the fiſhes.

As to pearls in form of pears, though equally perfect, and of equal weight with the round ones, their value is much inferior: however, when two are found that match well, their value is leſs but by one-third.

Pearls, *To blanch and cleanſe.* Firſt ſoak and cleanſe them in bran-water, then in milk-warm water, and laſt of all ſteep them in mercurial water, then ſtring and hang them in a glaſs, cloſe it well, and ſet them in the ſun to dry.

The bran-water is made thus: boil two good handfuls of wheaten bran, in a quart of water, till all the ſtrength of the bran is drawn out, which uſe thus: take a new glazed earthen pan, in which put your pearls on a ſtring, and pour the third part of the bran-water upon it: when they have ſoaked, and the water is juſt warm, rub your pearls gently with your hands, to clean them the better, and continue this till the water is cold; throw off that, and pour on another third part of the bran-water, that is boiling, proceed with this as you did before, and when cold, throw it away, and pour on the remainder of the water, ſtill proceeding as before. After this, heat fair water, and pour it on your pearls, to refreſh them, and to waſh away the remains of the bran, by ſhifting them, and pouring on freſh warm water: this do thrice, without handling your pearls; then lay them on a ſheet of clean white paper, and dry them in a ſhade; after which dip them into mercurial water, to bring them to perfection. Poſtl. Dict. Com.

Other Methods in blanching of Pearls.—Pound alabaſter to an impalpable powder, rub the pearls therewith, very gently: this will not only cleanſe them, but if you let them remain in this powder twenty-four hours afterwards, they will ſtill be the better for it. White coral has the ſame effect, uſed in the like manner. White tartar, calcined and diveſted of all its moiſture, is very good for the ſame purpoſe.

Salt diſſolved, filtered, coagulated, well dried, and ground, is as effectual as any of the former things for cleanſing of pearls, by rubbing them therewith; and if afterward you lay them up in ſome coarſe ground millet, it will contribute to their brightneſs.

Pearls, *Falſe* or *Artificial*, are counterfeit or fictitious pearls, reſembling the true ones in ſhape, luſtre, colour, and poliſh; popularly called beads.

Theſe anciently were only made of glaſs, incruſted on the inſide with a pearl-coloured varniſh, which was firſt purſued by ſome artiſts at Murano; or with a kind of amalgam or coating of quickſilver withinſide; afterwards they uſed ſmall balls of wax or gum, covered with a pearl-coloured enamel. Theſe were praiſed on account of their luſtre; but as their beauty was deſtroyed by moiſture, they did not continue long in uſe.

There has ſince been invented in France another manner of making them, ſo near the natural ones in luſtre and water, that they deceive a good eye. Theſe are what the ladies now generally wear in defect of true pearl; ſmall necklaces whereof they deſpiſe, and the large ones are generally too dear.

Pearls, *Falſe, Method of making*. Take of thrice diſtilled vinegar two pounds; Venice turpentine, one pound; mix them together into a maſs, and put them into a cucurbit; fit a head and receiver to it, and after you have luted the joints, ſet it, when dry, on a ſand furnace, to diſtil the vinegar from it; do not give it too much heat, leſt the ſtuff ſwell up: after this put the vinegar into another glaſs cucurbit, in which there is a quantity of ſeed pearl, wrapped in a piece of thin ſilk, but ſo as not to touch the vinegar; put a cover or head upon the cucurbit, lute it well, and put it in bal. Mariæ, where you may let it remain a fortnight. The heat of the balneum will raiſe the fumes of the vinegar, and they will ſoften the pearls in the ſilk, and bring them to the conſiſtence of a paſte; which being done, take them out, and mould them to what bigneſs, form, and ſhape you pleaſe. Your mould muſt be of fine ſilver, the inſide gilt; you muſt alſo refrain from touching the paſte with your fingers, but uſe ſilver gilt utenſils, with which fill your moulds. When they are moulded, bore them through with a hog's briſtle or gold wire, and let them dry a little; then thread them again on gold wire, and put them into a glaſs; cloſe it up and ſet them in the ſun to dry; after they are thoroughly dry, put them in a glaſs matraſs into a ſtream of running water, and leave them there twenty days; by that time they will contract the natural hardneſs and ſolidity of pearls: then take them out of the matraſs, and hang them in mercurial water, where they will moiſten, ſwell, and aſſume their oriental beauty; after which ſhift them into a matraſs hermetically cloſed up, to prevent any water coming to them, and let it down into a well, to continue there about eight days: then draw the matraſs up, and in opening it, you will find pearls exactly reſembling oriental ones.

The mercurial water is thus prepared: take plate-tin of Cornwall, calcine it, and let the calx be pure and fine; then, with one ounce of the calx and two ounces of prepared mercury, make an amalgam; waſh it with fair water, till the water remains inſipid and clear; then dry the amalgam thoroughly, put it into a matraſs over the furnace, giving it ſuch a heat as is requiſite for ſublimation. When the matter is well ſublimated, take off the matraſs, and let it cool. Take out that ſublimate, add one ounce of Venice ſublimate to it, and grind them together on a marble; put this into another matraſs, cloſe it well, and ſet it upſide down in a pail of water, and the whole maſs will diſſolve itſelf, in a little time, into mercurial water: this done, filter it into a glaſs receiver, ſet it on a gentle aſh fire to coagulate, and it will turn into a cryſtalline ſubſtance: beat this in a glaſs mortar, with a glaſs peſtle, to a fine powder; ſtrain it through a fine ſieve, and put it into a matraſs, ſtop it cloſe up, and place it in balneo Mariæ; there let it remain till it reſolves again into water, which will be fit for the above mentioned uſe. Poſtl. Dict. Com.

The ſieur Janin, or Jaquin, having obſerved, that the ſcales of a little fiſh called the *bleak*, found plentifully in the river Marne, had not only all the luſtre of the real pearl, but that, after beating them to powder in water, they returned to their former brilliance upon drying; bethought himſelf of ſetting a piece, or little maſs thereof, in the cavity of a bead, or grain of giraſol, which is a kind of counterfeit opal made of glaſs, and bordering much on the colour of pearl. The difficulty was to get it there, and when it was within, to ſpread it equally throughout the bead.

A little glaſs tube, ſix or ſeven inches long, and a line and half in diameter, but very ſharp at one end, and a little crooked, ſerved for the introducing of the matter, by blowing it with the mouth, after having taken up a drop of this mixture with the pointed extremity of the tube; and to ſpread it throughout the inner circumference, he contented himſelf to ſhake it gently a long time, in a little oſier baſket lined with paper.

The pulverized ſcales, faſtened by this motion in the inſide of the bead, reſume their luſtre as they dry. To increaſe this luſtre, in winter, they lay the beads in a hair ſieve, or a bolting cloth, which they ſuſpend to the ceiling, and under it, at ſix feet diſtance, they lay heaps of hot aſhes. In ſummer they ſuſpend them in the ſame manner, but without any fire.

The pearls, thus well dried, become very brilliant; and nothing remains but to ſtop up the aperture, which is done by melting wax, conveyed into it with a tube like that uſed in introducing the powdered ſcales.

After clearing off the ſuperfluous wax, they perforate the pearls with a needle, and ſtring them; and thus they form a necklace.

Pearl, *Mother of*, is the ſhell not of the pearl oyſter, but of another ſea-fiſh of the oyſter kind.

The ſhell withinſide is very ſmooth and poliſhed, and of the whiteneſs and water of pearl itſelf; and it has the ſame luſtre withoutſide, after the firſt laminæ or leaves, which make the outer coat of this rich ſhell-fiſh, have been cleared off with aqua fortis, and the lapidary's mill. It is uſed in inlaid works, and in ſeveral toys, as ſnuff-boxes, &c.

Pearl, *Wens of*, are certain excreſcences, or prominent places, in form of half-pearls; ſometimes found in the bottoms of pearl ſhells.

The lapidaries have the addreſs to ſaw off theſe protuberances, to join them together, and to uſe them in ſeveral works of jewellery, as if they were real pearls.

Pearl, in *Heraldry*, is uſed by ſuch as blazon with precious ſtones inſtead of colour and metals, for argent, or white.

Pearl, in *Ichthyology*, a name given by us in the parts about London, to that fiſh which is called in Cornwall, and other parts of the weſt of England, *lug-a-leaf:* it is the rhombus lævis of the generality of authors. See Pleuronectes *Rhombus*.

Pearl *Keys*, in *Geography*, iſlets or rocks in the Spaniſh main, on the Moſquito ſhore. N. lat. 12° 26'. W. long. 82° 45'.

Pearl *Key Lagoon*, a bay on the Moſquito ſhore. N. lat. 11° 15'. W. long. 83° 12'.

Pearl *Iſlands*, a cluſter of ſmall iſlands in the Atlantic, near the coaſt of Nicaragua. N. lat. 12° 35'. W. long. 83° 50'.

Pearl *Iſlands*, or *King's Iſlands*, ſmall iſlands in the bay of Panama; 12 leagues from the city of Panama. They are low, and produce wax, water, fruit, fowls, and hogs, and they afford good harbours for ſhips. N. lat. 7° 12'. W. long. 81° 45'.

Pearl *Iſland*, a ſmall iſland in the gulf of Mexico, at the mouth of the Miſſiſippi.—Alſo, a ſmall iſland in the Weſt Indies. N. lat. 14° 53'. W. long. 79° 13'.

Pearl *River*, a river of America, which riſes in the Chactaw country in the W. part of the Miſſiſippi territory, and purſuing a ſoutherly courſe to the gulf of Mexico, is navigable upwards of 150 miles. Its principal mouths are near the entrance at the E. end of the Regulets, through which is the paſſage to lake Pontehartrain; it has ſeven feet at its entrance, and deep water afterwards. In 1769 there were ſome ſettlements on this river, where were raiſed tobacco, indigo, cotton, rice, Indian corn, and all ſorts of vegetables. The land produces a variety of timber, fit for pipe and hogſhead ſtaves, maſts, yards, and all kinds of planks for ſhip-building.—Alſo, a river of Chiampa, which runs into the Chineſe ſea, N. lat. 10° 54'. E. long. 107° 33'.

Pearl *Rocks*, a group of low and dangerous rocks in the North Pacific ocean, near the S. extremity of Calvert's iſland. N. lat. 51° 54'. E. long. 231° 52'.

Pearl-*Aſh*, in *Chemiſtry*, *Arts*, and *Manufactures*. The crude potaſh, when firſt obtained by the combuſtion of vegetable matter, abounds with a great variety of impurities, conſiſting of neutral ſalts, ſulphur, charcoal, and ſome earthy matter.

When this ſubſtance is waſhed with clean water, and the inſoluble matter allowed to ſubſide, the clear liquor is evaporated in large ſhallow iron pans. The reſiduum conſiſts of potaſh properly ſo called, ſtill containing ſome neutral ſalts, but free from its other impurities. It is a maſs of a white colour, from which it is called pearl-aſh. In this ſtate it is uſed by bleachers, glaſs-makers, dyers, and others. The real potaſh it contains, for which it is valued, is combined with carbonic acid in the proportion of 19 of acid to 42 potaſh. The remainder conſiſts of ſulphat and muriat of potaſh. See Carbonat *of Potaſh*.

The goodneſs of pearl-aſhes muſt be diſtinguiſhed by the uniform and white appearance of them: they are ſubject, however, to a common adulteration, not eaſily diſtinguiſhable by the appearance, which is done by the addition of common ſalt. In order to diſcover this fraud, take a ſmall quantity of the ſuſpected ſalt, and after it has been ſoftened by lying in the air, put it over the fire in a ſhovel: if it contains any common ſalt, a crackling and kind of ſlight exploſion will take place, as the ſalt grows hot.

The pearl-aſhes are much uſed in the manufacture of glaſs, and require no preparation; except where very great tranſparency is required, as in the caſe of looking-glaſs, and the beſt window-glaſs. For this purpoſe diſſolve them in four times their weight of boiling water: when they are diſſolved, let the ſolution be put into a clean tub, and ſuffered to remain there twenty-four hours, or longer. Let the clear part of the fluid be then decanted off from the ſediment, and put back into the iron pot in which the ſolution was made: in this let the water be evaporated away till the ſalts be left perfectly dry again. Keep thoſe that are not deſigned for immediate uſe in ſtone jars, well ſecured from moiſture and air.

To thoſe who buy large quantities of this article, it may not be unuſeful to know the means of aſſaying it. Weigh 100 grains of it before it has been expoſed to the air; then lay out a known weight of ſulphuric acid, of the ſpecific gravity of 1.8, or ſuch as boils at the temperature of 460°. Diſſolve the pearl-aſh in its own weight of diſtilled water. With a ſmall ſucking tube add ſulphuric acid by a ſmall portion at once, till no more effervеſcence takes place. The weight of the remainder of the ſulphuric acid will ſhew how much has been added to the ſolution. Then for every grain of ſulphuric acid of the above ſtrength taken up, allow .82 of a grain of pure potaſh. Thus, if 100 grains of the pearl-aſh take up 40 grains of ſulphuric acid, of the ſpecific gravity 1.8, the pure potaſh contained in the 100 will be 32.8 grains. See Potash.

Pearl-*Barley*. (See Barley.) This affords, to a microſcopic obſerver, a peculiar kind of mite worthy of attention, and very different from the common ſpecies. The bodies of theſe have ſome brown marks upon them, and have not ſuch long hairs as the common mites have; the hinder part of the body alſo is of a different make. They have eight legs; and before the head there ſtand two weapons twice as thick as the legs, and of about half their length: theſe are divided towards their ends with joints like fingers, and thoſe have at their ends a ſort of nails formed with ſharp and crooked claws; and one of the longeſt joints is ſerrated at the edge like a ſaw. Theſe weapons ſerve not only as arms and hands to ſeize hold of things, but they alſo ſerve as a defence; for as ſoon as any danger threatens the creature's head, it erects them both, and makes them meet and fold into one another over the head, as we can join our hands and fingers together in the ſame erect poſture. Phil. Tranſ. No. 222.

Pearl *Colour*, in *Glaſs*. This beautiful colour is given to glaſs in the following manner: put tartar calcined to a whiteneſs into purified cryſtal, while in fuſion, at ſeveral times, in ſmall quantities, mixing it well every time, till the glaſs is become of the deſired colour; and when it is, work it as quick as can be, for it is a colour that is quickly gone. See Glass.

Pearl *Shell* or *Gaper*. See Mya.

Pearl, *Pin*, or *Web*, in *Medicine*, an unnatural ſpeck, or thick film over the eye. See Pannus.

Pearl, *White*, is the powder of pearls, or the finer parts of oyſter-ſhells, much uſed in miniature paintings. The method of preparing it is to take the oyſters, as they are found on the ſea-coaſt, calcined by the ſun, or otherwiſe to dry freſh ones by the fire, till they may be eaſily powdered; to ſcrape off from theſe ſhells all the external or other parts that are not of the moſt perfect whiteneſs; and to levigate them well with water on the ſtone, and waſh the powder over till it is thoroughly fine.

Pearl, *White*, as a coſmetic, or magiſtery of biſmuth, ſee Bismuth.

PEARLED Crowns. See Crown.

PEARLSTONE, ſo called by Jameſon, and *Perlſtein* of Werner, in *Mineralogy*. Its colours are pearl and ſmoke-grey, yellowiſh-grey, fleſh-red, and reddiſh-brown, alſo greyiſh-black. It occurs in round and longiſh veſicles; its luſtre is ſhining and pearly; its fracture is ſmall, and imperfectly conchoidal. It is compoſed of thin concentric lamellar concretions; tranſlucent on the edges, eaſily frangible and ſoft. According to Klaproth, it is compoſed of

75.25	Silex.
12.	Alumine.
1.6	Oxyd of iron.
4.5	Potaſh.
2.5	Lime.
2.5	Water.
98.35	

It occurs in porphyry, and often contains balls of obſidian; and is found near Tokay in Hungary.

PEARN's Point, in *Geography*, a cape on the W. coaſt of the iſland of Antigua.

PEARSON, John, in *Biography*, a learned prelate of the church of England, ſon of a clergyman, who was rector of Creake and Snoring, in Norfolk, was born in the year 1612 or 1613. When he was eleven years old he was ſent to Eton ſchool, from whence, in 1631 or 1632, he was elected to King's college, Cambridge. Having taken his degree, he was, in 1635, choſen a fellow of his college. In 1639 he entered into holy orders, and in the following year biſhop Davenant collated him to a prebend in the church of Sarum, and about the ſame time he was appointed chaplain to the lord-keeper Finch, who preſented him to a living in Suffolk. On the commencement of the civil wars Mr. Pearſon was made chaplain to lord Goring, and attended him when he went in the king's ſervice into the weſt of England. Here he preached a ſeries of ſermons, which he afterwards publiſhed in a different form, under the title of "An Expoſition on the Creed, &c." It was reprinted with additions and improvements in folio, and has been ſo well received and highly applauded by the learned and judicious, as to have gone through at leaſt twelve or fourteen editions. Soon after the reſtoration of Charles II. preferment and honours flowed in rapidly on Mr. Pearſon. In 1660 he was preſented to the rectory of St. Chriſtopher's in London; created a doctor of divinity at Cambridge by a mandamus from the king; inſtalled a prebend in the cathedral of Ely; nominated archdeacon of Surrey; and appointed maſter of Jeſus college, in Cambridge. In the following year he was one of the aſſiſtant managers on the part of the eſtabliſhment at the Savoy Conference, on which occaſion he conducted himſelf in a manner highly reputable to his character and talents. Mr. Baxter ſays, that "Dr. Pearſon was their true logician and diſputant, without whom, as far as I could diſcern, we ſhould have had nothing from them but Dr. Gunning's paſſionate invectives, mixed with ſome argumentations. He diſputed accurately, ſoberly, and calmly, being but once in any paſſion, breeding in us a great reſpect for him, and a perſuaſion, that if he had been independent, he would have been for peace, and that if it were in his power, it would have gone well. He was the ſtrength and honour of that cauſe, which we doubted whether he heartily maintained." In June 1661, he was appointed lady Margaret's profeſſor of divinity at Cambridge; and he filled that chair with diſtinguiſhed credit and applauſe. In 1662 he was elected to the maſterſhip of Trinity college, Cambridge, which led him to reſign his other preferments in the church. In 1672 he was raiſed to the epiſcopal bench, being nominated the ſucceſſor of the celebrated Dr. Wilkins in the ſee of Cheſter, with which he was permitted to hold the arch deaconry of Surrey, and the rectory of Wigan, in Lancaſhire. He had previouſly to this prepared for publication a learned work, which was publiſhed in 1672, entitled "Vindiciæ Epiſtolarum S. Ignatii—Acceſſerunt Iſaaci Voſſii Epiſtolæ duæ adverſus David Blondellum." The work owed its origin to the diſpute then agitating concerning epiſcopacy, and was intended to ſupport the arguments in its favour drawn from the epiſtles attributed to Ignatius, in oppoſition to thoſe who did not admit the authenticity of thoſe epiſtles. On this point Dr. Pearſon ſo far concedes to his opponents as to admit, that of the three Latin and twelve Greek epiſtles publiſhed in Ignatius' name, the former are ſpurious, and five of the latter are of doubtful authority; but he maintains the authenticity and genuineneſs of the ſeven other Greek epiſtles, which are mentioned by Euſebius. Dr. Pearſon held the biſhopric of Cheſter upwards of thirteen years, but was, for ſeveral of thoſe years previouſly to his death, diſqualified for all public ſervice by his infirmities. He died in 1686, when he was in the ſeventy-fifth year of his age.

He left behind him a number of works, which were creditable to his learning and induſtry. He was author of a preface to the Golden Remains of the ever-memorable Mr. John Hales of Eton; of "No Neceſſity of Reformation of the public Doctrine of the Church of England &c." of the preface to J. Field's edition of "The Septuagint;" and of "Annales Cyprianici, ſive tredecim annorum, quibus S. Cyprianus inter Chriſtianos verſatus eſt, Hiſtoria Chronologica." He was one of the editors of the "Critici Sacri," or collection of critics and commentators upon the bible, in nine volumes folio; and from his MSS. were publiſhed, after his death, "V. Cl. Joannis Pearſonii S.T.P. Ceſtrienſis nuper Epiſcopi, opera Poſthuma Chronologica, &c."

Biſhop Pearſon was a man of profound and general learning, an exact chronologiſt, and intimately acquainted with the writings of the fathers and eccleſiaſtical hiſtory. He is deſcribed by biſhop Burnet, as in all reſpects the greateſt divine of the age, a man of great learning, ſtrong reaſon, and of a clear judgment. He was a judicious and grave preacher, more inſtructing than affecting; and a man of a ſpotleſs life, and of an excellent character. The ſame worthy prelate ſays, that Dr. Pearſon's "work on the Creed is among the beſt that our church has produced." But he adds, that "he was not active in his dioceſe; too remiſs and eaſy in his epiſcopal function; and was a much better divine than a biſhop." He was a melancholy inſtance of what a great man can fall to; for his memory went from him ſo entirely, that he became a child ſome years before he died.

PEASE, in *Botany*, &c. See Pea.

Pease-*bloom-damp*, in *Natural Hiſtory*. See Damp.

Pease-*bolt*, a provincial term applied to peaſe-haulm,

PEAT, in *Rural Economy*, a ſort of earth dug out and uſed in many countries for fuel. It is found in moſt low grounds that lie betwixt hills, eſpecially if timber has formerly ſtood upon the ſpot. It lies at various depths, being often near the ſurface, and ſometimes from ſix, eight, or ten feet, to twelve or fifteen yards deep, having a ſtratum of black moory earth over it, ſuch as the ſoil of many of our low meadows near the banks of rivers; it ſometimes lies under a bed of gravel. It is moderately compact, and capable of being cut with a ſharp thin ſpade into ſolid maſſes, like bricks. Expoſed to the air, it dries ſlowly, and becomes ſomewhat hard, and very inflammable. The beſt kind burns in an open grate with a yellowiſh-blue flame, reſembling that of charcoal, and with a leſs quantity of ſmoke than wood affords. Some varieties are conſiderably charged with pyrites, and ſome alſo with ſulphats of ſoda and magneſia; and they are thus deteriorated as combuſtibles. By digeſtion in boiling water, peat affords a deep brown ſolution, ſlightly bitter to the taſte, and containing an uncombined vegetable acid, ſimilar to the ſuberic, with a portion of extract, and a little ſulphur. By dry diſtillation, there comes over a watery ammoniacal liquor, and empyreumatic oil, and carburetted hydrogen ; a conſiderable quantity of charcoal remaining in the retort.

Peat is a ſort of material which is found to exiſt in large tracts in different parts of the kingdom, and was formerly ſuppoſed to be uſeleſs in improving the lands in its neighbourhood; but later experiments have ſufficiently ſhewn, it is a vegetable ſubſtance that, when properly mixed with other materials and applied, is capable of affording vaſt advantages in different caſes. It ſhould therefore not be neglected or overlooked where the farmer has an opportunity of making uſe of it. Lord Dundonald has well remarked, that peat, or vegetable matter, ſhould be carried from the peat-moſs to the poor ſoil, and the ſurface mould from the poor ſoil to the peat moſs. By theſe means two beneficial purpoſes may, at the ſame time, be effected. The quantity of ſuch like or other earthy matter neceſſary to be added to a peat ſoil, to alter the mechanical arrangement of its parts, is to be aſcertained by proper trials; and, on the other hand, the quantity of peat requiſite to be applied to poor ſoils will be regulated by the quantity of vegetable matter which ſuch ſoils may already contain. And, the moſt efficacious method of applying peat to poor barren ſoils, is to mix it with the urine and dung of cattle; on failure of theſe articles, with alkaline and other ſalts; and laſtly, with lime. He obſerves that experience can only determine the number of loads or weight of theſe different preparations, which ſhould be given to an acre of ground. From ſuch experiments as have already been made with the preparations of alkaline and ſome other ſalts, there is reaſon to believe that the quantity neceſſary to be given at one time would not exceed that of a proper dunging, and that equally beneficial effects would be produced. If this, on general experience, ſhould be proved, the peat moſſes in Great Britain and Ireland will not only afford an inexhauſtible ſupply of manure for the poor lands in their vicinity, but may themſelves, by the application of alkaline and other ſalts, be brought to the higheſt ſtate of fertility.

Peat-moſſes and fens have, hitherto, generally been conſidered either as nuiſances, when in an unimproved ſtate, or as ſoils of the greateſt fertility, when cultivated. Theſe different ſtates regard only the peat-moſs or fen itſelf, and have no reference to any conſequences that might ariſe by the application of peat or of any preparation of it to the neighbouring lands. But as peat has been diſcovered to be capable of being converted into the moſt valuable of all manures, the importance of the peat-moſſes in Great Britain and Ireland cannot, therefore, be too much impreſſed on the minds of the land-owners and occupiers of theſe countries. It is further ſtated, that from experiments made with alkaline ſalts and peat, it can be aſſerted, that the effects of ſuch mixture, weight for weight, are equal, if not ſuperior, to thoſe of dung. The uſual quantity of dung given to an acre of ground, when it is intended to manure it effectually, is about eighteen tons. This it may, perhaps, receive once in five years. It will require a farm to be well managed and in high cultivation, to admit of one-fifth of it to be annually ſo manured. He ſuppoſes, that the beſt cultivated land, by the return of its own manure, unleſs when a quantity of vegetable matter has been accumulated, cannot do more than keep itſelf in heart ; of courſe, nothing can be ſpared for the amelioration or improvement of poor or waſte lands. The rendering the inert vegetable matter of peat-moſſes and fens ſerviceable to this purpoſe, though effected at a greater expence than is at preſent incurred by any application or dreſſing to ground, could not fail to anſwer the expectation of the farmer, and muſt be conſidered as one of the moſt valuable improvements that has hitherto occurred in the annals of huſbandry.

It is the opinion of ſome that it may be laid on land in the moſt effectual manner, by having it mixed up or blended with lime newly ſlaked in the proportion of one part of the lime to five or ſix of the peat ; but later trials lead to the concluſion that it may be uſed more ſucceſsfully by having it incorporated with ſome ſort of manure, ſuch as that of dung. In this ſtate of combination very great effects have been produced by it, as ſuggeſted above, in numerous inſtances where it has been employed.

States of Peaty Matter.—The earl of Dundonald ſtates the different preparations of peat, or ſtates of mixture, in which it may be applied to lands, with good effects in counteracting particular defects, or in rendering them generally more fertile, to be theſe :

“ Peat, unmixed,
——, ditto - - - oxygenated,
——, oxygenated, mixed with dung and urine,
——, ditto - - - alkaline ſalts,
——, ditto - - - alkaline hepar,
——, ditto - - - Glauber ſalt and lime,
——, mixed - - - newly ſlaked lime,
—— and lime, mixed with peat aſhes.”

It is ſuppoſed that all theſe preparations may, according to circumſtances, be uſed to advantage. The conſuming peat to aſhes by fire, is always to be conſidered as the leaſt productive, and moſt uneconomical. The moſt beneficial and productive of theſe preparations will be found to be :

Peat with dung and urine;
———— alkaline ſalts ;
———— alkaline hepar ;
———— Glauber ſalt and lime : and
———— lime.

In caſes where the ſoil does not contain a due proportion of calcareous matter, a preference ſhould always be given to the laſt or the two laſt of the above preparations, until it ſhall have received a ſufficient ſupply of an article ſo indiſpenſably neceſſary as calcareous matter to the production of ſweet herbage, leguminous plants, and grain. It is farther ſuppoſed that by the above method of mixing peat with lime in the proportion of five or ſix times the weight of the former to that of the latter, no injury can poſſibly ariſe from the over proportion of the lime. As the lime, when thus mixed with the peat, will meet with proper matter for it to combine with, or act upon ; and the ſmall proportion neceſſary to be uſed, when put in compariſon to the weight of the peat, will be much leſs than the quantity of lime only, frequently applied at once to land ; it is conceived that the bulk, weight, and the expence of the preparation, may direct the farmer in reſpect to the proportion that may be requiſite to effect his purpoſe in moſt caſes.

And in an ingenious pamphlet lately publiſhed by lord Meadowbank. the following directions are given for forming peat into a manure to be applied to ground.

Let the peat-moſs, of which compoſt is to be formed, be thrown out of the pit for ſome weeks or months, in order to loſe its redundant moiſture. By this means, it is rendered the lighter to carry, and leſs compact and weighty, when made up with freſh dung for fermentation ; and, accordingly, leſs dung is required for the purpoſe, than if the preparation is made with peat taken recently from the pit. The peat taken from near the ſurface, or at a conſiderable depth, anſwers equally well. Then take the peat-moſs to a dry ſpot, convenient for conſtructing a dunghill to ſerve the field to be manured. Lay the cart-loads of it in two rows, and the dung in a row betwixt them. The dung thus lies nearly on the area of the future compoſt dunghill, and the rows of peat ſhould be near enough each other, that workmen, in making up the compoſt, may be able to throw them together by the ſpade. In making up, let the workmen begin at one end; and at the extremity of the row of dung, (which ſhould not extend quite ſo far at that end as the rows of peat on each ſide of it do,) let them lay a bottom of peat, ſix inches deep and fifteen wide, if the grounds admit of it; then throw forward, and lay on about ten inches of dung above the bottom of peat; then add from the ſide-rows about ſix inches of peat; then another thin layer of dung; and then cover it over with peat at the end where it was begun, at the two ſides, and above. The compoſt ſhould not be raiſed above four feet, or four feet and a half high; otherwiſe it is apt to preſs too heavily on the under parts, and check the fermentation. When a beginning is thus made, the workmen will proceed working backwards, and adding to the column of compoſt, as they are furniſhed with the three rows of materials directed to be laid down for them. They muſt take care not to tread on the compoſt, or render it too compact; and, of conſequence, in proportion as the peat is wet, it ſhould be made up in lumps, and not much broken. And that, in mild weather, ſeven cart-loads of common farm-dung, tolerably freſh made, is ſufficient for twenty-one cart-loads of peat-moſs: but, in cold weather, a large proportion of dung is deſirable. To every twenty-eight carts of the compoſt, when made up, it is of uſe to throw on, above it, a cart-load of aſhes, either made from coal, peat, or wood; or if theſe cannot be had, half the quantity of ſlaked lime may be uſed; the more finely powdered the better. But theſe additions are no-wiſe eſſential to the general ſucceſs of the compoſt. It is farther ſtated that the dung to be uſed ſhould either have been recently made or kept freſh by compreſſion; as, by the treading of cattle or ſwine, or by carts paſſing over it. And if there is little or no litter in it, a ſmaller quantity will ſerve, provided any ſpongy vegetable matter is added at making up the compoſt, as freſh weeds, the rubbiſh of a ſtack-yard, potatoe-ſhaws, ſawings of timber, &c. And as ſome ſorts of dung, even when freſh, are much more advanced in decompoſition than others, it is material to attend to this, for a much leſs proportion of ſuch dung as is leſs advanced will ſerve for the compoſt, provided care is taken to keep the maſs ſufficiently open either by a mixture of the above-mentioned ſubſtances, or, if theſe are wanting, by adding the peat piece-meal; that is, firſt making it up in the uſual proportion of three to one of dung; and then, after a time, adding an equal quantity, more or leſs, of moſs or peat. The dung of this character, of greateſt quality, is ſhamble-dung, with which, under the above precautions, ſix times the quantity of peat, or more, may be prepared. The ſame holds as to pigeon dung, and other fowl dung; and, to a certain extent alſo, as to that which is collected from towns, and made by animals that feed on grains, refuſe of diſtilleries, &c. It is ſtill further obſerved, that the compoſt, after it is made up, gets into a general heat ſooner or later, according to the weather, and the condition of the dung; in ſummer in ten days or ſooner; in winter, not perhaps for many weeks, if the cold is ſevere. It always, however, has been found to come on at laſt. In order to bring on the heat more expeditiouſly in a compoſt made up in froſt, a narrow addition of dung and peat has, ſometimes after the froſt has gone off, been laid along the ſides of the compoſt, ſcraping down a little the coating of peat upon it, and, in ſummer, it ſometimes riſes ſo high, as to be miſchievous, by conſuming the materials (fire fanging). In that ſeaſon a ſtick ſhould be kept in it in different parts, to pull out and feel now and then; for if it approaches to blood heat, it ſhould either be watered, or turned over; and on ſuch an occaſion, advantage may be taken to mix it with a little freſh moſs. In June 1796, a compoſt was formed, only 2¼ peat to one dung; it heated in July beyond the meaſure of a thermometer graduated to 110°. Part was allowed to ſtand, part turned with a half more moſs. Three weeks after, (18th Auguſt), the heat of the former had deſcended to 84°, while that of the latter had got up again to above 110°. The heat ſubſides, after a time, and, with great variety, according to the weather, the dung, and the perfection of the making up of the compoſt; which then ſhould be allowed to remain untouched, till within three weeks of uſing, when it ſhould be turned over, upſide down, and outſide in, and all lumps broken; then it comes into a ſecond heat; but ſoon cools, and ſhould be taken out for uſe. In this ſtate, the whole, except bits of the old decayed wood, appears a black free maſs, and ſpreads like garden mould. Uſe it weight for weight, as farm-yard dung; and it will be found, in a courſe of cropping, fully to ſtand the compariſon. Let it be obſerved that the object, in making up the compoſt, is to form as large a hot-bed as the quantity of dung employed admits of, and then to ſurround it on all ſides, ſo as to have the whole benefit of the heat and effluvia. Peat, nearly as dry as garden-mould in ſeed-time, may be mixed with the dung, ſo as to double the volume and more of it. Workmen muſt begin with uſing layers; but, when accuſtomed to the juſt proportions, if they are furniſhed with peat moderately dry, and dung not loſt in litter, they throw it up together as a mixed maſs; and they improve in the art, ſo as to make a leſs proportion of dung ſerve for the preparation. The addition, recommended, of aſhes or lime to the compoſt, is thought to favour the general perfection of the preparation, and to haſten the ſecond heat. The lime laid on above the dung-hill, as directed, is rendered mild by the vapours that eſcape during the firſt heat. It is added that ſuch compoſt as is made up before January, has hitherto been in good order for the ſpring crops; but this may not happen in a long froſt. In ſummer, it is ready in eight or ten weeks; and if there is an anxiety to have it ſoon prepared, the addition of aſhes, or of a little lime rubbiſh of old buildings, or of lime ſlaked with foul water, applied to the dung uſed in making it up, will quicken the proceſs conſiderably. Lime has been mixed previouſly with the peat; but the compoſt prepared with that mixture, or with the ſimple peat, ſeemed to produce equally good crops. All the land, however, that it has been tried on, has been limed more or leſs within theſe twenty-five years.

It is ſaid, farther, that the rich coarſe earth, which is frequently found on the ſurface of peat, is too heavy to be admitted into this compoſt; but it makes an excellent top-dreſſing, if previouſly mixed and turned over with lime. And peat, prepared with the lime alone, has not been found to anſwer as a good manure. In one inſtance, *viz.* on a bit of fallow, ſown with wheat, it was manifeſtly pernicious to the land.

In ſome of theſe modes, this ſubſtance may be rendered capable of extenſive application as a manure to land. See Manure and Moss.

Peat-*Aſhes*, in *Agriculture*, the aſhes that remain after the combuſtion of this ſort of vegetable material. This is, however, a very waſteful and diſſipating proceſs, as there is ſeldom one-twentieth part of its weight afforded in aſhes. The reſt is thus forced off into the air and loſt, which by other means might be ſaved, and contribute to the vegetation and growth of plants. Where, however, the practice of converting it into aſhes is had recourſe to, it is obſerved that the peat may be burnt all the ſummer ſeaſon: as ſoon as it is dug, ſome of it is mixed in a heap regularly diſpoſed with faggot-wood, or other ready burning fuel: after a layer or two of it is mixed in this manner, peat alone is piled up to compleat the heap. A heap will conſiſt of from four hundred to a thouſand loads. After ſetting fire to it at a proper place, before on purpoſe prepared, it is watched in the burning, and the great art is to keep in as much of the ſmoke as poſſible, provided that as much vent is left as will feed the fire. Whenever a crack appears, out of which the ſmoke eſcapes, the labourer in that place lays on more peat; and if the fire ſlackens too much within, which may be eaſily known by the heat on the outſide, the workman muſt run a ſtrong pole into the heap, in as many places as is neceſſary to ſupply it with a quantity of freſh air. When managed in this manner, the work goes on as it ſhould do. It is to be noticed that when once the fire is well kindled, the heavieſt rains do it no harm whilſt it is burning.

And after having procured a ſufficient quantity of aſhes, the farmer's next care ſhould be to apply them properly to uſe; and to do this, he muſt be well acquainted with the nature of the manure he is to lay on his land. With reſpect to peat-aſhes, almoſt the only danger proceeds from laying them on in too great quantities at improper ſeaſons. Nothing can be better, it is aſſerted, than peat-aſhes for dreſſing low damp meadows, laying on to the quantity of from fifteen to twenty Wincheſter buſhels on an acre; it is beſt to ſow them by hand, as they will then be more regularly ſpread. And this work ſhould be done in January or February at lateſt, that the aſhes may be waſhed in towards the roots of the graſs by the firſt rains that fall in the ſpring. If they were ſpread more forward in the year, and a ſpeedy rain ſhould not ſucceed, being hot in their nature, they would be apt to burn up the graſs, inſtead of doing it any ſervice. In regard to the quantity, it muſt be remembered, that the damper and ſtiffer the ſoil, the more peat-aſhes ſhould be laid on it; but on graſs-land, the quantity ſhould never exceed thirty Wincheſter buſhels, and on light warm lands leſs than half that quantity is fully ſufficient.

Alſo, on wheat crops theſe aſhes are of the greateſt ſervice, but they muſt be laid on with the utmoſt diſcretion. Were they to be ſpread in any quantity before the winter, after ſowing the corn, they would make the wheat too rank, and do more harm than good: was the ſpreading of this manure, on the contrary, deferred till the ſpring, the corn could not poſſibly during the winter ſeaſon be benefited by it. After due reflection and repeated experience, the method of management was as follows: About the beginning of November, before the hard froſts ſet in, the writer ſows on every acre of his heavy clayey wheat land, about eight Wincheſter buſhels of theſe aſhes; on his lighter warmer lands in wheat, he ſows only four buſhels at this ſeaſon. The winter dreſſing is, he imagines, of great ſervice: trifling as the quantity may ſeem, it warms the roots of the plants, brings the crop moderately forward, preſerves its verdure, and diſpoſes it to get into a growing ſtate the firſt fine weather after Chriſtmas. About the latter end of February, or the beginning of March, on the above-mentioned heavy lands in wheat, he beſtows another dreſſing of aſhes, by ſowing of them on every acre eight buſhels more; on light lands, in the ſecond dreſſing, he allows only ſix buſhels. Theſe aſhes laid on in the ſpring are of the greateſt ſervice, without any probability of danger; if rain falls within a few days after the dreſſing is laid on, it is waſhed in, and has a happy effect on the ſucceeding crop, co-operating with the manure that was laid on in November: if, on the contrary, dry weather for a long continuance ſucceeds, the firſt winter dreſſing has its full effect, and the quantity laid on in the ſpring is in fact ſo ſmall, that there is very little probability of its burning or hurting the crop. This method has ſucceeded very well with him, and he has no reaſon to think it can fail with others. It is likewiſe ſtated as an uſeful fact, that this excellent manure is of great uſe in the turnip huſbandry, on many accounts, particularly as it much contributes to preſerve the young crop from being devoured by the fly. When the writer ſows his turnips before he harrows in the ſeed, he has eight buſhels of theſe aſhes ſtrewed by hand on every acre; and when the plants ſhew their firſt leaves above ground, he ſows on every acre four buſhels more: by this management his crops ſeldom fail, when at the ſame time ſome of his neighbours ſow their turnip-land three or four times over. This hint deſerves attention, as pared and burnt land is ſaid to have the ſame effect in preſerving turnip-crops from the dreadful ravages of the fly.

It is further ſtated, that one of the principal advantages derived from theſe aſhes is, however, the very great ſervice they are of to every kind of artificial paſture. Sainfoin receives great benefit from this manure, and ſo do clover, ray-graſs, and trefoil, provided it is laid on with diſcretion: the proper ſeaſon is about the month of February: the quantity muſt be regulated by the nature of the crop and ſoil; but, in his opinion, it ought ſcarcely in any inſtance to exceed thirty Wincheſter buſhels. Clover, with the help of this manure, grows with great luxuriance, inſomuch that he has often had two large crops of hay from the ſame field in a year, and good autumn feed afterwards.

But the effect of it is moſt ſeen in tares and vetches, and on them it is he beſtows moſt of this manure, as they will bear it, being a very ſucculent plant. The writer had, laſt ſummer, a crop of tare-hay that was aſtoniſhing, by the help of theſe aſhes, being above three large loads on an acre. The field contained ſix acres. It was a dryiſh loam, and not very rich. In the beginning of February he cauſed ten buſhels, Wincheſter meaſure, to be ſtrewed on each acre: immediately after the firſt rains had waſhed them in, the ſame quantity was in like manner ſpread, and about the middle of March he beſtowed on each acre ſix buſhels more for the laſt dreſſing. He is fond of dividing his entire quantities, thinking his crops are thereby leſs expoſed to the danger of being burned, and the manure is beſides more gradual and laſting in its effects. His tares came on amazingly; but they ran chiefly to haulm, which was what he wiſhed, not having any deſire of ſaving the ſeed, but intending to make the crop in hay: his only fear was, that it would rot on the ground before it was in proper condition to cut; but this he luckily eſcaped, by the ſoil being tolerably dry, and by the fineneſs of the weather. It was ſo heavy in the ſwarth, that he was obliged to pay an extraordinary price for mowing it. He thinks the luxuriance of his crop was owing entirely to the invigorating quality of the aſhes, which by their ſalts, &c. promoted the growth of the plants even to luxuriance.

Before he well knew the great fertilizing quality of theſe aſhes, he loſt, by improper management, a fine three-acre piece of hog-peaſe. He laid on this field, ſoon after the peaſe came up, threeſcore Wincheſter buſhels of theſe aſhes at one dreſſing: this brought them forward a great pace; but at harveſt, he found to his grief, he had ſcarcely any corn, for he had overdone it in laying on ſo much, and the peaſe were run all to haulm. Ever ſince this accident he has declined uſing them as a common dreſſing for his peaſe, and this he has been the more induced to do, as, in ſeveral little experiments he has ſince made, he has found it extremely difficult to apportion the ſeveral quantities which ought to be laid on various ſoils when ſown with peaſe; for the quantity that has one year ſucceeded very well with him, has, the next, owing to the difference of ſeaſons, on the ſame ſoil, in another part of the ſame field, totally diſappointed him; ſo that, for peaſe, he eſteems it a very critical manure, therefore to be uſed very cautiouſly. And he ſays that the effects of this manure will be viſible at leaſt three years, and it does not, like ſome others, leave the land in ſuch an impoveriſhed ſtate when its virtues are exhauſted. It is ſuppoſed that peat-aſhes are not ſo certain a manure for barley and oats as for winter corn; for as theſe are quick growers, and occupy the land but a few months, this warm manure is often apt to puſh them forward too faſt, and make them run too much to coarſe ſtraw, yielding only a lean immature grain. Oats, however, are not ſo apt to be damaged by it as barley.

And he adds, that peat-aſhes approach, in their effects on the ſeveral crops on which they are laid, to coal-ſoot; but two-thirds of the quantity that is uſed of ſoot will be ſufficient of the aſhes, as they are, in a much ſtronger degree, impregnated with a vegetative power; and they are, beſides, in moſt places, eaſier procured in quantities, and at a cheaper rate.

But though this ſort of dreſſing has been found uſeful on different ſorts of land, it has by much the beſt effects on thoſe of the light chalky kind, being often uſeleſsly applied on ſuch as are of a wet nature. And the full quantity is uſually about forty buſhels to the acre, and the time of applying them in improved huſbandry in the ſpring months, as about March or earlier. See ASHES.

PEAT-*Moſs*, in *Rural Economy*, a term applied to the earthy material which is dug up for fuel in ſome diſtricts. It is of very different qualities and properties. See MOSS and PEAT.

PEATRA, in *Geography*, a town of European Turkey, in Moldavia; 16 miles S.S.W. of Niemecz.

PEATY-EARTH, in *Agriculture*, that ſort of land which is of a peaty quality, or which contains much vegetable peaty matter. It is generally conſidered of a good quality. See PEAT.

PEATY-*Land*, that ſort of ground which is of a peaty nature, or which abounds in the peaty material. There are many varieties of this ſort of land, ſome being conſtituted of this ſubſtance to ſeveral yards depth, while others have it only in a very ſuperficial manner. The former are frequently denominated peat-moſſes or bogs, and the latter fens. Some of the different modes of bringing peaty-lands into cultivation, have been already noticed under MOSS and MOOR, but others may be introduced here with propriety. According to the earl of Dundonald, the primary ſtep towards improving land of this ſort, is to take off by proper channels the great feeder of water. This is to be effected by conducting one or more principal drains through them, and by water-courſes on the ſolid or dry land, immediately above the level of them, ſo that they ſhall not be inundated by the ſurface-water or ſprings of the ſurrounding higher lands, and ſhall afterwards only require to be freed from the water that ſhall fall on their ſuperficies. This being accompliſhed, the intermediate parts of the bogs ſhould be drained, partly by open and partly by covered drains; care being taken that they are not made ſo deep as to lay the bog too dry: by which the peat, becoming oxygenated, and thence inſoluble, would be incapable of yielding food to vegetables.

By the oppoſite extreme, unprofitable graſſes and aquatic vegetables are produced. It is therefore an object of great importance, in effecting the drainage, to preſerve a full command of the water, that it may be regulated at pleaſure by the operation. The practical modes of management that are neceſſary in thoſe caſes, are explained more fully in ſpeaking of the nature of moſs. See MOSS.

It is farther obſerved, that ſhould a moſs or bog be ſo circumſtanced, as to admit of its being drained through a country which might be improved by a ſupply of vegetable matter, it would be prudent, previouſly to making the great or leading drains through the adjacent country or moſs, to concert meaſures for making a proper communication by a canal, ſo that the remote lands might be ſupplied with peat from the moſs, and the moſs ſupplied with lime, marle, clay, earth, ſand, ſhells, and other materials, from the diſtant country. And that as ſhell-marle is frequently found under peat-moſſes, they ſhould be bored in different places, to aſcertain if they poſſeſs this valuable ſubſtance; or if they contain under the moſs a rich clay or limeſtone gravel: for, in the event of theſe being found at a moderate depth, the moſs or bog may be improved at a much leſs expence, as the diſtant carriage of theſe neceſſary articles, and the difficulty of carting and laying them on ſo looſe and ſpungy a ſurface, would thereby be diminiſhed. It is alſo ſuggeſted that the burning a part of the upper ſurface may, in ſome caſes, be requiſite, to afford, when it is otherwiſe too difficult to be procured, a due proportion of earthy matter. Peat-aſhes will, in ſuch caſes, act in making a different mechanical arrangement in the ſoil; but, near the ſides of the bogs where ſurface mould is to be had, a preference ſhould be given to it in moſt caſes. And the alteration in the mechanical arrangement of the ſoil being thus effected, the next object is the application of ſuch ſubſtances as will bring the peat, or inert vegetable matter, into action. Theſe ſubſtances are lime and alkaline ſalts, which contribute in different ways to the propoſed improvement. Improved peat-moſſes, bogs, or reclaimed fen-lands, are the ſoils the moſt productive of luxuriant vegetation, although from this cauſe they do not in general yield, in this northern and humid climate, heavy and well-filled grain. Such ſoils ſhould be principally dedicated to paſture, and ſhould only be ploughed when, notwithſtanding the utmoſt endeavours, the ground produces coarſe or rank graſs; but this is in a great meaſure, or perhaps entirely, to be prevented by the due attention to the following directions: to keeping the water in the ditches at a proper level: to ſtocking the ground with a due proportion of neat cattle, ſheep, and horſes; as the one animal will eat the graſs which ſprings up on the dung of the other, and which otherwiſe would produce tufts of coarſe graſs: to folding of cattle on different parts of each field: to uſing heavy rollers: and to top-dreſſings of alkaline ſalts, and other ſaline ſubſtances: and alſo to top-dreſſings of lime, either by itſelf, or well mixed with peat or fen mould, in the manner that has been directed above.

And it is adviſed, that the paſture ſhould always be eaten quite cloſe before winter, excepting ſuch portions of it as are intended for winter food, which likewiſe ſhould be eaten cloſe off, before the ſpring vegetation commences; after which time it ſhould not be depaſtured until the graſs be ſufficiently advanced to allow of a good bite. As all plants receive nouriſhment two ways, by their ſtems and leaves, as well as by their roots, the growth of young vegetables muſt neceſſarily be much retarded, when deprived, by being conſtantly eaten down, of one of their ſources of ſubſiſtence. And as the conſolidating the ſoil of peat-lands is an object of the firſt conſideration, it is obvious, both on chemical and mechanical principles, that much cropping, and the conſequent expoſure of freſh ſurfaces to the action of air, are improper; and that after a few crops are obtained, the ground ſhould be laid down with meadow graſſes and white clover, and depaſtured with as much ſtock as it will carry. By theſe means, not only the ſoil will be conſolidated and compreſſed, and particular graſſes or herbage promoted according to the cattle ſo depaſtured, but the urine and dung of the cattle, by carefully folding them, will be laid on in ſuch quantities, as will perform rapidly and at once the effect required; whereas, if the ſame quantity were divided over fifty or a hundred times the ſurface ſo folded upon, its operation would ſcarcely be perceptible, and the application of each year's manure ſo ſubdivided, would either be waſhed away, or its beneficial effects loſt, before the further quantity neceſſary could, in a ſeries of fifty or a hundred years, be added to it. Hence a ſyſtem of under-dunging, or manuring land, may be ſaid to be nearly equal to no dunging at all: on which account the preference, with great reaſon, has been given, under all circumſtances, to the ancient mode of cultivating the infield lands of Scotland. Folding in a proper manner, is particularly recommended for fen-lands and peat-lands, as the immediate effect produced by urine, is that of diſſolving into mucilaginous ſaponaceous matter the oxygenated peat. Indeed in all buſineſſes, it is well known, that what is once well done is not to be done again. By this judicious mode of proceeding, the chemical qualities and mechanical arrangement of the ſoil are ſo altered, that, without the groſſeſt miſmanagement, it is impoſſible it ſhould return again to its former unproductive ſtate. If this be properly attended to, the paſture will never grow coarſe, or require breaking up, but will continue to improve the longer it is ſuffered to remain in that ſtate. There are other reaſons for continuing ſuch lands in paſture, *viz.* the difficulty, from the ſoftneſs of the ſoil, of conveying dung from the farm-yard to the fields; and likewiſe the tendency ſuch ſoils have, by expoſure to air, to become oxygenated, and conſequently incapable of yielding the food requiſite for the ſupport of vegetables. And in the mode of ſtocking ſuch paſtures, it is further recommended to keep the fat, the half fed cattle, and the lean or young ſtock, in different incloſures, as is the practice in Ireland, and where grazing is well underſtood in England. The fat cattle ſhould only top the graſs, the half fed ſhould ſucceed thoſe, and laſtly, the lean or ſtore cattle ſhould follow on the ſame paſture, and eat the herbage cloſe down; repeating this practice as often as the freſh growth of graſs will permit its being done with propriety. It is probable that under the above circumſtances, the beſt ſort of ſtock is that of ſheep, as eating the herbage down in a more regular and equal manner; and at the ſame time contributing more to the improvement of the land, without doing any injury by their treading or otherways. See Moss.

Peaty-*Soil*, that ſort of ſoil which is conſtituted chiefly of the peaty material. See Soil.

PEAUCIER, in *Anatomy*, a name given by Winſlow in his "Treatiſe on the Head," and by other of the French writers, to the muſcle, called by Albinus latiſſimus colli; and the others detrahens quadratus, and quadratus genæ. Santorini has called the part of this which ariſes from the cheek, muſculus riſorius novus; and ſome call the whole platiſma myoides.

PEBBLES, Calculi, in *Natural Hiſtory*, the name of a genus of foſſils, diſtinguiſhed from the flints and homochroa, by their having a variety of colours. Theſe are defined to be ſtones, compoſed of a cryſtalline matter, debaſed by earths of various kinds in the ſame ſpecies, and then ſubject to veins, clouds, and other variegations; uſually formed by incruſtations round a central nucleus, but ſometimes the effect of a ſimple concretion, and veined like the agates, by the diſpoſition which the motion of the fluid they were formed in gave their differently coloured ſubſtances.

The variety of pebbles, of England alone, is ſo great, that a haſty deſcriber would be apt to make almoſt as many ſpecies as he ſaw ſpecimens. A careful examination will teach us, however, to diſtinguiſh them into a certain number of eſſentially different ſpecies, to which all the reſt may be referred, as accidental variations. When we find the ſame ſubſtances and the ſame colours, or thoſe reſulting from a mixture of the ſame, ſuch as nature frequently makes in a number of ſtones, we ſhall eaſily be able to determine that theſe are all of the ſame ſpecies, though in different appearances; and that, whether the matter be diſpoſed in one or two, or in twenty cruſts laid regularly round a central nucleus, or thrown without a nucleus into irregular lines, or finally blended into a ſort of uniform maſs.

Theſe are the three ſtates in which we are liable to find every ſpecies of pebble; for if it hath been moſt naturally and regularly formed by incruſtation round a central nucleus, we find that ever the ſame in the ſame ſpecies, and the cruſts not leſs regular and certain. If the whole has been more haſtily formed, and has been the reſult only of one ſimple concretion, if that has happened while its different ſubſtances were all moiſt and thin, they have blended together and made a mixed maſs of the joint colour of them all; but if they have been ſomething harder when this has happened, and too far concreted to diffuſe wholly among one another, they are found thrown together into irregular veins. Theſe are the natural differences of all the pebbles; and having regard to theſe in the ſeveral variegations, all the known pebbles may be reduced to thirty-four ſpecies. Hill's Hiſt. of Foſſ. p. 512, ſeq.

In all the ſtrata of pebbles there are conſtantly found ſome which are broken, and whoſe pieces lie very near one another; but as bodies of ſuch hardneſs could not be broken without ſome conſiderable violence, their preſent ſituation ſeems to imply, that they have ſuffered that great violence in or near the places where they now lie. Beſides theſe, there are others alſo found which have as plainly had pieces broken off from them, though thoſe pieces are no where to be found; whence it ſeems equally plain, that whatever has been the cauſe of their fracture, they have been brought broken, as we find them, from ſome other place, or elſe that the pieces broken from them muſt at ſome time or other have been carried from this place to ſome other diſtant one.

Several of theſe broken pebbles have their edges and corners ſo ſharp and even, that it ſeems evident they never can have been toſſed about or removed ſince the breaking; and others have their ſides and corners ſo rounded, blunted, and worn away, that they ſeem to have been roughly moved and rolled about among other hard bodies, and that too either with great violence, or for a very long continuance; ſince ſuch hard bodies could not have been reduced to the condition we now ſee them in without long friction.

It may be ſuppoſed by ſome that theſe ſtones never were broken, but have been naturally formed of this ſhape; but it will be eaſily ſeen, by any one who accurately ſurveys their veins or coats, which ſurround the nucleus like the annular circles of a tree, that they muſt have been originally entire; and this will be the more plain if they are compared with a ſtone broken by art. Such pebbles as are found in ſtrata, that lie near the ſurface of the earth, are much more brittle than thoſe which lie in deeper ſtrata.

The more clear and tranſparent the ſand is which is found among pebbles, the more beautiful the pebbles are generally obſerved to be.

The uſe of theſe ſtones, and their diſpoſition in the earth, is a ſubject of great admiration; and may ſerve as one of the numerous proofs of an over-ruling Providence in the diſpoſition of all natural bodies. The ſurface of the earth is compoſed of vegetable mould, made up of different earth mixed with the putrid remains of animal and vegetable bodies; and is of the proper texture and compages for conducting the moiſture to the roots of trees and plants: and under this are laid the ſands and pebbles which ſerve as a ſort of drain to carry off the redundant moiſture deeper into the earth, where it may be ready to ſupply the place of what is conſtantly riſing in exhalations; and leſt the ſtrata of ſand ſhould be too thick, it is common to find thin ones of clay between, which ſerve to put a ſtop to the deſcent of the moiſture, and keep it from paſſing off too ſoon; and leſt theſe thin ſtrata of clay ſhould yield and give way, and by their ſoftneſs when wetted, give leave to the particles of ſand to blend themſelves with, and even force their way through them, there are found in many places thin coats of a poor iron ore, placed regularly above and below the clay; and by that means not only ſtrengthening and ſupporting the clay, but effectually keeping the ſand from making its way into it. Phil. Tranſ. N° 483.

Pebbles, *Ridged*. It is not uncommon to meet with pebbles in our gravel-pits, which have one or more ridges, or white lines, ſtanding above the ſurface of the reſt of the ſtone, in the form of a rib or zone, laid on the ſtone after its formation. This, however, is not the caſe; but the line or zone always goes through the whole body of the pebble: the matter forming this ridge is always harder than the reſt of the ſtone; and it ſeems probable, that at firſt it was not elevated, but level with the reſt of the ſurface; but being not ſo eaſily worn away by accidents, and when the whole pebble came in the way of rubbing among harder bodies, this would be leſs rubbed away, and conſequently would be left more elevated than the reſt. We daily ſee on the ſea-ſhores numbers of ſtones rounded by the continual rolling and toſſing among the waves, and in theſe the ſofter parts have given way firſt and been worn into holes, while the harder have been left prominent. It ſeems probably to have been the caſe with theſe pebbles alſo; but they are not found on the ſhores; but in our gravel-pits, at a great diſtance from the ſea: and it is evident, that theſe have had their ſurfaces thus ground and worn down between the time of their being formed by concretion, and their being depoſited where we now find them. The ſmoothneſs of the ſurfaces of ſome pebbles and flints, which we find with their natural coats or cruſts worn off, is another proof of the ſame thing. Theſe pebbles, in this unnatural naked ſtate, as well as the ribbed and lineated ones, are found in our pits, under the ſtrata of earth; and yet they are exactly in the ſame condition with thoſe which have been toſſed about and rounded on the ſea-ſhores.

Pebbles, *Swallowing of*.—There are many people of opinion, that the ſwallowing of pebbles is very beneficial to health, in helping the ſtomach to digeſt its food, and a pebble-poſſet is an old woman's medicine in the colic, in many parts of England. They uſually order the ſmall white ſtones to be picked out of gravel-walks for this purpoſe, and eat them in large quantities in ſome ſorts of ſpoon meat, of which milk is an ingredient.

The thing that has given occaſion to this practice ſeems to have been, that people obſerve the birds to pick up the gravel, and that they are never well unleſs they have frequent recourſe to this to help their digeſtion: but this is no ſimilar caſe at all, for the gizzard or ſtomach of a bird is made very ſtrong, becauſe the creature hath no teeth to chew its food; and this gizzard is lined with a rough coat, by the help of which and theſe ſtones, the food they ſwallow whole is ſo ground, as to yield its juices to the nouriſhment of the animal. But the ſtomach of man is formed ſo very differently, that it can never require thoſe aſſiſtances to the comminution of food. Many people have, however, accuſtomed themſelves to ſwallow not only theſe ſmall white ſtones, but large pebbles, even to the ſize of a walnut each: theſe will often paſs ſafely, and people who have long accuſtomed themſelves to ſwallow them, boaſt of receiving no injury from them: we can never know, however, that the death of ſuch perſons is not owing to them at laſt; and as they can do no good, it is beſt always to avoid them. There is one inſtance on record, of much miſchief done by them, in our Philoſophical Tranſactions, N° 253. p. 190.

Pebble, *Egyptian*, conſtitutes the ſecond family of the Siliceous genus in the mineralogical arrangement of Kirwan. This ſtone preſents various colours together in the ſame ſpecimen, either in regular or irregular concentric and alternating ſtripes or layers, or in dots and dendritical figures. The moſt uſual colours are the yellowiſh and liver-brown, reddiſh-brown, iſabella yellow, yellowiſh-grey, greyiſh, or reddiſh-white, milk-white, leek-green, and black, which laſt is only in dots and dendritical figures. It is found in ſpheroidal, or flat rounded maſſes, which are enveloped in a coarſe rough cruſt. Its internal luſtre, 1; external, 0; its tranſparency, 0; its fracture conchoidal; its hardneſs, 10; its ſp. gr. 2.564, Briſſon. Found principally in Egypt, ſometimes in Europe, particularly in Lorraine. Kirwan's El. of Mineralogy, vol. i.

PECAQUE, St., in *Geography*, a town of Mexico, in the province of Xaliſca; 45 miles N. of Compoſtella. N. lat. 22°. W. long. 101° 30′.

PECARI, or Tajacu, in *Zoology*. See Sus *Tajaſſu*.

PECCANT, in *Medicine*, an obſolete term, which was much uſed by the humoral pathologiſts to denote every ſort of morbid condition of the humours of the body, to which alone they aſcribed almoſt all diſeaſes. Hence their principal efforts were directed to the correction of the peccant matter, or to its evacuation. See Humoral *Pathology*.

PECETA, in *Commerce*, a Spaniſh ſilver coin. In 1772 the pecetas and reals were reduced to $9\frac{3}{4}$ dineros fine: the mark being divided into 12 dineros, and the dinero into 24 grains. The old Mexican peceta of two Mexican reals (1736) is by the aſſay worſe than the Engliſh ſtandard, $4\frac{1}{2}$ dwt.; its weight is 4 dwt. $7\frac{1}{4}$ gr.; its content in pure ſilver grains 93.6; and its value 1*s.* 1*d.* ſterling. The peceta of two reals of plate (1721) is worſe 1 oz. 7 dwt.; its weight 3 dwt. $16\frac{1}{2}$ gr.; its content in pure ſilver grains 71.9; and its value 10*d.* ſterling. The Mexican peceta (1774) worſe 8 dwt.; its weight 4 dwt. $7\frac{1}{2}$ gr.; its content 92.3; and value 1*s.* $0\frac{3}{4}$*d.* ſterling. The peceta provincial of two reals of new plate (1775) worſe 1 oz. $9\frac{1}{2}$ dwt.; weight 3 dwt. 18 gr.; content 72.2; and value 10*d.* ſterling.

PECETO, in *Geography*, a town of France, in the department of the Po; 3 miles S.W. of Chieri.

PECHANTRE, Nicholas de, in *Biography*, a French poet, was born at Toulouſe in 1638. He gained the poetical prize from the academy des Jeux Floraux three times. His tragedy of Geta was performed at Paris in 1687, with great applauſe. This was followed by Jugurtha, the Death of Nero, and ſome others. Pechantre died in the year 1708. Moreri.

PECHAREE, in *Geography*, a town of Hindooſtan, in the circar of Chandaree; 35 miles W.S.W. of Chandaree.

PECHBLENDE, in *Mineralogy*. See Uranium.

PE-CHE-LEE, in *Geography*. See Pe-tcheli.

PECHEM, in the *Materia Medica*, a name given by the modern Greek writers to the root called *behem* by Avicenna and Serapion. Many have been at a loſs to know what this root pechem was; but the virtues aſcribed to it are the ſame with thoſe of the *behem* of the Arabians; its deſcription the ſame, and the diviſion of it into white and red, is alſo the ſame as that of the *behem*. Nay, the word pechem is only formed of *behem*, by changing the *b* into a *p*, which is very common, and the aſpirate into χ, or *ch*, which is as common.

Myrepſus, who treats of this root, ſays the ſame thing that the Arabian Avicenna ſays of *behem*, namely, that it was the fragments of a woody root, much corrugated and wrinkled on the ſurface, which was owing to its being ſo moiſt whilſt freſh, that it always ſhrunk greatly in the drying.

PECHIA, in *Geography*, a town of Servia, on the Drino; 35 miles N.E. of Raguſa. N. lat. 43° 14′. E. long. 19° 15′.

PECHLARN, or POCHLARN, a town of Auſtria, on the right bank of the Danube. The river is very wide, and here the Romans had a harbour for their navy. They called it "Præclara," and it was conſidered as one of the ſtrongeſt places in the country. It was formerly the reſidence of the margraaves of Auſtria. It was given by the emperor Otho to the biſhop of Ratiſbon; 45 miles W. of Vienna. N. lat. 48° 14′. E. long. 15° 20′.

PECHLIN, JOHN NICHOLAS, in *Biography*, an ingenious phyſician, was born at Leyden in the year 1646. He was educated excluſively in his native city, until he received the degree of doctor in 1667; after which he travelled into Italy, and viſited the principal univerſities of that country. He did not remain long without an opportunity of communicating the extenſive knowledge which he had obtained; for in 1673 he was appointed to a profeſſorſhip at Kiel, in Holſtein, where he ſoon attained a high reputation. In 1678 he was elected a member of the academy "Naturæ Curiòſorum;" and in 1691, a fellow of the Royal Society of London. He gained the favour and patronage of the court, and in 1680 was appointed firſt phyſician to the duke of Holſtein-Gottorp, and ſubſequently his librarian and counſellor. In 1698 he accompanied that prince in a journey to Stockholm; and again, in 1704, he viſited that capital with the hereditary prince, to whom he was appointed tutor, and died there in February, 1706.

Pechlin was author of ſeveral works, ſome of which evince a great degree of good taſte and eloquence of ſtyle, eſpecially his eſſay, entitled "Metamorphoſis Æſculapii et Apollinis Pancreatici;" which was a ſatire againſt Sylvius de la Boë and De Graaf, and was publiſhed under the fictitious name of Janus Leonicerius Veronenſis. His other tracts were entitled "De Purgantium Medicamentorum Facultatibus," Leyden, 1672; "De Vulneribus Sclopetorum," Kiel, 1764; "De Aëris et Alimenti Defectu, et Vitâ ſub Aquis," ibid. 1676; "De Habitu et Colore Æthiopum," ibid. 1677. The ſeat of the colour of Negroes he pointed out in the *rete mucoſum*, and imagined it was occaſioned by bile. "Theophilus Bibaculus, ſive de Potu Theæ," Francfort, 1684, a poetical eulogium on the virtues of tea; and "Obſervationum Phyſico-Medicarum Libri tres," Hamburgh, 1691,—a collection containing ſome curious caſes, but alſo evincing a conſiderable ſhare of credulity in the author. Eloy Dict. Hiſt. de la Med.

PECHMEJA, JOHN, a French writer, was born at Villa Franca in 1741. He became profeſſor of elocution in the college of La Flêche, and died in 1785. His eulogy on the celebrated Colbert was crowned with the approbation of the academy in 1773; but he is principally known by a work in poetic proſe, called "Telephe," 2 vols.

PECHOR, in *Geography*, a town of Hindooſtan, in the circar of Gohud; 25 miles S.S.E. of Gwalior.

PECHOWLY, a town of Hindooſtan, in the circar of Chandaree; 40 miles N.W. of Chandaree.

PECHSTEIN, in *Mineralogy*. See PITCHSTONE.

PECHYAGRA, in *Medicine*, a name given by authors to the gout affecting the elbow.

PECHYS, a name uſed by ſome anatomical writers for the elbow.

PECHYTYRBE, an epithet uſed by ſome medical writers for the ſcurvy.

PECK, a meaſure, or veſſel uſed in meaſuring grain, pulſe, and the like dry ſubſtances.

The ſtandard, or Wincheſter peck, contains two gallons; each gallon of corn meaſuring 268⅘ cubic inches, and weighing about eight pounds troy.

Four pecks make a buſhel; four buſhels a comb, coom, or carnock.

Beſides the general, or Wincheſter pecks, there are local pecks, containing ſome more, ſome leſs; as the Lancaſter peck, containing ſix gallons, &c. See MEASURE and WEIGHT.

PECK, FRANCIS, in *Biography*, was born at Stamford, in Lincolnſhire. He was educated at Cambridge, where he took his degree of M.A. He entered holy orders, and became curate of King's Clifton, in Northamptonſhire; after which he obtained the rectory of Godeby, in Leiceſterſhire, which was the only preferment he ever obtained. In 1721 he publiſhed propoſals for printing the hiſtory and antiquities of his native town; and in 1727 he publiſhed the work, entitled "Academia tertia Anglicana, or the Antiquarian Annals of Stamford, in Lincoln, Rutland, and Northampton-ſhires." His inquiries relative to this ſingle object led him to extend his reſearches; and in 1729 he printed a ſheet of "Queries concerning the Natural Hiſtory and Antiquities of Leiceſterſhire and Rutland." Though he made conſiderable progreſs in collecting materials for a work on thoſe ſubjects, it never made its appearance. In 1732 he publiſhed the firſt volume of his "Deſiderata Curioſa," or collection of divers ſcarce and curious pieces, relating chiefly to matters of Engliſh hiſtory; conſiſting of choice tracts, memoirs, letters, wills, epitaphs, &c. A ſecond volume followed in 1735, and the whole was reprinted in one volume, quarto, in 1779. In the year 1735 he diſplayed his induſtry in "A complete Catalogue of all the Diſcourſes written both for and againſt Popery, in the Time of King James II.;" and in 1739 he edited nineteen letters of Dr. Henry Hammond. In the following year he publiſhed two volumes, quarto; one entitled "Memoirs of the Life and Actions of Oliver Cromwell, as delivered in three Panegyrics of him written in the Latin Language; with a Collection of divers curious hiſtorical Pieces, relating to Oliver Cromwell, and a great Number of other remarkable Perſons." The other was entitled "New Memoirs of the Life and poetical Works of Mr. John Milton," with critical illuſtrations. This was the laſt of his publications. He died in 1743, leaving behind him materials for nine different works, which he had in contemplation. Of his MSS. the greater part came into the poſſeſſion of ſir Thomas Cove, of which the moſt valuable were five volumes, quarto, written fairly for the preſs, entitled "Monaſticon Anglicanum; Supplementis novis adauctum." Theſe were preſented to the Britiſh Muſeum in 1779.

PECKELSHEIM, in *Geography*, a town of Weſtphalia, in the biſhopric of Paderborn; 15 miles S.E. of Paderborn. N. lat. 51° 34′. E. long. 9° 15′.

PECKHAM, a hamlet in the pariſh of Camberwell, hundred of Brixton, and county of Surrey, England, is ſituated on the road from London to Greenwich, at the diſtance of 4¼ miles from St. Paul's cathedral. In Domeſday book the manor is mentioned as belonging to Batterſea, and being the property of Odo, biſhop of Baieux, half-brother to the Conqueror. At a later period it appears to have been divided into two manors, called Bredinghurſt and

Baſynges, from perſons of that name who poſſeſſed them, in the reigns of king John and Edward I. The manor of Bredinghurſt is now veſted in the widow of William Shard, eſq.; but the manor-houſe has been lately demoliſhed, and the ſcite let on building-leaſes. At Peckham are meeting-houſes for the Anabaptiſts and Preſbyterians. Here is annually held a large ſhow fair, ſimilar to that of St. Bartholomew in Smithfield, London.

The pariſh of *Camberwell* having been inadvertently omitted in its proper place, we deem it adviſable to ſtate a few particulars under this head. It is bounded by the pariſh of Newington-Butts, St. George's Southwark, and Rotherhithe, on the eaſt; by Deptford and Beekenham, in Kent, on the ſouth; by Croydon, and a detached part of Batterſea, on the weſt; and by Lambeth on the north. At the time of the Domeſday ſurvey it comprehended one manor only, which was held of the Conqueror by Haimo, the ſheriff; but it was ſoon afterwards divided, and eventually became ſeveral diſtinct manors, called Camberwell-Buckingham, Milkwell Camberwell-Frerne or Fryen, Dowdale or Uredale, and Deptford Strond. There were alſo two inferior manors, Camberwell and Cold-Abbey, both of them held of Camberwell-Buckingham. The land in this pariſh is moſtly poſſeſſed of great fertility, and, excluſive of the ſcites of the houſes, is laid out "in nearly an equal proportion between arable, paſture, and gardens."

Camberwell village is diſtant about three miles and a quarter from St. Paul's cathedral in London. The church here was erected about the commencement of the reign of Henry VIII., and conſiſts of a nave, chancel, and two aiſles, with a ſmall embattled tower at the weſt end; the whole compoſed of flints and rough ſtone, except the ſouth-weſt part, which is of brick. The chancel is of a very ſingular ſhape, being the ſection of a hexagon. In the eaſt window of the north aiſle are ſeveral full-length figures painted upon glaſs. Theſe are now much mutilated, as well as the inſcription beneath, which, however, is ſufficiently entire to inform us, that they were intended to repreſent ſome members of the Muſcamp family, who had their burying-place in this aiſle. There are, beſides, in the ſame window, two imperfect repreſentations of female ſaints. This church contains many monuments of the Scotts, Bowyers, and others who have been interred within its walls. In the pariſh regiſter here are ſeveral very curious entries: one of which records an inſtance of a woman bearing a child at the age of ſixty-three.

In this pariſh are ſeveral charity-ſchools, which are ſupported chiefly by ſubſcription, except the free grammar-ſchool. This was founded and endowed by the Rev. Edward Wilſon, in the reign of James I., and now affords education to twelve boys. But the chief charitable foundation of which it has to boaſt is Dulwich-College, ſituated in the hamlet whence it derives its name. Camberwell pariſh contains, according to the population returns of 1811, 2060 houſes, and 11,309 inhabitants. See DULWICH. Lyſons's Environs of London.

PECORA, in the Linnæan ſyſtem of *Zoology*, a term, comprehending a whole order of quadrupeds, in the claſs of mammalia. The characters of this order are, that the creatures have no fore-teeth in the upper jaw; the lower jaw has ſix or eight fore-teeth, which are placed at a conſiderable diſtance from the molares or grinders. The paps of this order of animals are ſituated in the groin, and their feet have hoofs. Of this order Linnæus enumerates eight genera; the *camel*, *moſchus*, *cervus* or *ſtag*, the *camelopardalis*, the *antilope*, the *capra* or *goat*, the *ovis* or *ſheep*, and *bos* or *ox*.

PECQUET, JOHN, in *Biography*, a diſtinguiſhed anatomiſt, was a native of Dieppe, and a graduate of the univerſity of Montpellier. He was endowed with an active and intelligent mind, and purſued the ſtudy of anatomy with great ardour and ingenuity, which he evinced by the diſcovery of the thoracic duct and the receptaculum chyli, in 1647, while yet a ſtudent; by which the hither imperfectly known ſyſtem of the lacteals was completed. After this happy indication of his ſkill, he ſettled, with a view to practiſe his profeſſion, in his native town; but ſoon afterwards going to Paris, he recommenced his anatomical reſearches, for the purpoſe of demonſtrating completely the important veſſels which he had diſcovered; and he became acquainted with the moſt able anatomiſts in that metropolis. He ſucceeded completely in this demonſtration, and traced the progreſs of the chyle, which is taken up from the inteſtines, by the lacteal veſſels, into his receptacle, and by the thoracic duct to the left ſubclavian vein. This diſcovery ſoon gave his name a celebrity throughout Europe; and, as has generally happened in caſes of important diſcoveries, it was doubted and denied by ſome, while others contended that it was not new. The work in which he publiſhed the diſcovery was entitled "Experimenta nova Anatomica, quibus incognitum hactenus Chyli Receptaculum, et ab eo per Thoracem in Ramos uſque ſubclavios Vaſa lactea deleguntur;" to which was ſubjoined a diſſertation, "De Circulatione Sanguinis et Chyli Motu," 1651. It was reprinted in 1654, together with an eſſay "De Thoracis lacteis," in anſwer to Riolan; and many ſubſequent editions have appeared. Pecquet was a man of conſiderable acquirements, in addition to his anatomical ſkill, and was a member of the Royal Academy of Sciences from the year 1666. He is ſaid, however, to have ſhortened his days by an unfortunate attachment to the uſe of ſpirituous liquors. He died at Paris in February, 1674. Eloy Dict. Hiſt. de la Med.

PECQUET, ANTHONY, a French writer, was born in 1704. He attained the rank of grand maſter of the water-works and foreſts of Rouen, and ſuperintendant of the military ſchool. The works by which he is principally known are "An Analyſis of the Spirit of Laws, and the Spirit of Political Maxims," 3 vols.; "The Foreſt Laws of France," 2 vols.; "Thoughts on Man." He alſo tranſlated the Paſtor Fido of Guarini, and other Italian works into French. He died in 1762.

PECQUETI RECEPTACULUM, in *Anatomy*, a dilated portion juſt at the beginning of the thoracic duct, diſcovered by Pecquet. (See ABSORBENTS.) It is often called receptaculum chyli.

PECTEN *of the Pubes*, the prominent ridge of the os innominatum, ſituated over the foramen ovale, and giving origin to the pectinalis muſcle. See EXTREMITIES.

PECTEN, in *Natural Hiſtory*, the name of a tribe of ſhell-fiſh, the characters of which are theſe: it is a bivalve ſhell, ſhutting cloſe in all parts, of a flatted ſhape, ſtriated in the manner of a comb, and often auriculated, ſometimes only ſemi-auriculated, and in ſome ſpecies not auriculated at all. There are alſo ſome few ſpecies which are elate, not flat, as the others, claſſed in the Linnæan ſyſtem with the *oſtrea*; which ſee. See alſo CONCHOLOGY (*Oſtrea*).

This tribe of ſhells has had its name, pecten, from the longitudinal ſtriæ with which its ſurface is covered, which reſemble the teeth of a comb. According to the general character of this ſhell, it will be eaſy to perceive that it is meant to include the cockles as well as the ſcollops; theſe being the pectens without ears, and with leſs flat or elated ſhells. Theſe are called by all authors by a name which is only diminutive of pecten, *pectunculus*. And though the having ears is the common mark of diſtinction between the pectens and the cockles, which laſt uſually have none, yet the genera are not diſtinct, as ſome have ſuppoſed; for there are ſhells allowed to be pectens, or ſcollops, which have yet no ears, and others univerſally allowed to be pectuncles, or cockles, which have ears. Hence appears the error of Liſter, who made theſe two diſtinct genera, and gave the ears and the equal convexity of both ſhells as the great characters of them: theſe, though good marks to diſtinguiſh the ſpecies by, are by no means unalterable enough to found different genera upon.

The genus of pectuncles, or cockles, has been made by all authors a very extenſive one, but the reader will find all the ſuppoſed ſpecies of it very aptly received into the genus of the *cordiformis*, or heart-ſhell, (ſee Cordium,) and the pectens.

According to this eſtabliſhment of the genus of the pecten, the ſpecies are to be enumerated under ſeveral diſtinct heads.

Thus, ſome pectens are auriculated on both ſides: of theſe we have ſeventeen ſpecies.

Of thoſe pectens which are ſemi-auriculated, we have ſix ſpecies.

Of thoſe pectens which have no ears at all, we have ſeven ſpecies.

This ſhell-fiſh is one of the ſpinners of the ſea, having power of ſpinning or forming threads like the muſcle; but they are much ſhorter and coarſer even than thoſe of that fiſh, ſo that they can never be wrought into any ſort of work, in the manner of the longer and finer threads of the *pinna marina*. The uſe of theſe threads, which the pecten or ſcollop ſpins, is to fix the creature to any other body that is near, whether it be a ſtone, a piece of coral, or another ſhell. All theſe threads proceed, as in the muſcle, from one common trunk; they make their way out of the ſhell in thoſe pectens which have only one ear, a little below that ear; in the others, probably they iſſue out on both ſides. It is an evident proof, that the fiſh has a power of fixing itſelf at pleaſure, to any ſolid body, by means of theſe threads, that after ſtorms the ſcollops are often found toſſed upon rocks, where there were none the day before; and yet theſe are fixed by their threads, as well as thoſe which had remained ever ſo long in their place. They form their threads in the very ſame manner with the muſcle, only their organ which ſerves for ſpinning is ſhorter, and has a wider hollow, whence the threads are neceſſarily thicker and ſhorter. See Muscle.

Pecten *Veneris*, in *Botany*, Venus' Comb, ſo called becauſe the long parallel beaks of the ſeeds aſſume ſomething of the aſpect of a long-toothed comb. See Scandix.

PECTINALIS, or Pectineus, (le pectiné, le pubo-fémorien,) in *Anatomy*, a muſcle of the thigh, placed at the upper and front part of the limb, and extending from the horizontal portion of the pubes to the upper part of the linea aſpera of the femur. It is flattened, elongated, and meaſures about three finger-breadths above, rather leſs below. The faſcia lata and the crural veſſels cover its anterior ſurface above, the ſartorius lower down. It covers the pubes, the hip joint, the obturator externus, the obturator veſſels and nerve, and the ſecond head of the triceps. Its inner edge is parallel to the outer margin of the firſt head of the triceps, by which it is a little covered; the outer edge is parallel to the pſoas magnus. Its upper extremity is fixed to the upper and poſterior edge of the pubes, chiefly by fleſhy fibres, from the ſpine or tuberoſity of that bone, to the beginning of the linea ileopectinea: thence it deſcends obliquely outwards and backwards, and, arriving oppoſite to the little trochanter, is twiſted on itſelf, ſo that the anterior ſurface is turned outwards, the poſterior inwards: it is then inſerted in the line, which deſcends from the baſis of the little trochanter to the beginning of the linea aſpera.

The lower part of the pectinalis conſiſts of a flattened tendon, extending upwards on the front of the muſcle. The fleſhy fibres ariſe from the pubes by very ſhort aponeuroſes, and terminate on the back of the tendon.

It bends the thigh on the pelvis, or *vice verſâ*: it contributes to maintain the pelvis in equilibrio on the lower limbs, when we ſtand. It will draw the thigh inwards, or towards the oppoſite limb, and carry it acroſs the other. It rotates the thigh-bone outwards.

PECTINATI Musculi, the muſcular fibres of the right auricle of the heart, ſo called becauſe they are arranged in parallel faſciculi, ſomewhat reſembling the teeth of a comb. See Heart.

PECTINATION, *Combing of the Head*. Frequent pectination is recommended by many phyſicians to women, and men who wear their hair, as an exerciſe; and, at the ſame time, a kind of friction.

PECTINATUM Folium, in *Botany*, a ſimple leaf, whoſe numerous, deep, parallel ſegments, reſemble the teeth of a comb. See Leaf

PECTIS, might be ſo called perhaps, as profeſſor Martyn ſays, from πεκτὸς, *neatly combed* or *trimmed*. From looking at the original ſpecimen of *P. ciliaris*. we are diſpoſed to think that Linnæus, the author of the name, had more particularly in his mind the idea of *pecten*, a comb, as applicable to the fringed baſes of the leaves.—Linn. Gen. 430. Schreb. 564. Willd. Sp. Pl. v. 3. 2130. Mart. Mill. Dict. v. 3. Juſſ. 182. Lamarck Illuſtr. t. 684. Gærtn. t. 171. Claſs and order, *Syngeneſia Polygamia-ſuperflua*. Nat. Ord. *Compoſitæ oppoſitifoliæ*, Linn. *Corymbiferæ*, Juſſ.

Gen. Ch. *Common calyx* cylindrical, of five oblong, obtuſe, nearly equal leaves. *Cor.* compound, radiated; perfect florets about ſix, rarely fewer or more, in the diſk, funnel-ſhaped, equally five-cleft; female ones in the radius five, rarely fewer, ligulate, ovate, rather longer than the calyx. *Stam.* in the perfect florets, filaments five, ſhort; anthers united into a cylindrical tube. *Piſt.* in the perfect florets, germen linear; ſtyle thread-ſhaped; ſtigma cloven; in the female, germen linear; ſtyle thread-ſhaped; ſtigmas two, revolute. *Peric.* none, except the unchanged ſpreading calyx. *Seeds*, in all the florets, ſolitary, linear. Down of three or five chaffy briſtles, various in length and breadth. *Recept.* naked.

Eſſ. Ch. Receptacle naked. Seed-down of various chaffy briſtles. Calyx of five leaves, cylindrical. Florets of the radius five.

1. P. *humifuſa*. Swartz Ind. Occ. v. 3. 1362. Willd. n. 1. (Jacobæa humifuſa, hyperici foliis; Plum. Ic. 84. t. 95. f. 2.)—Leaves ſpatulate, obtuſe, fringed at the baſe. Flowers ſtalked. Calyx-leaves elliptical. Stem procumbent.—Native of various iſlands in the Weſt Indies, in open barren ſpots, communicated by Dr. Swartz. *Root* annual, tapering, with many fibres. *Stems* herbaceous, procumbent, three or four inches long, much branched, ſquare, ſmooth, leafy. *Leaves* crowded, oppoſite, each pair croſſing the others, ſeſſile, about half an inch long, ſpreading, ſpatulate, obtuſe, entire, thickened, and ſometimes roughiſh, at

the edge, tipped with a very minute point; their under ſide paler, beſprinkled with glandular dots; the baſe linear, elongated, claſping the ſtem, fringed with four or five briſtly coarſe teeth at each ſide. *Flowers* ſcarcely more than one on each branch, towards the extremity, axillary, on a ſimple, naked, ſometimes downy, ſtalk, half an inch or more in length. *Calyx-leaves* elliptical, folding over each other, hardly half an inch long, ſtrongly keeled, obſcurely dotted, obtuſe, emarginate, and minutely downy at the ſummit. *Florets* yellowiſh; thoſe of the diſk, according to Swartz, ten, rather unequally five-cleft; thoſe of the radius five, ſhort, oblong, entire. *Seeds* all linear-oblong, angular, black, thoſe of the diſk often abortive. *Down* of five chaffy briſtles, laciniated at the baſe, ſerrated at the edge.

2. P. *proſtrata*. Cav. Ic. v. 4. 12. t. 324. Willd. n. 2. —Leaves oblong, fringed at the baſe. Flowers ſeſſile. Calyx-leaves elliptic-oblong. Stem procumbent.—Native of New Spain. It flowered at Madrid in the autumn of 1795. This ſeems, as Willdenow remarks, very near the former, from which it differs in having longer *leaves*, but eſpecially in the want of ſtalks to the *flowers*, which are quite ſeſſile, either at the ends of the branches, or in the fork between them. The *calyx-leaves* moreover appear to be much narrower, and ſcarcely folding over each other, but we have only Cavanilles's plate to judge by. *Down* of five awl-ſhaped chaffy ſcales. The *leaves* are an inch or more in length; glaucous and dotted, as in the foregoing, underneath.

3. P. *ciliaris*. Linn. Sp. Pl. 1250. Am. Acad. v. 5. 407. (Jacobæa foliis ſalicis, ad margines villoſis; Plum. Ic. 145. t. 151. f. 2?)—Leaves linear-lanceolate; tapering, and ſtrongly fringed, at the baſe. Flowers axillary, ſeſſile. Stem erect.—Native of Jamaica. *Browne in Herb. Linn.* *Root* annual. *Stem* erect, hardly a ſpan high, divided, or ſlightly branched, leafy for the moſt part, obſcurely marked with a narrow, downy, intrafoliaceous line at each ſide. *Leaves* oppoſite, claſping the ſtem, above an inch long, linear, or ſomewhat lanceolate, obtuſe with a ſmall point; ſmooth on both ſides; copiouſly and irregularly dotted, but not glaucous, beneath; entire, but rough at the edge with minute teeth; tapering at the baſe, and fringed in that part, uſually for the ſpace of half an inch, with numerous, diſtant, coarſe, long, tawny, briſtly hairs, directed upwards in a parallel manner. We can find no *flowers* on either of Browne's two ſpecimens, but in the Amœn. Acad. they are deſcribed as "axillary and ſeſſile; the *corolla* yellow and ſmall; the *ſeeds* of the diſk crowned with five briſtles, membranous at the baſe, thoſe of the radius with two only." Such are all the particulars which we can poſitively aſcertain reſpecting this plant, whoſe hiſtory is remarkably confuſed, eſpecially in Willdenow. The only ſynonym cited by Linnæus in Sp. Pl. is Plumier's, which we dare not admit without a query. Its greater ſize may be no objection, but the fringe of the *leaves* extends much too far, and there is a repreſentation of a ſhort external *calyx* to one flower, which cannot agree with any *Pectis*. The latter may be an error of the copier or engraver. We ſee no other exception to make, but on the contrary the ſhape and ſituation of the *flowers* anſwer perfectly to the above deſcription, which cannot have been made from this plate, becauſe the colour of the *corolla*, and ſtructure of the *ſeed-down*, could not have been learned from thence. But what can be the *P. ciliaris* of Swartz's Obſ. 307? He deſcribes the *ſtem* and *branches* as diffuſe; the *leaves* perforated, as it were, at the margin; the *flowers* ſtalked, ſolitary, either in the ſummits or forks of the branches. He ſays his plant inhabits barren places in Hiſpaniola, flowering in June, and the *leaves* are eaten freſh with bread, having a ſweet ſmell like ſavory. He quotes Hieracium minimum, longis integris et anguſtis foliis; Sloane Jam. v. 1. 255; by miſtake changing *anguſtis* to *argenteis*, and omitting the figure, which is t. 150. f. 1. Willdenow copies him implicitly of courſe. Now this figure, though bad, is not unlike our firſt ſpecies, with which however Swartz's deſcription will not agree, nor do we know any plant that exactly anſwers to it. The *leaves* in Plumier's t. 86. f. 1. come the neareſt as to the dots. See *P. punctata*.

4. P. *linifolia*. Linn. Sp. Pl. 1250. Am. Acad. v. 5. 407. (P. punctata; Jacq. Amer. 216. t. 128. Swartz Obſ. 308. Tagetes? minor, caule ſubdiviſo diffuſo, foliis linearibus integris; Browne Jam. 319. Hieracium fruticoſum, anguſtiſſimis gramineis foliis, capitulis parvis; Sloane Jam. v. 1. 255. t. 149. f. 3, very imperfect.)—Leaves linear, acute, with two or four ſetaceous teeth at the baſe. Stem forked, many-flowered. Seed-down of a few ſpreading awl-ſhaped briſtles.—Native of Jamaica, Hiſpaniola, and Carthagena, flowering from June to October. The *root* is annual. *Stem* two or three feet high, much branched and repeatedly forked, erect according to Jacquin, but diffuſe according to Browne; the branches angular and ſmooth. *Leaves* about an inch and a half long, linear and very narrow, tapering at each end, entire, ſomewhat revolute when dry, ſmooth, beſprinkled with dots beneath, even in Browne's own ſpecimen which is deſcribed in Am. Acad., though they are there ſaid to be *lævia*, (as oppoſed to dotted,) nor are the dots wanting in two other ſpecimens now before us. Jacquin's figure however repreſents them rather too minute and copious. At the baſe of the *leaf*, on each ſide, is one or two pair of ſpreading, briſtle-ſhaped teeth. *Flower-ſtalks* numerous, ſolitary from the forks of the ſtem, ſingle-flowered, half an inch long, ſlender, angular, ſmooth, often bearing one or two ſetaceous *bracteas*. *Flowers* ſmall, yellow, with more or leſs of a purple tinge; *florets* of the diſk three, rarely but two, their *ſeed* crowned with two ſpreading, ſmooth, awl-ſhaped briſtles, about the length of their own *corolla;* thoſe of the radius five, with three ſimilar briſtles to their *ſeed*. In theſe reſpects all our ſpecimens anſwer to the Linnæan deſcription; as alſo to that of Jacquin, ſo that there can be no doubt of his plant, though we are obliged to prefer the Linnæan ſpecific name, of nearly the ſame date.

5. P. *punctata*. Linn. Sp. Pl. 1250, excluding Jacquin's ſynonym. (P. ciliaris; Swartz Obſ. 307? Chondrilla foliis anguſtis et ad oras punctatis; Plum. Ic. 74. t. 86. f. 1.)—Leaves oblong, acute, with two or four minute briſtles at the baſe. Stem forked, many-flowered. Seed-down of ſeveral ſhort lacerated ſcales.—Native of the Weſt Indies. We have ſpecimens in the herbarium of the younger Linnæus, marked *P. patula*, apparently a manuſcript name, every body having conſidered the foregoing as the Linnæan *punctata*. But that being certainly *linifolia*, and the ſynonym of Plumier anſwering well to the preſent, even in the parts of fructification, though the dots of the *leaves* are rather too marginal and regular, we retain for it the name of *punctata;* an appellation by no means diſcriminative indeed, as every known ſpecies is dotted. The ſize and habit of the plant are like the laſt; the *ſtem* angular, purpliſh, repeatedly forked, and finally ſomewhat panicled. The *leaves* however are ſcarcely more than half as long, and nearly twice as broad, ſtrongly dotted beneath, frequently rough-edged; their baſe furniſhed with one or two pair of extremely ſmall briſtles, not half the ſize of what are obſervable in *linifolia*. *Flower-ſtalks* much the ſame, but with more numerous, ſmaller, more chaffy *bracteas*. *Florets* of the diſk about ſix; thoſe of the radius five. *Seed-down* in each of from three to

five ſmall, chaffy, fringed and jagged, brown ſcales, ſmalleſt, and perhaps feweſt, in the marginal florets. In three inſtances we find one of theſe ſcales, in the diſk, elongated into a hiſpid briſtle, extending rather beyond the *corolla;* a concluſive proof of the variableneſs of the *ſeed-down* in *Pectis*, which is notwithſtanding a moſt natural genus. Is it poſſible that this ſpecies can be *P. ciliaris* of Swartz? Perhaps the briſtles of the *ſeeds* may be ſometimes more numerous than we have found them, and then his otherwiſe unintelligible deſcription of the *ſetæ* and *pappus* will be accounted for. We cannot aſcertain what this author intends by *P. linifolia*, for which he has merely a reference to Petiver, (*Rapunculus Jamaicenſis, folio tenuiſſimo*,) without page or plate, a citation we are unable to verify. That reference may belong to the real *linifolia*, though the latter ſhould ſeem to be Swartz's *punctata*.

6. P. *pinnata*. Lamarck Journ. d'Hiſt. Nat. v. 2. 150. t. 31. Cav. Leccion. 203. (Schkuhria abrotanoides; Roth. Catal. v. 1. 117. v. 2. 116. Willd. Sp. Pl. v. 3. 2130.)—Leaves deeply pinnatifid, thread-ſhaped. Stem panicled. Seed-down of ſeveral jagged ſcales, as long as the florets.—Frequent in New Spain. It has been cultivated for twenty-five years paſt in the gardens of Spain and France. We obtained it in 1792, from that of Dr. Bellardi at Turin, by the name of *P. trifida*. Roth ſays the *root* is annual, which we believe to be the caſe; Lamarck makes it perennial. *Stem* erect, two feet high, leafy, angular, deeply furrowed, ſmooth, alternately branched, panicled, many-flowered. *Leaves* alternate, pinnatifid, almoſt capillary and obtuſe, like ſome of the finer kinds of *Artemiſia*, one inch and a half or two inches long, ſmooth, very bitter, beſprinkled all over with minute glandular dots. *Flower-ſtalks* ſcattered and terminal, angular, roughiſh, ſlender, ſingle-flowered, with one linear *bractea*. *Calyx* turbinate; its leaves obovate, beſprinkled with minute ſhining dots, and beautifully tinged with violet. *Corolla* yellow; the radiant florets but one or two, ovate; thoſe of the diſk about ſix. *Seeds* ſquare, with briſtly angles. *Down* of five or more very beautiful, rather unequal, lanceolate, acute, membranous, glittering ſcales, all ſtreaked with purple, their edges more or leſs deeply jagged or fringed. Theſe ſcales are about as long as the *corolla* of each floret, and we do not find them ever accompanied with any briſtles. A compariſon of the *ſeed-down* with that of the laſt, will ſufficiently ſhew, that the preſent plant is not authoriſed to rank as a diſtinct genus on that account. As to the habit, the *leaves* being alternate is more material than their diviſion, to which laſt character the fringes of the other ſpecies may be conſidered as an approach. That they are full of glandular dots we readily perceive; though Lamarck indicates the contrary, as a difference between this plant and *Pectis*, all whoſe ſpecies, he rightly ſays, have dotted leaves. Roth appears to have known nothing of *Pectis*, at leaſt on his firſt eſtabliſhment of his genus *Schkuhria;* nor was he perhaps ſufficiently aware of the perils of ſuch an undertaking, in this intricate claſs. The name of Schkuhr, notwithſtanding its unfortunate orthography, is richly entitled to botanical commemoration, and we truſt that ſome ſtable genus will, hereafter, be honoured with the charge of conveying it down to poſterity. S.

Pectis, an ancient muſical inſtrument, of the form or uſe of which we are not very certain. Athenæus ſays, that the pectis, magadis, and barbiton, were the ſame inſtrument. It has been ſuppoſed to have been a dicord, a ſmall inſtrument of two ſtrings, with a neck, or finger-board, by which they were ſhortened with the preſſure of the fingers, and a complete ſcale produced.

PECTORAL, ſomething relating to the breaſt, *pectus*. In the Romiſh church, biſhops, and regular abbots, wear a pectoral croſs, *i. e.* a little croſs of gold, hanging from the neck down to the breaſt.

Pectoral *Medicines*, in the language of the older phyſicians, were all thoſe medicines which were appropriated to the relief of the diſorders of the breaſt or lungs. The epithet, however, was indefinite, inaſmuch as it included demulcents, attenuants, aſtringents, and even anodynes, or whatever contributed to eaſe the breathing and cough. It has, therefore, been diſcarded. The more limited term, *expectorants*, is preferable.

Pectoral *Syrup*. See Syrup.

Pectoral *Wine*. See Wine.

PECTORALE, or Pectoral, in the *Jewiſh Law*. See Rationale.

PECTORALES, in *Anatomy*, two muſcles placed on the front of the cheſt.

The *pectoralis major* (ſterno-humerien) is the largeſt of the two, covers the front of the cheſt and of the axilla, and extends from the clavicle, the ſternum, and the cartilages of the true ribs, to the front edge of the bicipital groove of the humerus. It is broad, and approaches to the triangular figure.

Its anterior ſurface is covered by the ſkin, the fibres of the latiſſimus colli being interpoſed between them above, and the mammary gland about the middle. The poſterior ſurface covers, towards the inner ſide, the front of the ſternum, to which it is attached; more externally, the cartilages of the true ribs, to which it is alſo attached, excepting the firſt and ſometimes the laſt. This attachment is obſerved towards the ſternal ends of the cartilages, and occupies a broader ſpace in the lower than in the upper ones: it extends through the whole length of the ſixth. Below the latter, it covers the rectus and obliquus externus abdominis. It alſo covers, in ſucceſſion, beginning from the ſternum, the true ribs, the external intercoſtal muſcles, the ſubclavius, the pectoralis minor, the ſerratus magnus, the axillary veſſels, the brachial plexus, and the coraco-brachialis and biceps muſcles. The ſurface of the muſcle is united to the parts juſt enumerated by looſe cellular tiſſue, the quantity of which increaſes as we approach the axilla.

The internal edge is ſomewhat ſemicircular in its outline, and is fixed to the middle of the front of the ſternum from its upper part, to the articulation of the cartilage of the ſixth rib. In front of the enſiform cartilage it is confounded with the edge of the oppoſite muſcle, and has a connection with the upper end of the linea alba; a ſmall ſlip of its fibres is alſo connected to the upper edge of the aponeuroſis of the obliquus externus abdominis, and generally covers the upper ſlip of that muſcle.

The upper edge may be divided into two parts; the firſt, which is properly ſuperior, is attached to the inner half of the front edge of the clavicle: the ſecond is rather external, and is ſtretched obliquely from the clavicle to the humerus. The latter is directed downwards and outwards, and is nearly parallel to the inner edge of the deltoid, from which it is ſeparated by a cellular line, broader above than below, and containing the cephalic vein. Sometimes the edges of the two muſcles are confounded.

The lower edge is connected to the aponeuroſis of the obliquus externus, goes obliquely outwards and backwards in front of the cheſt, then before the axilla, of which it forms the front edge; it then deſcends a little, and terminates on the humerus. This edge is thin towards the cheſt, and thicker at the axilla, where the ſkin turns in a little on its poſterior edge.

The ſuperior and inferior margins of the great pectoral muſcle are united at a truncated angle, about two inches broad, attached to the front edge of the bicipital groove.

The ſternal and the clavicular portions of the muſcle may be more or leſs diſtinct from each other: they can ſometimes be ſeparated throughout.

The attachments to the clavicle and ſternum are by no means of very ſhort aponeuroſes: thoſe of the right and left muſcles decuſſate in the front of the ſternum. Towards the lower part of the cheſt, and upper part of the abdomen, a broader aponeuroſis is ſeen, united to that of the obliquus externus. To the humerus the pectoralis major is attached by a broad tendon, from which productions are continued to line the bicipital groove, united to the tendons of the latiſſimus dorſi, teres major, and ſupra ſpinatus, and to form a connection with the aponeuroſis covering the muſcles of the arm. This tendinous inſertion, and the muſcular fibres connected to it, are twiſted on themſelves: the fibres of the clavicular portion are on the outſide, and paſs downwards: thoſe of the pectoral are behind the former, and paſs upwards.

The muſcular fibres are not all alike in length or direction. Thoſe which come from the clavicle are the ſhorteſt, deſcend from within outwards, and terminate on the front of the tendon. The fibres from the upper part of the ſternum are rather longer, go horizontally outwards, and end on the front of the tendon, externally to the former. The remaining fibres go from below upwards, and increaſe in length and obliquity from above downwards: they end on the poſterior ſurface of the tendon, and are turned in ſucceſſively, one under the other, as they reach the tendon, ſo that the lower ones are fixed to the upper part of the tendon.

This muſcle executes the reciprocal motions of the cheſt and arm. If the latter be hanging by the ſide of the body, the pectoralis major will move it forwards and inwards, ſo as to carry it acroſs the front of the cheſt: when the arm has been elevated, it will draw the limb down again: it will alſo retract the humerus inwards, particularly if it has been turned out. The clavicular portion will co-operate with the deltoid in elevating the humerus. Acting in conjunction with the latiſſimus dorſi and teres major, it will draw the limb cloſe to the ſide. When the arm is fixed, as in ſeizing any body before or above us, this muſcle brings the trunk to the arm: hence it is an important agent in climbing.

The *pectoralis minor* (ſerratus minor anticus, coſto-coracoidien) lies on the front and upper part of the cheſt, and extends from the third, fourth, and fifth ribs to the coracoid proceſs: it is flattened and triangular, with the baſis of the triangle turned downwards and inwards, the apex upwards and outwards. The anterior ſurface is covered by the pectoralis major; the poſterior covers the ribs, the intercoſtal muſcles, the ſerratus magnus, axillary veſſels, and brachial plexus. The upper and lower edges are unattached, and preſent nothing remarkable: the former is the ſhorteſt. The baſis of the muſcle, turned downwards and inwards, is fixed to the upper edge and external ſurface of the ribs mentioned above, or to the ſecond, third and fourth, by broad and thin aponeuroſes. Thence it is continued backwards and outwards, growing at the ſame time narrower, and is fixed to the coracoid proceſs, where it is connected to the coraco-brachialis.

The aponeuroſes, by which it is fixed to the ribs, have been mentioned: a flattened tendon connects it to the coracoid proceſs: the fleſhy fibres are continued obliquely between theſe, ſlanting from below upwards, backwards, and outwards: the upper are the ſhorteſt.

By drawing the coracoid proceſs downwards and forwards, this muſcle rotates the ſcapula, ſo that the anterior angle is depreſſed, and the inferior goes backwards. The rhomboidei and levator ſcapulæ aſſiſt in producing the ſame effect. When it concurs with the ſerratus magnus, the ſcapula is carried directly forwards. Suppoſing the ſhoulder to be firmly fixed, it may elevate the ribs, and thus aſſiſt in inſpiration: the ſame remark will hold good of the pectoralis major alſo: hence, in aſthmatic perſons, and all thoſe who breathe difficultly, the ſhoulders are habitually elevated, to bring theſe muſcles into play, and they are more forcibly drawn up in the paroxyſms of obſtructed reſpiration.

PECTOREL, in our old writers, armour for the breaſt, a breaſt-plate, or petral for a horſe. It is mentioned ſtat. 14 Car. II. cap. 3.

PECTORIS Os, in *Anatomy*, the ſame as ſternum.

PECTORIS *Hydrops*. See DROPSY *of the Breaſt*.

PECTORIS *Oſſa*, in fiſh. The bones of the breaſt and belly are beſt ſought after in the cetaceous and ſpinoſe kinds. In the ſpinoſe kinds they are theſe; the clavicles, the ſternum, the ſcapulæ, or bones to which the pinnæ pectorales are affixed at their baſis, the bones at the roots of the pinnæ ventrales.

The number, ſituation, and figure of theſe differ greatly in the ſeveral kinds of fiſh, and make very eſſential characters. See FISH, *Anatomy of*.

PECTORIS *Triangularis*. See TRIANGULARIS and PECTORALES.

PECUARII, among the Romans, thoſe who farmed the public paſtures, in order to let them to advantage.

PECUL, or PICUL, in *Commerce*, a weight uſed in ſome parts of the Eaſt Indies. The bahar of three peculs, or 300 catties, in Bantam weighs 396 lb. avoirdupois. The pecul of 100 catties at Cheribou weighs 125 lb. Dutch troy weight, or 132 lb. avoirdupois. Heavy goods are weighed in Malacca by the pecul of 100 catties, or 1600 tales. The pecul is = 135 lb. avoirdupois, and three peculs make a bahar. But what is called the China pecul at Malacca weighs 125 lb. avoirdupois. Rice is ſold by the coyang of 40 peculs, or 5400 lb. avoirdupois. A coyang of rice in the iſle of Amboyna contains 25 peculs. The pecul of pepper at Banjarmaſſing is 100 catties, or 125 lb. Dutch troy, or 135 lb. 10 oz. avoirdupois. The pecul and catty at Macaſſar are the ſame. In the iſle of Ternate, the pecul and catty are the ſame as at Amboyna. The pecul in Siam is 50 catties, and the catty 20 tales, or 80 ticals. The Siam pecul weighs 129 lb. avoirdupois, and the catty 41 oz. 4½ dr. avoirdupois. The common weight in Trangania, on the farther peninſula, is the China pecul, which anſwers to 132 lb. 8 oz. 9 dr. avoirdupois.

PECULATE, PECULATUS, in the *Civil Law*, the crime of embezzling the public money, by a perſon who has the management, receipt, or cuſtody thereof: ſo called *quaſi pecuniæ ablatio*.

Civil lawyers uſe peculate for any theft of a thing, either ſacred, religious, public, or fiſcal. Peculate in the caſe of public money, is proſecuted even on the criminal's heir.

The Julian law, among the Romans, puniſhed this crime with death in a magiſtrate; and with deportation, or baniſhment, in a private perſon. With us it is not a capital crime, but ſubjects the committer of it to a diſcretionary fine and impriſonment.

PECULIAR, in the *Canon Law*, a particular pariſh, or church, which hath juriſdiction within itſelf, for probate of wills, &c. exempt from the ordinary of the dioceſe, and the biſhops' courts.

There are *royal* peculiars, and *archbiſhops'* peculiars.

The king's chapel is a royal peculiar, exempt from all ſpiritual juriſdiction, and reſerved to the viſitation and immediate government of the king himſelf, who is ſupreme ordinary.

Peculiars of the archbiſhops are excluſive of the biſhops and archdeacons.

It is an ancient privilege of the ſee at Canterbury, that whereſoever any manors or advowſons do belong to it, they forthwith become exempt from the ordinary, and are reputed peculiars. In the province of Canterbury, there are more than a hundred ſuch peculiars. In theſe peculiars juriſdiction is adminiſtered by ſeveral commiſſaries; the chief of whom is the dean of the arches for the thirteen peculiars within the city of London. See ARCHES.

There are alſo peculiars of biſhops, excluſive of the juriſdiction of the biſhop of the dioceſe in which they are ſituated: of theſe the biſhop of London hath four pariſhes within the dioceſe of Lincoln; and every biſhop, who hath a houſe in the dioceſe of another biſhop, may therein exerciſe epiſcopal juriſdiction.

There are alſo peculiars of biſhops in their own dioceſe, excluſive of archidiaconal juriſdiction.

The peculiars of dean, deans and chapters, prebendaries, &c. are places in which, by ancient compoſitions, the biſhops have parted with their juriſdiction, as ordinaries to thoſe ſocieties. See COURT *of Peculiars*.

PECULIUM, the ſtock which a perſon in the power or property of another, as a ſlave, minor, or the like, may acquire by his own induſtry, without any advance or aſſiſtance from his father or maſter; but merely by their permiſſion.

The word is uſually derived *a pecunia et pecoribus;* becauſe the whole eſtate anciently conſiſted in money and cattle.

PECULIUM is alſo uſed, among the Romaniſts, for what each monk or religious reſerves, and poſſeſſes to himſelf.

Some ſay, that the peculium of a religious, when preferred to a cure, does not ceaſe to belong to the monaſtery; and that the property thereof never abſolutely reſides in the religious himſelf.

PECUNIA, MONEY. See MONEY.

PECUNIA, in our old law-books, is ſometimes uſed for cattle, and ſometimes for other goods, as well as money.

In the emendation of the laws of Edward the Confeſſor, by William I., it is ordered, that no *viva pecunia, living money, i. e.* cattle, be bought or ſold, except within cities, and that before three ſufficient witneſſes.

So in Domeſday book, pecunia is frequently uſed, *pro pecude;* as paſture *ad pecuniam villæ.*

PECUNIA *Eccleſiæ*, was anciently uſed for the eſtate of the church.

PECUNIA *Sepulchralis* was money formerly paid to the prieſt at the opening of the grave, for the good and behoof of the deceaſed's ſoul; and which our Saxon anceſtors called *ſoul ſcot*, and *animæ ſymbolum.*

PECUNIA, in *Mythology*, a goddeſs among the Romans, whom they invoked with a view of procuring money in abundance. But as the ſpecie was coined of different metals, eſpecially of gold, ſilver, and braſs, and as one divinity would have too much occupation in taking care of the different coinages a particular one was appointed for each. Three goddeſſes repreſented upon ſome medals of the emperor Commodus and his ſucceſſors, with a pair of ſcales, the cornucopia, and a heap of money by them, prove that there was at leaſt that number, and the antiquaries agree that they preſided over the coinage of three metals. Beſides theſe three divinities, there was alſo "Æs," or "Æſculanus," for the braſs coin.

PEDACE, in *Geography*, a town of Naples, in Calabria Citra; 6 miles S. of Coſenza.

PEDACONDA, a town of Hindooſtan, in Myſore; 15 miles E. of Chinna-Balabarum.

PEDAGE, PEDAGIUM, toll, or a local due exacted on perſons, goods, and carriages, paſſing through certain places.

Pedage is uſually levied for the repairing of roads, bridges, and cauſeways, the paving of ſtreets, &c.—Anciently, thoſe who had the right of pedage, were to keep the roads ſecure, and anſwer for all robberies committed on the paſſengers between ſun and ſun; which is ſtill obſerved in ſome parts of England and in Italy, where there were guards, called *ſtationarii*, eſtabliſhed for the ſecurity of merchants, particularly at Terracina, on the road between Rome and Naples.

PEDAGOGUE, or PÆDAGOGUE, παιδαγωγος, formed from παιδων αγωγος, *puerorum ductor, leader of boys*, a tutor or maſter, to whom is committed the diſcipline and direction of a ſcholar, to be inſtructed in grammar and other arts.

M. Fleury obſerves, that the Greeks gave the name pedagogues to ſlaves appointed to tend their children, lead them, teach them to walk, conduct them to ſchool, &c. The Romans alſo give the ſame denomination to the ſlaves who were entruſted with the care and inſtruction of their children.

PEDALE, as *à pedale*, implies a long note in the *baſſo continuo*, or thorough-baſe, to be played or ſuſtained without chords. See TARTO *Solo.*

PEDALES. See ABBOT.

PEDALINÆ, in *Botany*, a natural order of plants, eſtabliſhed by Mr. R. Brown, Prodr. Nov. Holl. v. 1. 519, and named from *Pedalium*, which belongs to it; ſee the next article. The characters are theſe.

Calyx in five, nearly equal, diviſions.

Corolla of one petal, below the germen, irregular; its throat inflated; limb two-lipped.

Stamens four, two longer than the reſt, included within the tube, and accompanied by the rudiment of a fifth.

Germen ſurrounded at the baſe with a glandular diſk, of ſeveral cells, with one or two ſeeds in each. *Style* one. *Stigma* divided.

Drupa dry, armed with ſpines, of ſeveral cells.

Seeds with a paper-like ſkin. *Albumen* none.

Embryo ſtraight.

Herbs with oppoſite *leaves*, and axillary *flowers* accompanied by a pair of *bracteas.*

PEDALIUM, a Greek name, choſen for this plant by profeſſor David Van Royen, in alluſion, as it ſeems, to the ſhape of the fruit. Πηδαλιον is, as profeſſor Martyn ſays, the *rudder of a ſhip*, which each dilated angle, or wing, of the part in queſtion ſomewhat reſembles; but the Greek word alſo means a *ſtud, button*, or *head of a nail*, and the regular, or artificial figure of the whole fruit, reticulated like fillagree, might well ſuggeſt ſuch an application of it here.—Linn. Gen. 327. Schreb. 430. Willd. Sp. Pl. v. 3. 401. Mart. Mill. Dict. v. 3. Juſſ. 140. Lamarck Illuſtr. t. 538. Gærtn. t. 58.—Claſs and order, *Didynamia Angioſpermia.* Nat. Ord. "*Luridæ, Perſonatæ*, or perhaps *Aggregatæ*," Linn. *Bignoniæ*, Juſſ. *Pedalinæ*, Brown.

Gen. Ch. *Cal.* Perianth inferior, minute, in five deep ſegments; the lower ones longeſt. *Cor.* of one petal, ſlightly ringent; tube triangular, flat in front; limb flat, ſpreading, in five deep, rounded ſegments, the upper ones ſmalleſt, the lower one largeſt of all. *Stam.* Filaments four, ſhorter than the tube, hairy at the baſe, two of them ſhorteſt; anthers heart-ſhaped, two-lobed, terminated by a gland, and cohering in the form of a croſs. There is, according to Rottböll, between the ſhorter ſtamens, the rudiment of a fifth filament, with a minute anther. *Piſt.* Germen conical; ſtyle the length of the ſtamens; ſtigma cloven, its upper ſegment reflexed, the lower revolute. *Peric.* Drupa dry, fibrous, ſtalked, ovate, ſomewhat pyramidal, with four furrows, and as many angles, each of which bears a horizontal ſpine at its baſe. *Seed.* Nut of two cells, with four wings, and clothed with the rigid, permanent, branched and entangled fibres of the drupa. Kernels two in each cell, oblong, one above the other, each clothed with a dry membranous bivalve tunic.

Eſſ. Ch. Calyx in five deep ſegments. Corolla ſlightly ringent; its limb in five flat ſegments. Stigma two-lobed. Drupa dry, fibrous, with four ſpines. Nut of two cells, with four tunicated ſeeds.

Obſ. This genus is thought to differ from JOSEPHINIA, ſee that article, in having but two lobes to the ſtigma inſtead of four, fewer cells in the fruit, and ſolitary ſeeds. Perhaps the genera are not naturally diſtinct, but we have not compared them in a ſufficiently perfect ſtate to decide. In habit they are very ſimilar. We have corrected the original generic character; not only from the remarks of Rottböll and Gærtner, but from the manuſcript emendations of Linnæus himſelf, annexing his own various conjectures, as to the natural order. What Gærtner terms an empty cell, appears merely a hollow ſtalk to the fruit.

1. P. *Murex.* Linn. Sp. Pl. 892. Burm. Ind. 139. t. 45. f. 2. (Murex; Linn. Zeyl. 205. Caka Mullu; Rheede Malab. v. 10. 143. t. 72. *Gærtn.*)—Native of maritime ſituations, in Ceylon, and on the Malabar coaſt. *Root* annual. *Herb* very various as to luxuriance, of a ſomewhat fleſhy and glutinous or greaſy habit, like *Chenopodium album*, or Fat Hen. *Leaves* imperfectly oppoſite, ſometimes all alternate, ſtalked, ſimple, obovate, obtuſe, abrupt, coarſely toothed. *Flowers* axillary, ſolitary, ſtalked, the tube of the corolla about an inch long; their colour apparently white, or pale reddiſh. *Fruit* drooping, ſingularly elegant at an advanced period, when the branched entangled fibres become viſible.

Rottböll ſays the ſmell of muſk is very powerful in the flowering plant. We are told that the herb infuſed in water gives out an abundant colourleſs and inſipid mucilage, and that it is uſed on the coaſt of Coromandel to turn water into a clear jelly, for what particular uſe is not mentioned. We find no ſuch reſult from pouring boiling water on the dried leaves.

PEDALS, keys for the feet in almoſt all the large organs on the continent of Europe. The invention is recorded by Prætorius, Syntag. Muſ. and aſcribed to Bernard, a German organiſt at Venice, ſo early as the year 1470. (See ORGAN.) This diſcovery manifeſted great progreſs in the conſtruction and performance of that noble inſtrument at ſo early a period; and ſeems to imply ideas of harmony and effects, beyond the power of human hands.

PEDANEUS, in the *Civil Law*, a petty judge who has no formal ſeat of juſtice, but hears cauſes ſtanding, and without any tribunal.

The word ſeems formed from *ſtans in pedibus*: and is uſed among the ancients by way of oppoſition to thoſe magiſtrates who were ſeated in the curule chair, *in ſella curuli*, or had a tribunal or bench raiſed on high.

The Roman pedanei therefore, were ſuch as had no tribunal, nor prætorium; but rendered juſtice *de plano*, or *plano pede*.

From the eighty-ſecond Novel, it appears that the emperor Zeno eſtabliſhed theſe pedanei in the ſee of every province; and that Juſtinian erected ſeven of them at Conſtantinople, in manner of an office: granting them power to judge in any ſum as high as three hundred crowns.

PEDANT, a ſchoolmaſter, or pedagogue, who profeſſes to inſtruct and govern youth, and teach them the literæ humaniores and the arts.

PEDANT is alſo uſed for a rough unpoliſhed man of letters, who makes an impertinent uſe of the ſciences, and abounds in unſeaſonable criticiſms and obſervations.

Dacier defines a pedant, a perſon who has more reading than good ſenſe.

Pedants are people ever armed with quibbles and ſyllogiſms; they breathe nothing but diſputation and chicanery, and purſue a propoſition to the laſt limits of logic.

Malebranche deſcribes a pedant as a man full of falſe erudition, who makes a parade of his knowledge, and is ever quoting ſome Greek or Latin author, or hunting back to a remote etymology.

St. Evremont ſays that to paint the folly of a pedant, we muſt repreſent him as turning all converſation to ſome one ſcience or ſubject with which he is beſt acquainted

There are pedants of all conditions, and of all robes. Wicquefort ſays, an ambaſſador, always attentive to formalities and decorums, is nothing elſe but a political pedant.

PEDANTRY, or PEDANTISM, the quality or manner of a pedant.

To ſwell up little and low things, to make a vain ſhow of ſcience, to heap up Greek and Latin without judgment, to tear thoſe to pieces who differ from us about a paſſage in Suetonius, or the etymology of a word, to ſtir up all the world againſt a man for not admiring Cicero enough, to be intereſted for the reputation of an ancient as if he were our next of kin, form what we properly call pedantry.

PEDARIAN, in *Antiquity*, thoſe ſenators who ſignified their votes by their feet, not their tongues; that is, ſuch as walked over to the ſide of thoſe whoſe opinion they approved of, in diviſions of the ſenate.

The origin of the word Dr. Middleton thinks owing to this, that though the magiſtrates of Rome had a right to a place and vote in the ſenate, as well during their office as after it, and before they were put upon the roll by the cenſors, yet they had not probably a right to ſpeak or debate there on any queſtion, at leaſt in the earlier times of the republic. For this ſeems to have been the original diſtinction between them and the ancient ſenators, as it is plainly intimated in the formule of the conſular edict, ſent abroad to ſummon the ſenate, which was addreſſed to all ſenators, as thoſe who had a right to vote in the ſenate. From which diſtinction, theſe laſt, who had only a right to vote, were called, by way of ridicule, pedarian; becauſe they ſignified their votes by their feet, not their tongues, and, upon every diviſion of the ſenate, went over to the ſide of thoſe whoſe opinions they approved. It was in alluſion to this old cuſtom, which ſeems, however, to have been wholly dropt in the later ages of the republic, that the mute part of the ſenate continued ſtill to be called by the name of pedarians, as we learn from Cicero, who, in giving an account to Atticus of a certain debate and decree of the ſenate upon it, ſays, that it was made with the eager and general concurrence of the pedarians, though againſt the authority of all the conſulars. Vide Feſtus in voc. Senatores, A. Gell. lib, iii. 18. Feſt in Pedarius. Cicero ad Attic. 1. 19. Middlet. of Rom. Sen. p. 86. ſeq.

PEDATUM FOLIUM, in *Botany*, a foot-like leaf, is ſo called rather by way of contraſt to a palmate or hand-like one, than from any very preciſe reſemblance to the foot of any animal. It is compound, being in the firſt inſtance ternate, and the two lateral leaflets are each, more or leſs numerouſly, ſubdivided in front. *Helleborus fœtidus* and *niger* have this ſort of foliage.

PEDATURA, in *Roman Antiquity*, was uſed for a ſpace or proportion of a certain number of feet ſet out.

The word occurs frequently in writers about military affairs; thus in Hyginus, de Caſtrametatione, we meet with "meminerimus itaque ad computationem cohortis equitatæ milliaria pedaturam ad mille trecentos ſexaginta dari debere;" which is to be thus explained: the pedatura, or ſpace allowed for a cohors equitata or provincial cohort, conſiſting of both horſe and foot, could not be the ſame as the pedatura of an uniform body of infantry, of the ſame number, but muſt exceed it by 360 feet; for the proportion of the room of one horſeman to one foot ſoldier, he aſſigns as two and a half to one. Vide Phil. Tranſ. N° 482. ſect. 3.

PEDDAGUDAMY, in *Geography*, a town of Hindooſtan, in the circar of Ellore; 10 miles N.W. of Ellore.

PEDDAPOUR, a town of Hindooſtan, in the circar of Rajamundry; 22 miles E.N.E. of Rajamundry.

PEDDI-BALABARUM, a town of Hindooſtan, in Myſore; 16 miles N. of Bangalore.

PEDEE, GREAT, a river of America, which riſes in the Appalachian mountains, in North Carolina, where it is called Yadkin river. In South Carolina it takes the name of Pedee, and after receiving the waters of Lynche's creek, Little Pedee, and Black river, joins the Wakkamaw river, near George-town. Theſe united ſtreams, with the acceſſion of a ſmall creek, on which George-town ſtands, form Winyaw bay, which, about 12 miles below, communicates with the ocean. It is navigable for boats of 60 or 70 tons, about 200 miles.

PEDEE, *Little*, a river that riſes in ſeveral branches, in North Carolina, and unites with the Great Pedee in South Carolina, about 32 miles from the ocean.

PEDEMONTE D'ALISI, a town of Naples, in Lavora; 20 miles N.N.E. of Capua.

PEDENA, or BIBEN, a town of Iſtria, the ſee of a biſhop; 25 miles S.S.E. of Trieſte. N. lat. 45° 22'. E. long 14° 16'.

PEDERNEIRA, a ſea-port town on the W. coaſt of Portugal, in the province of Eſtremadura, containing about 1300 inhabitants; 18 miles S.W. of Leyria. N. lat. 39° 31'. W. long 8° 56'.

PEDERSORE, a town of Sweden, in the government of Waſa; three miles S. of Jacobſtadt.

PEDESTAL, formed from *pes*, *pedis*, *foot*, and ϛυλος, *column*, in *Architecture*, the loweſt part of an order of columns; being that which ſuſtains the column, and ſerves it as a foot to ſtand on.

The pedeſtal, called by the Greeks *ſtylobates*, and *ſtereobates*, conſiſts of three principal parts; *viz.* a ſquare trunk, or dye, which makes the body; a cornice, the head; and a baſe, the foot of the pedeſtal.

The pedeſtal is properly an appendage to a column; not an eſſential part thereof; though M. le Clerc thinks it is eſſential to a complete order.

The proportions or ornaments of the pedeſtal are different in the different orders: Vignola, indeed, and moſt of the moderns, make the pedeſtal, and its ornaments, in all the orders, one-third of the height of the column, including the baſe and capital: but ſome deviate from this rule.

M. Perrault makes the proportion of the three conſtituent parts of pedeſtals, the ſame in all the orders; *viz.* the baſe one-fourth of the pedeſtal; the cornice an eighth part; and the ſocle, or plinth, of the baſe, two-thirds of the baſe itſelf. The height of the dye is, what remains of the whole height of the pedeſtal.

PEDESTAL, *Tuſcan*, is the ſimpleſt and the loweſt of all. Palladio and Scamozzi make it three modules high; Vignola five. Its members, in Vignola, are only a plinth, for a baſe; the dye; and a talon crowned, for a cornice. This has rarely any baſe.

PEDESTAL, *Doric*, Palladio makes four modules five minutes high; and Vignola five modules four minutes.

In the antique, we not only do not meet with any pedeſtals; but even not with any baſe, in the Doric order.

The members in Vignola's Doric pedeſtal, are the ſame with thoſe in the Tuſcan, with the addition of a mouchette in its cornice.

PEDESTAL, *Ionic*, in Vignola and Serlio, is ſix modules high; in Scamozzi five; in the temple of Fortuna Virilis it is ſeven modules twelve minutes. Its members and ornaments are moſtly the ſame with thoſe of the Doric, only a little richer. The pedeſtal now uſually followed, is that of Vitruvius, though we do not find it in any work of the antique. Some, in lieu hereof, uſe the Attic baſe, in imitation of the ancient.

PEDESTAL, *Corinthian*, is the richeſt and moſt delicate of all. In Vignola it is ſeven modules high; in Palladio, five modules one minute; in Serlio, ſix modules fifteen minutes; in the coliſeum, four modules two minutes.

Its members, in Vignola, are as follow; in the baſe are a plinth, for a ſocle: over that a tore carved; then a reglet, a gula inverted and enriched, and an aſtragal. In the dye are a reglet, with a conge over it; and near the cornice a reglet, with a conge underneath. In the cornice is an aſtragal, a frieze, fillet, aſtragal, gorge, and a talon. See each under its proper article.

PEDESTAL, *Compoſite*, in Vignola, is of the ſame height with the Corinthian, *viz.* ſeven modules; in Scamozzi, ſix modules two minutes; in Palladio ſix modules ſeven minutes; in the Goldſmith's arch, ſeven modules eight minutes.

Its members, in Vignola, are the ſame with thoſe of the Corinthian; with this difference, that, whereas theſe are moſt of them enriched with carvings in the Corinthian, they are all plain in the Compoſite. Nor muſt it be omitted, that there is a difference in the profiles of the baſe and cornice, in the two orders.

The generality of architects, Daviler obſerves, uſe tables or panels, either in relievo, or creux, in the dyes of pedeſtals, without any regard to the character of the order. Thoſe, in relievo, he obſerves, only fit the Tuſcan and Doric; the three others muſt be indented: but this, he adds, is a thing the ancients never practiſed, as being contrary to the rules of ſolidity and ſtrength.

PEDESTAL, *Square*, is that whoſe height and width are equal; as that of the arch of the lions at Verona, of the Corinthian order; and ſuch ſome followers of Vitruvius, as Serlio, Philander, &c. have given to their Tuſcan orders.

PEDESTAL, *Double*, is that which ſupports two columns, and is larger in width than height.

PEDESTAL, *Continued*, is that which ſupports a row of columns without any break or interruption; ſuch is that which ſuſtains the fluted Ionic columns of the palace of the Thuilleries on the ſide of the garden.

Pedestals *of Statues*, are thoſe ſerving to ſupport figures or ſtatues.

Vignola obſerves, there is no part of architecture more arbitrary, and in which more liberty may be taken, than in the pedeſtals of ſtatues; there being no laws preſcribed for them by antiquity; nor any even ſettled by the moderns.

There is no ſettled proportion for theſe pedeſtals; but the height depends on the ſituation, and the figure they ſuſtain. Yet, when on the ground, the pedeſtal is uſually two-thirds, or two-fifths, of that of the ſtatue; but always the more maſſive the ſtatue, the ſtronger muſt be the pedeſtal.

Their form, character, &c. are to be extraordinary and ingenious, far from the regularity and ſimplicity of the pedeſtals of columns. The ſame author gives us a great variety of forms, oval, triangular, multangular, &c.

PEDESTRIAN Statue. See Statue.

PEDIÆAN, ϖεδιαιος, in *Antiquity*. The city of Athens was anciently divided into three different quarters; one on the deſcent of a hill; another on the ſea-ſhore; and a third in a plain between the other two.

The inhabitants of the middle region were called Πεδιαιοι, *Pediæans*, formed from ϖεδιον, *plain* or *flat*: or, according to Ariſtotle, *Pediaci*: thoſe of the hill, Diacrians: and thoſe of the ſhore, Paralians.

Theſe quarters uſually compoſed ſo many different factions. Piſiſtratus made uſe of the Pediæans againſt the Diacrians.

In the time of Solon, when a form of government was to be choſen, the Diacrians would have it democratic: the Pediæans demanded an ariſtocracy; and the Paralians a mixed government.

PEDICELLARIA, in *Natural Hiſtory*, a genus of the claſs and order Vermes Molluſca: the generic character is, that it has a body ſoft and ſeated on a rigid fixed peduncle; the aperture is ſingle. There are three

Species.

Globifera. This is deſcribed as having a ſpherical head. It inhabits the Northern ſeas, among the ſpines of the Echini. The body is minute, and reſembling a mucor; the head is reddiſh, having the appearance of a ſmall cherry; the ſtem is tawny, and covered with a gelatinous hyaline ſkin.

Triphylla. The head of this is three-lobed; the lobes are nearly ſquare and unarmed; the neck is round. It is found in the Northern ſeas, among the ſpines of Echini. The head has reddiſh or hyaline lobes, ſometimes ovate; the neck is flexuous and blue; the peduncle or ſtem is of a cheſnut-brown.

Tridens. Head three-lobed, the lobes are oval and awned; the neck is round. It inhabits alſo the Northern ſeas, and likewiſe among the ſpines of Echini. The neck is ſmooth and hyaline, though ſometimes it is reddiſh; the lobes of the head are ſometimes four, and thrice as long as the neck, rarely unarmed with awns; the peduncle is reddiſh, and three times as long as the neck.

PEDICELLUS, in *Botany*, a partial flower-ſtalk, or the ultimate ſubdiviſion of a general one. See Pedunculus.

PEDICLE, Pedicellus, a diminutive of *pes*, *foot*, *footſtalk*; that little ſtalk whereby the leaf, fruit, or flower, is ſuſtained, and connected to its branch or ſtem. (See the preceding article.) Flowers will keep freſh a long time after gathering, by immerging their pedicles in water. The great ſecret of preſerving fruits for the winter is to ſeal up their pedicles with wax. Cherries with the ſhorteſt pedicle are eſteemed the beſt. The piſtil of the flower ſometimes becomes the pedicle of the fruit.

PEDICULARES, in *Botany*, a natural order of plants, ſo denominated by Juſſieu, from *Pedicularis*, which is one of them; ſee the next article. It is the ſecond of the eighth claſs in that author's ſyſtem, and compriſes about a third part of the *Perſonatæ* of Linnæus; ſee Personatæ. For the characters of Juſſieu's eighth claſs, ſee Gentianæ. He thus defines the preſent order.

Calyx divided, permanent, often tubular. *Corolla* for the moſt part irregular. *Stamens* definite in number. *Style* one; with a ſimple, or rarely two-lobed, ſtigma. *Fruit* capſular, of two cells, with many ſeeds, and two valves which are connected by a central projection, forming a partition bearing ſeeds on both ſides, and ſcarcely ſeparable, the edges of the valves unconnected with the partition, and finally ſeparating. The *ſtem* is moſtly herbaceous. *Leaves* either oppoſite or alternate, each with a ſingle *bractea*.

The firſt ſection, diſtinguiſhed by having the ſtamens not didynamous, their number two or more, conſiſts of *Polygala*, *Veronica*, *Sibthorpia*, and *Diſandra*.

The ſecond ſection, with four didynamous ſtamens, that is, two long and two ſhort, has *Ouriſia* of Commerſon, and *Piripea* of Aublet, with the Linnæan *Erinus*, *Manulea*, *Caſtillæa*, *Euphraſia*, *Buchnera*, *Bartſia*, *Pedicularis*, *Rhinanthus* and *Melampyrum*.

A third ſection conſiſts of four genera akin to true *Pediculares*. Theſe are *Hyobanche*, *Obolaria*, *Orobanche* and *Lathræa*; paraſitical plants, about whoſe germination nothing is, or perhaps can be, known. Their fruit is in a manner unilocular.

The *Pediculares* in general are remarkable for turning black in drying; but this quality does not belong to *Polygala*. That indeed is a genus whoſe natural affinity is enveloped in much uncertainty, and it ſeems to us that Linnæus, who refers it to his *Lomentaceæ*, comes nearer the truth than Juſſieu.

PEDICULARIS, Louſe-wort, a very noble and beautiful genus of plants; notwithſtanding its unpromiſing name, derived from *pediculus*, a louſe, which alludes to a quality attributed to ſome of the ſpecies, of making ſheep louſy that feed upon them. This report might perhaps ariſe, as with reſpect to the *Droſera* and *Hydrocotyle*, from their growing in watery paſtures, where ſheep become unhealthy and ſcabby, whether they feed on any of theſe herbs, which is very doubtful, or no.—Linn. Gen. 307. Schreb. 403. Willd. Sp. Pl. v. 3. 202. Mart. Mill. Dict. v. 3. Sm. Fl. Brit. 655. Prodr. Fl. Græc. Sibth. v. 1. 429. Juſſ. 101. Lamarck Illuſtr. t. 517. Michaux Boreal-Amer. v. 2. 18. Gærtn. t. 53.—Claſs and order, *Didynamia Angioſpermia*. Nat. Ord. *Perſonatæ*, Linn. *Pediculares*, Juſſ.

Gen. Ch. *Cal.* Perianth inferior, of one leaf, ovate-oblong, tumid, unequally five-cleſt, permanent. *Cor.* of one petal, ringent; tube oblong, gibbous; upper lip helmet-ſhaped, erect, compreſſed, emarginate, narroweſt; lower ſpreading, flat, divided about half-way into three obtuſe ſegments, the middle one uſually narroweſt. *Stam.* Filaments four, the length of the upper lip, under which they are concealed, two of them ſhorteſt; anthers incumbent, roundiſh, compreſſed. *Piſt.* Germen roundiſh, ſuperior; ſtyle thread-ſhaped, ſituated like the ſtamens but longer; ſtigma obtuſe, inflexed. *Peric.* Capſule roundiſh, pointed, oblique, of two cells, burſting at the top; the partitions narrow, from the centre of each valve. *Seeds* ſeveral, ovate, angular, pointed, compreſſed, with a minute membranous appendage. *Receptacle* roundiſh, at the bottom of the capſule.

Eſſ. Ch. Calyx ſwelling, unequally five-cleft. Upper lip of the corolla notched, compreſſed. Capſule of two cells, pointed, oblique Seeds few, angular, pointed.

Very few ſpecies of *Pedicularis* were known to the old botaniſts. Linnæus diſcovered ſeveral in Lapland, as Haller has done in Switzerland, and Jacquin in Auſtria; but the moſt numerous acquiſitions of this kind have been made in Siberia, by Gmelin, Pallas and others. The ſecond edition of Sp. Pl. contains but 14 ſpecies; the 14th of Syſt. Veg. 17; Willdenow has 34, having received ſome new Siberian ones from his friend Stephan. Five of the whole have branched ſtems, the reſt are unbranched, though leafy and many-flowered. All are herbaceous, and perhaps perennial, though authors have marked ſome as annual. This is certainly erroneous with regard to *incarnata* of Jacquin, and our *ſylvatica*, whether the *paluſtris* be annual, as Ray ſays, or not. They are with difficulty preſerved in a garden, being moſtly inhabitants of boggy alpine places, protected by a thick coat of ſnow throughout a long winter, and very ſuſceptible of any recurrence of cold after they begin to vegetate in the ſpring. The *foliage* of the whole genus is ſimply or doubly pinnatifid, with minute, cartilaginous teeth, and remarkable for an elegantly criſped aſpect, with rich ſhining green or purpliſh hues. The inodorous *flowers* form leafy ſpikes, and are either crimſon or yellowiſh, but in every caſe richly variegated with contraſted tints.

The ſpecies are well made out in Willdenow, nor do we find it requiſite to give detailed deſcriptions or ſynonyms of them all. A few examples will ſuffice, with the addition of two ſpecies which appear to be new. Only two are natives of Britain, with which our liſt commences.

P. *paluſtris.* Marſh Louſe-wort, or Tall Red-rattle. Linn. Sp. Pl. 845. Engl. Bot. t. 399. (Pedicularis; Riv. Monop. Irr. t. 92.)—Stem ſolitary, branched. Calyx ovate, hairy, ribbed, in two principal notched diviſions. Lower lip of the corolla largeſt.—Native of boggy meadows, chiefly in the north of Europe; by no means unfrequent in England, flowering in June and July. The *root* is ſmall and tapering, whether annual or perennial remains a doubt. *Stem* ſolitary, twelve to fifteen inches high, angular, with many oppoſite, lateral, leafy branches; the angles more or leſs hairy. *Leaves* ſcattered, ſtalked, doubly pinnatifid. ſmooth; the ſegments obtuſe, notched, very various in breadth. *Flowers* numerous, large, roſe-coloured, axillary, about the ſummits of the ſtem and branches. *Calyx* ovate, compreſſed, hairy, pale green or purpliſh, with a darker-green leafy border in two principal lateral diviſions, which are ſtrongly crenate and variouſly lobed, but the whole, taken together, can ſcarcely be called five-cleft. The lower lip of the *corolla* is longer and much broader than the upper, in three rounded, dilated, flat ſegments, minutely fringed. *Seeds* about five or ſix in each cell. This is an acrid uſeleſs weed, untouched by horſes or cows.

P. *ſylvatica.* Paſture Louſe-wort, or Heath Red-rattle. Linn. Sp. Pl. 845. Engl. Bot. t. 400. Fl. Dan. t. 225. (Pedicularis; Ger. em. 1071. P. minor; Riv. Monop. Irr. t. 92.)—Stem branched at the baſe, ſpreading. Calyx oblong, angular, ſmooth, unequally five-lobed, cut. Radical leaves ovate.—Common with us in moiſt heathy paſtures, among graſs and moſs, flowering in June and July. In Switzerland this ſpecies is very rare, nor does it ſeem to be well known on the continent, ſince Willdenow could expreſs a doubt whether it were diſtinct from the former, and quote the excellent figure in the *Flora Danica* with heſitation. The *root* is ſtrong and thick, certainly perennial, crowned with a numerous row of ſeſſile, pale, ovate, undivided *leaves*, notched and criſped at their edges, but totally different from the doubly pinnatifid ſuperior *leaves*. Theſe radical *leaves* ſeem characteriſtic of the ſpecies. The *ſtem* is divided to the very baſe into ſeveral ſhort, ſpreading, or decumbent, ſimple, leafy branches. *Flowers* roſe-coloured, very elegant; their *calyx* tubular, moſtly ſmooth, five-lobed; their lower *lip* in nearly equal ſegments.—The marquis of Stafford met with a few regular *flowers*, which had five or ſix *ſtamens*, on ſome wild plants near his caſtle of Dunrobin, North Britain, in 1808.

P. *euphraſioides.* Willd. n. 3. (P. n. 15; Gmel. Sib. v. 3. 203. t. 43.)—Stem much branched. Calyx oblong, ſmooth, in two abrupt even ſegments. Upper lip of the corolla toothed.—Native of Siberia.—We have it alſo from Labradore, communicated by the late R. Moleſworth, eſq.—The *ſtem* is a ſpan high, purpliſh, poliſhed, with numerous branches from top to bottom. *Leaves* pinnatifid, toothed. *Calyx* with an entire, even border, not cut, criſped, or leafy. *Corolla* yellow, with a purpliſh upper lip, whoſe edge is ſharply toothed.

P. *parviflora.*—Stem branched, angular. Calyx ovate, its border leafy, unequally lobed and notched. Upper lip of the corolla without teeth, larger than the lower.—Gathered by Mr. Menzies, on the weſt coaſt of North America. The habit is moſt like that of *P. paluſtris*, but every part is much ſmaller, nor does it anſwer to the deſcription in Willdenow of a ſuppoſed variety of that ſpecies from Kamtſchatka, for the upper *leaves* in ours are all doubly and deeply pinnatifid. The *calyx* is ovate, ribbed, ſmooth, with an elegant, broad, leafy, lobed and notched border. We find no teeth whatever on the upper lip of the *corolla*, which is longer than the lower; the latter is in three ſmall, rounded, nearly equal lobes. The *flowers* ſeem to have been red, but the whole herb turns very black in drying. Its height is nearly equal to *P. paluſtris*.

All the following have ſimple ſtems.

P. *Sceptrum Carolinum.* Linn. Sp. Pl. 845. Willd. n. 7. Fl. Dan. t. 26. Ehrh. Phytoph. 55. (P. alpina, folio ceterach; Helw. Fl. 39. t. 39. Sceptrum Carolinum; Rudb. Lapp. t. 1. Linn. Lapp. ed. 2. 206. t. 4. f. 4, 5)—Leaves pinnatifid; their ſegments broad, lobed, finely notched. Lower flowers whorled. Bracteas ovate, undivided. Calyx creſted. Corolla cloſed.—Found in boggy woods in Hungary, Pruſſia, Mecklenburg, &c. but eſpecially in Lapland, of which laſt country it is the moſt celebrated botanical treaſure, being the largeſt and moſt ſtately of this whole genus. We do not find that it has yet been cultivated with ſucceſs in any garden. The *ſtem* is a yard high, erect, ſtraight, naked, except a whorl of *leaves* near the bottom. Radical *leaves* moſt numerous and largeſt, ſtalked, a ſpan long, deeply pinnatifid, ſmooth, finely reticulated, the ſegments more or leſs pinnatifid, rounded, broad, with minute cartilaginous teeth. *Flowers* ſeveral, in a long, upright ſpike, the lower ones whorled, the reſt chiefly alternate. *Bracteas* large, ovate, concave, crenate, tinged, like the leaves and ſtem, with purple. *Corolla* an inch and a half long, cream-coloured or pale yellow; the lips cloſed, elegantly tipped with crimſon, the ſegments of the lower one equal, concave; the upper without teeth.—Rudbeck's wooden cut is truly magnificent.

P. *auriculata.*—Leaves pinnatifid; their ſegments oblong, notched. Lower flowers oppoſite. Bracteas leafy, pinnatifid. Calyx deeply cloven, with two rounded, leafy, crenate lobes. Corolla ſlightly gaping.—Sent by the Rev. Dr. Muhlenberg, from the neighbourhood of Lancaſter in Pennſylvania.

ſylvania. We find no deſcription anſwerable to this ſpecies. The *ſtem* is ſimple, little more than a foot high, leafy. *Leaves* all nearly oppoſite, two inches in length, oblong, moſtly ſmooth and naked, cut, but not deeply, into numerous, parallel, obtuſe ſegments, with a cartilaginous notched edge. *Bracteas* ſimilar to the leaves, but gradually ſmaller. *Calyx* ovate, very ſmooth, two-lobed, each lobe crowned with a rounded, leafy, notched appendage. *Corolla* an inch long, nearly cloſed, pale or yellowiſh, with a tinge of red. The habit of the *leaves*, and the general appearance of the *flowers*, bring this plant near the *Sceptrum Carolinum*, from which nevertheleſs it is abundantly diſtinct, as well as from *P. triſtis*, whoſe *corolla* is full as large, but downy at the edges, and whoſe *leaves* are more finely and deeply divided.

P. *recutita*. Linn. Sp. Pl. ed. 1. 608. ed. 2. 846. Willd. n. 14? Jacq. Auſtr. t. 258? (P. caule ſimplici, foliis pinnatis, floribus ſpicatis, ſtaminibus eminentibus: Hall. Helvet. v. 1. 138. n. 316. t. 8. f. 2.)—Leaves deeply pinnatifid; their ſegments lanceolate, pinnatifid, acutely notched. Spike compact, leafy. Upper lip of the corolla crenate, obtuſe. Stamens prominent.—Native of lofty mountains in Switzerland. We have Haller's plant, on which this ſpecies in Linnæus entirely depends, That of Jacquin, ſent by himſelf, which Willdenow appears to have had in view, ſeems ſomewhat different, the *corolla* being ſmaller, its upper lip ſingularly oblong, rectilinear, and obtuſe; nor do the *ſtamens* ſeem to project. This laſt character, however, to which the ſpecific name, ſuch as it is, alludes, is not very obvious at all times. We muſt leave the final determination of theſe two plants to thoſe who can compare them freſh. Willdenow has very properly eſtabliſhed, by the name of *P. elata*, n. 15, a tall Siberian ſpecies, with a long pale-purple *corolla*, which Linnæus confounded with *recutita*.

P. *folioſa*. Linn. Mant. 86. Willd. n. 16. Jacq. Auſtr. t. 139. (P. alpina, flore luteo, radice nigra; Bauh. Hiſt. v. 3. 439.)—Leaves doubly pinnatifid, in linear ſegments; the floral ones much longer than the flowers. Calyx five-cleft; its upper ſegment much larger than the reſt. Upper lip of the corolla rounded, woolly, very obtuſe.—This very fine ſpecies is not rare on the alps of Switzerland, Dauphiny, Savoy, Hungary, and Auſtria. The *root* is tapering, deſcribed by Jacquin as perennial, of a pale yellow. Willdenow marks it biennial, but erroneouſly. John Bauhin calls it black, but otherwiſe his ſynonym is the only certain and correct one to be found among the old writers. The plant is readily known by the ample finely divided foliage, which accompanies and envelopes its denſe *ſpike* of pale yellow, numerous, woolly *flowers*, whoſe prominent palate is of a deeper hue than the reſt.—Seeds of this *Pedicularis*, ſent by the late Mr. Davall, are ſaid to have vegetated at Kew; but we know not that the plants ſurvived to bloſſom, nor have we met with this or any other, in perfection, in any garden.

P. *acaulis*. Scop. Carn. v. 1. 439. t. 31. Wulf. in Jacq. Coll. v. 1. 207. t. 14. Willd. n. 23.—Stem none. Leaves doubly pinnatifid. Flower-ſtalks radical, ſingle-flowered.—Native of the leſs elevated mountains of Carniola and Carinthia, where it bloſſoms early in May, before the ſnow has diſappeared from the more alpine tracts. The *root* is perennial. *Leaves* ſeveral, three or four inches long, with hairy ſtalks. The *flowers* are large, of a pale bluſh-colour, ſpringing immediately from the crown of the root, each on a ſimple hairy ſtalk, about as long as the *calyx*, which is hairy with a five-cleft leafy border, and ſcarcely half ſo long as the *corolla*.

P. *flammea*. Linn. Sp. Pl. 846. Fl. Lapp. ed. 2. 210. t. 4. f. 2. Tour in Lapland, v. 1. 296. Willd. n. 24, excluding the ſynonym of Fl. Dan. which rather belongs to *P. hirſuta*.—Leaves pinnate; leaflets imbricated, ovate, obtuſe, doubly crenate. Calyx oblong, five-toothed. Upper lip of the corolla obtuſe.—Native of the alps of Lapland, Norway, and Dauria; more ſparingly of Switzerland. The *root* is perennial, with many oblong knobs. *Stem* three or four inches high, cylindrical, rather ſtout. *Leaves* ſcattered, ſtalked, of numerous, crowded, ſmall, dark-ſhining-green leaflets. *Spike* ſomewhat leafy. *Calyx* oblong, angular, ſmooth, its teeth ſcarcely leafy. *Corolla* ſlender, deep yellow, its upper lip obtuſe and browniſh or purpliſh.—This is Haller's n. 315, a rare Swiſs ſpecies, under which it is remarkable that, both in his *Hiſtoria* and *Nomenclator*, he copies from the Sp. Pl. of Linnæus an erroneous citation of Fl. Lapp. t. 11, inſtead of t. 4; a ſign of his not having turned to the plate he quoted. Willdenow has here been more attentive.—Linnæus judged this ſpecies to be *P. alpina, folio ceterach*, Bauh. Pin. 163, a plant taken up from Geſner, who but imperfectly deſcribes it. Helwing took the plant of Geſner to be *P. Sceptrum Carolinum*, which indeed anſwers much better to the idea of the leaves of Ceterach than the *flammea*.

P. *roſea*. Jacq. Miſc. v. 2. 57. Ic. Rar. t. 115. Willd. n. 26. (P. hirſuta; Allion. Pedem. v. 1. 63. t. 3. f. 1.)—Stem nearly naked. Leaves deeply pinnatifid; ſegments linear, ſharply pinnatifid. Flowers crowded. Calyx hairy. Upper lip of the corolla obtuſe.—Native of the alps of Carinthia and the north of Italy. The *root* is compoſed of long fleſhy cylindrical branches, running deep into the ground. *Stem* three or four inches high, ſimple, round, purpliſh, hairy, almoſt leafleſs, except at the top. *Leaves* moſtly radical, ſtalked, finely divided, and acutely toothed. *Flowers* numerous, of an elegant roſe-colour, crowded into a ſhort denſe ſpike or head accompanied by two or three leaves, which are rather ſmaller, and more ſeſſile, than the reſt. *Calyx* very hairy, in five unequal ſegments. Upper lip of the *corolla* oblong, rounded and obtuſe; lower in three broad rounded ſegments, the middle one rather ſmalleſt.—Allioni miſtook this for the Linnæan *hirſuta*, which is very different, having a leafy *ſtem*, much broader and ovate ſegments to the *leaves*, and yellow *flowers*. We believe the latter to be Fl. Dan. t. 30.—It muſt alſo be obſerved that Willdenow cites under *roſea*, Allioni's Specimen, t. 11. f. 1; whereas it is t. 12. f. 1, the other being *comoſa*.

P. *roſtrata*. Linn. Sp. Pl. 845. Willd. n. 27. Jacq. Auſtr. t. 205. (P. n. 322; Hall. Helvet. v. 1. 140. t. 8. f. 1, not f. 3, as he himſelf quotes it!)—Stem aſcending, ſlightly leafy. Leaves doubly and deeply pinnatifid and toothed. Flowers ſcattered, ſtalked. Segments of the calyx pinnatifid. Upper lip of the corolla beaked.—Native of Switzerland, Auſtria, Carniola, Italy, and Dauphiny, on the moſt lofty mountains. The ſegments of the *leaves* are ſhorter and broader than in the laſt. *Stems* ſeveral, leſs erect. *Flowers* fewer, more diſtant, on longiſh partial ſtalks. *Calyx* much leſs hairy, with leafy pinnatifid ſegments. *Corolla* diſtinguiſhed by the long inflexed beaked upper lip, which is of a deep crimſon, the under being roſe-coloured, with very broad lateral ſegments.—Linnæus unaccountably places this ſpecies among ſuch as have branched ſtems.

P. *tuberoſa*. Linn. Sp. Pl. 847. Willd. n. 28. (P. n. 323; Hall. Helvet. v. 1. 140. t. 10.)—Stem aſcending, ſlightly leafy. Leaves doubly and deeply pinnatifid and toothed. Flowers crowded, nearly ſeſſile. Segments of the

the calyx pinnatifid. Upper lip of the corolla beaked.—Native of the alps of Switzerland, Italy, and the ſouth of France. Differs from the laſt in being larger, with more ſubdivided *leaves*, and yellow *flowers*, which are nearly ſeſſile, being crowded into a denſe leafy ſpike. The *ſtem* is not more erect, nor more leafy, in one than the other. The *floral leaves* of both are palmate and bipinnate, and the *corolla* diſtinguiſhed by its long beak, which has ſometimes a notch at the end in the *tuberoſa*, as well as, if we miſtake not, in the *roſtrata*.

P. *gyroflexa*. Villars Dauph. v. 2. 426. t. 9. Willd. n. 29. (P. n. 324; Hall. Helvet. v. 1. 140. t. 11. f. 2.)—Stem aſcending, ſlightly leafy. Leaves doubly and very deeply pinnatifid, notched, hairy, ſomewhat revolute. Upper flowers crowded; lower ſtalked. Segments of the calyx pinnatifid. Upper lip of the corolla arched, with a ſhort notched beak.—Native of the alps of Switzerland, Italy, and Dauphiny. Moſt like the laſt in habit, but the ſegments of the *leaves* being ſlightly revolute, give them a more obtuſe and criſped aſpect. The *corolla* is roſe-coloured, with a much ſhorter and blunter beak than either of the two laſt. Theſe ſpecies are all nearly akin, and ſo ſimilar in a dried ſtate, that it is no wonder botaniſts in general have not well underſtood them. *P. faſciculata* of Bellardi, Willd. 30, is confeſſedly very like them all; but as no authentic ſpecimen has fallen in our way, we can throw no light upon its hiſtory. The *corolla* is ſaid to be in colour like the laſt; its upper lip not beaked, though approaching to that ſhape, terminating in three teeth, of which the intermediate one is very ſhort.—Theſe are followed in Willdenow by three Siberian ſpecies, called *rubens*, *compacta*, and *achilleifolia*, of which we have ſeen neither ſpecimen nor figure. The genus concludes with

P. *comoſa*. Linn. Sp. Pl. 847. Willd. n. 34. Allion. Ped. v. 1. 64. t. 4. f. 1. Spec. t. 11. f. 1.—Stem and ſpike leafy. Leaves doubly and deeply pinnatifid, rough, with briſtly teeth. Calyx with five ſmall downy teeth. Upper lip of the corolla cloven, with two ſmall acute points.—Native of mountains in the ſouth of France and north of Italy, but not abundantly; more frequent in the meadows of Ruſſia and Siberia. This is a fine ſpecies, approaching to *P. folioſa* in ſize, habit, and colour, as well as abundance, of *flowers*; but the floral leaves are ſmaller and leſs prominent, and the *corolla* is ſmooth, with a round ſinus at the extremity of its upper lip, accompanied by a pair of taper teeth. The diviſion of the *foliage* is very ſimilar in theſe two ſpecies, as alſo the ſhort downy teeth of the *calyx*, and they ought to be placed next to each other in a natural diſpoſition of the genus. We have a ſpecimen from Allioni himſelf, as well as others from Siberia.

Beſides the two new ſpecies which we have added above to Willdenow's liſt, there are two in Michaux, Boreal-Amer. v. 2. 18, not referrible to any that he enumerates, nor do we know any thing more of them than the following very inſufficient characters.

P. *lanceolata*.—Unbranched. Leaves lanceolate, deeply toothed. Spike leafleſs. Calyx ſmooth. Capſules ſhort.—Native of Canada, in the country of the Illinois.

P. *gladiata*.—Unbranched. Spike leafy. Flowers alternate. Capſule protracted into a ſword-ſhaped point, exceeding its own length. Flowers yellowiſh.—Native of Penſylvania.

Our *P. auriculata* is certainly not referrible to either of theſe.

Pedicularis *Morbus*, from *pediculus*, *louſe*, in *Medicine*, a morbid condition of the habit, and eſpecially of the ſkin, in which lice are generated in multitudes, and with difficulty deſtroyed. This diſeaſe has been ſaid even to be fatal. See Phthiriasis.

PEDICULUS, *the Louſe*, in *Entomology*, a genus of inſects of the order Aptera. The generic character is, mouth with a retractile recurved ſucker without proboſcis; without feelers; the antennæ are as long as the thorax; it has two eyes; the abdomen is depreſſed; it has ſix legs formed for running. The inſects of this genus live by extracting animal juices; the larvæ and pupæ are ſix-footed and nimble, reſembling the perfect inſect. Of theſe ſtrange and unpleaſing animals, ſome infeſt the bodies of quadrupeds, others of birds, and ſome even of inſects themſelves. It muſt, however, be obſerved, that many ſmall inſects, infeſting other animals, have often been referred to the genus Pediculus, which, in reality, belong to thoſe of Acarus, Monoculus, &c. There are ſixty-ſix ſpecies of the genus enumerated by Gmelin.

Species.

* Humanus. The ſpecific character is; abdomen lobed, cinereous. The *pediculus humanus*, or common louſe, is diſtinguiſhed by its pale livid colour; it is produced from a ſmall oval egg, popularly called by the name of a nit, which is agglutinated by its ſmaller end to the hair on which it is depoſited: from this egg proceeds the inſect, complete in all its parts, only much ſmaller in ſize. Theſe ſpecimens are far preferable for microſcopic obſervation to the full grown inſects, ſhewing, in a more diſtinct manner, the diſpoſition of the viſcera, muſcles, &c. In this ſtate it has ſuch a tranſparent ſkin, that we are able to diſcover more of what paſſes within its body than in moſt living creatures. See Louse.

Pubis; Crab-Louſe. Abdomen emarginate behind; legs cheliform, hence its trivial name. In the antennæ are five articulations. It is found about the hairs of the groin, and ſometimes, though very rarely, on the eye-brows of perſons who are not attentive to habits of cleanlineſs.

Ricinoides. The abdomen is orbicular, marked with a white line; the ſcutellum is compoſed of three lobes; the ſnout is white. It is a native of America. It gets into the legs of the naked inhabitants, where it draws blood, and depoſiting its eggs in the wound occaſions very alarming ulcers.

Suis. Found on the body of ſwine.

Porcelli. Found on the body of the Cavia cobaya, or Guinea pig.

Cameli. Head projecting and pointed; body ferruginous; abdomen ovate. It is found on the camel.

* Ovis. This infeſts the body of the ſheep.

Bubali. Yellowiſh, with duſky-brown ſtreaks; the abdomen has ten conic marginal tubercles. It is found on the buffalo.

* Bovis. Abdomen with eight tranſverſe ferruginous lines. It inhabits the bodies of oxen, and cattle in general.

* Vituli. The abdomen is of a lead colour, and pointed at the end. Found on the bodies of heifers and cattle.

* Equi. Found on the body of the horſe.

* Asini. Head projecting, obtuſe; abdomen ovate, brown; legs cheliform. Found on the body of the aſs.

Vulturis. Oblong; abdomen brown, with two yellowiſh lines. It is found in the Eaſt Indies on the vulture, and is a large inſect. It is farther characterized as having a flat head, yellowiſh, with black margins; the thorax is yellowiſh, with a black margin and dorſal line.

* Tinnunculi. Head arrow-ſhaped, and mucronate on each ſide behind. Found on the Falco tinnunculus, or keſtril.

* Buteonis. Abdomen margined; the ſegments with two impreſſed dots on each ſide. It infeſts the Falco buteo, or buzzard.

Strigis. Abdomen ovate, white, edged with red; legs red. Found infeſting various ſpecies of the ſtrix and falco.

* Corvi. Abdomen ovate, with a ſtriate margin. Found on various ſpecies of the crow.

Cornicis. Abdomen ovate, pale, with lateral black ſpots, in which is a white pupil. Found on the common crow.

Infausti. Thorax narrow; abdomen ovate, pale, diaphanous. It infeſts the Corvus infauſti.

* Picæ. Head obtuſe, brown, with four black dots. This is found on the Corvus pica, or magpie.

Orioli. White, with a brown line on the abdomen. Found on the roller and oriole.

* Cuculi. Abdomen oblong, whitiſh, with brown bands. It infeſts the Cuculus canorus, or cuckoo.

Cygni. Head emarginate; abdomen ovate; the margin ſtriate with black. It is found on the ſwan.

* Anseris. Filiform, pale; the margin dotted with black. It is found on the wild and tame gooſe.

Moschatæ. This is found on the Anas moſchata, or Muſcovy duck.

Querquedulæ. This infeſts the Anas querquedula, or garganey.

Mergi. White, with a yellowiſh head; body long. Found on the Mergus ſerrator.

Procellariæ. Long, filiform, brown; with pale legs. It inhabits Braſil, on the procellaria, or petrel.

Vagelli. Ovate, pale; thorax with two brown lines. Found on the Procellaria glacialis.

Diomedæ. Head obtuſe; body white; ſides of the abdomen black. It inhabits Braſil; on the diomedea, or albatroſs.

* Sternæ. Head triangular; abdomen ovate, pale; the back longitudinally blackiſh. Found on various ſpecies of the tern and gull.

Plataleæ. This ſpecies is found on the Platalea leucorodia, or ſpoon-bill.

Ardeæ. This is found on ſeveral ſpecies of the ardea, or crane.

Gruis. Abdomen ſub-clavate, pale, with ſnowy ſpiracles. It is found on ſtorks and herons.

Ciconiæ. Long, filiform; abdomen white; the ſides dotted with black. It infeſts ſtorks.

* Charadrii. This ſpecies is found on the Charadrius pluvialis, or golden plover.

Fulicæ. This infeſts the Fulica atra, or common coot.

* Recurvirostræ. This ſpecies is oblong, with a triangular grooved head. It is found on the recurviroſtra, or avocet.

* Hæmatopi. Glaucous; thorax very narrow; abdomen ovate; with pale inciſures. Found on the Hæmatopus oſtralegus, or ſea-pie.

* Pavonis. Head globular, and very large; body ſtriate, with pale and brown. Found on the peacock.

* Meleagris. Head triangular, obtuſe; abdomen ovate, grey. This infeſts the turkey.

* Gallinæ. Thorax and head mucronate on each ſide. This ſpecies infeſts poultry, and is deſtroyed by pepper.

Phasiani. Head ovate and large; abdomen globular, obtuſe. It is found on the pheaſant.

* Caponis. Abdomen edged with black. Found on common poultry.

Tetraonis. This ſpecies is found on the Tetrao tetrix, or black game.

Lagopi. On the Tetrao lagopus, or ptarmigan.

* Columbæ. Body filiform, ferruginous, and clavate behind. Found on common pigeons.

* Emberizæ. Pale brown; abdomen whitiſh, with lateral brown ſpots; head triangular. Found on the bunting.

* Pari. Body ovate; tail ending in four briſtles. Found on various ſpecies of the parus, or titmouſe.

Motacillæ. Head heart-ſhaped, rufous; abdomen white and tapering at the baſe. It is found on the wagtail.

* Hirundinis. Paliſh; abdomen black, ſpotted with white. Found infeſting the Hirundo apus, or ſwift. The abdomen is briſtly on both ſides.

Gryllotalpæ. Blood-red, with white legs. Found on the mole cricket. The ſucker is long, inflected, black; body red, immaculate.

* Apis. Body filiform, ferruginous. Inhabits Europe, on bees.

Farionis. This is found on the Salmo fario, or trout.

Anatis. Whitiſh; firſt ſegment of the thorax round, truncate on each ſide; the abdomen linear and long. On the wild duck.

Ortygometræ. Oblong; with a heart-ſhaped head; thorax narrow; ſegments of the abdomen briſtly, with large ſpotted ſpiracles on each ſide. This infeſts the land-rail.

Alaudæ. On the Alauda arvenſis, or ſky-lark.

Sturni. On the Sturnus vulgaris, or ſtarling.

Curvirostræ. This is found on the Loxia curviroſtra, or groſbeak.

Pyrrhulæ. This infeſts the Loxia pyrrhula or bullfinch.

Cloridis. This is found on the Loxia chloris, or greenfinch.

Citrinellæ. This infeſts the Emberiza citrinella, or yellow-hammer.

Currucæ. This is found on the Motacilla curruca, or babbling warbler.

Rubeculæ. On the Motacilla rubecula, or red-breaſt.

PEDIEUS, in *Anatomy*, a name given by Riolan to the extenſor brevis digitorum pedis communis. Some of the French anatomiſts ſtill call it le pédieux.

PEDIGREE, a deſcent, or genealogy.

PEDILUVIUM. See *Bathing of the Feet*, art. Foot.

PEDIMENT, in *Architecture*, a kind of low pinnacle; ſerving to crown porticos, or finiſh a frontiſpiece; and placed as an ornament over gates, doors, windows, niches, altars, &c.

The pinnacles of the ancient houſes, Vitruvius obſerves, gave architects the firſt idea of this noble part; which ſtill retains the appearance of its original.

The parts of the pediment are, the tympanum and its cornice. The firſt is the pannel naked, or area of the pediment, incloſed between the cornice, which crowns it, and the entablature, which ſerves it as a baſe, or ſocle.

Architects have taken a great deal of liberty in the form of this member; nor do they vary leſs as to the proportion of the pediment. The moſt beautiful, according to Daviler, is that where its height is about one-fifth of the length of its baſe.

It is deſcribed thus: divide the line *a b* (*Plate* XXIII. *Miſcellany*, *fig.* 12.) which is the length of the baſe, into two equal parts, in the point *c*, by means of the perpendicular *f d*; in this perpendicular take the part *c d* equal to *a c*; and from the point *d*, as a centre, deſcribe the arch *a e b*. The point of the perpendicular, cut in *e*, will be the top of the pediment *a e b*; and the cornice, and the triangular ſpace included therein, the tympanum.

The pediment is uſually triangular, and ſometimes an equilateral triangle: this is alſo called a *pointed* pediment. Sometimes it is circular; though Felibien obſerves, that we have no inſtances of round pediments in the antique, beſide thoſe in the chapels of the Rotundo. Sometimes its upper cornice is divided into three or four ſides, or right lines; ſometimes the cornice is cut, or open a-top, which is an abuſe introduced by the moderns, particularly by Michael Angelo. For the deſign of this part, at leaſt over doors, windows, &c. being chiefly to ſhelter thoſe underneath from the rain, to leave it open in the middle is to fruſtrate its end.

Sometimes the pediment is formed of a couple of ſcrolls, or wreaths, like two conſoles joined together. See CONSOLE.

Sometimes, again, the pediment is without baſe, or its lower cornice is cut out, all but what is beſtowed on two columns, or pilaſters, and on theſe an arch or ſweep, raiſed in lieu of an entablature; of which Serlio gives an inſtance in the antique, in a Corinthian gate at Foligny in Umbria; and Daviler a more modern one, in the church of St. Peter at Rome.

Under this kind of pediments do alſo come thoſe little arched cornices which form pediments over doors and windows, ſupported by two conſoles, in lieu either of entablature or columns.

Sometimes the pediment is made double, *i. e.* a leſs pediment is made in the tympanum of the larger, on account of ſome projecture in the middle; as in the frontiſpiece of the church of the Great Jeſus at Rome: but this repetition is an abuſe in architecture, though authoriſed by ſome very good buildings; as the large pavilion of the Louvre, where the caryatides ſupport three pediments, one in another.

Sometimes the tympanum of the pediment is cut out, or left open, to let in light; as we ſee under the portico of the Capitol at Rome. Laſtly, this open pediment is ſometimes triangular, and enriched with ſculpture, as roſes, leaves, &c. as we find in moſt of the Gothic churches.

M. le Clerc obſerves, that the modillions in the cornice of the pediment ſhould always anſwer exactly over thoſe of the entablature. Indeed Vitruvius ſays, the ancients did not allow any modillions at all in pediments.

The ſame M. le Clerc obſerves, that the cornice which ſerves the pediment as a baſe, ſhould have no cymatium; by reaſon the cymatium of the reſt of the entablature, when it meets the pediment, paſſes over it.

This change of determination occaſions a conſiderable difficulty; the cymatium, in this caſe, appearing too broad in the turn of the angle; to remedy which, the architects have recourſe to ſeveral expedients.

A pointed pediment may crown three arches; but a circular pediment can only crown one agreeably.

One would never uſe above two pediments over each other in the ſame frontiſpiece; and even where there are two, it would be proper to have the lower circular, and the upper pointed.

PEDINABARUM, in *Geography*, a town of Hindooſtan; 60 miles S.E. of Travancore.

PEDINAIG-DURGAM, a town of Hindooſtan, in Myſore; 10 miles S.E of Vencatighery.

PEDIR, a town on the N. coaſt of the iſland of Sumatra; 20 miles E. of Acheen. N. lat. 5° 13′. E. long. 96° 5′.

PEDIS ABSCISSIO, *Cutting off a foot*, a puniſhment anciently inflicted among us; as appears by the laws of William the Conqueror. "Interdicimus ne quis occidatur, vel ſuſpendatur, pro aliqua culpa, ſed eruantur oculi, abſcindantur pedes, vel teſticuli, vel manus, &c." Leg. Will. cap. 1. So Ingulphus, "ſub pæna perditionis dexteri ſui pedis, &c."

PEDIS *minimi digiti abductor*, in *Anatomy*. See ABDUCTOR.

PEDIS, *abductor pollicis*. See ABDUCTOR.

PEDIS, *dorſum*. See DORSUM.

PEDIS, *flexor pollicis*. See FLEXOR.

PEDIS *interroſſei*, *perforans*, *perforatus*, and *tranſverſalis*. See the reſpective articles.

Tranſcriptio PEDIS *finis*. See TRANSCRIPTIO.

PEDITUM ARRAIATIO. See ARRAIATIO.

PEDLAR. See HAWKER.

PEDMAN, in *Geography*, a town of Hindooſtan, in the circar of Guntoor; 10 miles S.S.W. of Guntoor.

PEDN-BOAR POINT, a cape on the S. coaſt of England, and county of Cornwall; ſix miles S.E. of Lizard Point. N. lat. 50° 6′. W. long. 5° 8′.

PEDO, in *Natural Hiſtory*, a name given by ſome writers to the tipula, or father-long-legs; called alſo by others gruina, or the crane-fly.

PEDOMETER, or PODOMETER, formed from πȣς, *pes*, *foot*, and μέτρον, *meaſure*, way-wiſer; a mechanical inſtrument, in the form of a watch, conſiſting of various wheels, with teeth catching in one another, all diſpoſed in the ſame plane; which by means of a chain or ſtring, faſtened to a man's foot, or to the wheel of a chariot, advance a notch each ſtep, or each revolution of the wheel; ſo that the number being marked on the edge of each wheel, one may number the paces, or meaſure exactly the diſtance from one place to another.

An inſtrument of this kind has been lately invented and improved by Mr. Ralph Gout of Bunhill Row.

The pedometers of Mr. Ralph Gout have an advantage hitherto unknown, *viz.* the hour being attached to them, if required, which makes this inſtrument doubly uſeful. Thus, on the ſame dial is exhibited, at one view, time and diſtance by means of different hands.

Their internal conſtruction is ſo very ſimple, as not to endanger their being put out of order, and if required to be cleaned, a perſon of the ſmalleſt capacity may do it, the wheels being all marked for that purpoſe.

The patentee has been induced to make various trials with his pedometers in public, one in the right, and one in the left ſide pocket, in order to eſtabliſh more effectually their high ſtate of perfection, not only in point of accuracy of the machinery, but to ſhew the nicety of man's walking.

The ſame pedometer will, by a proper application to the ſaddle, aſcertain every pace a horſe takes, either in walk, trot, or gallop, and may be made to ſtop performance in a ſecond, ſhould the horſe, in the courſe of meaſuring, go from one pace to another. In ſhort, we do not feel the leaſt difficulty in recommending this invention, as the beſt of the kind ever offered to the public.

PEDOMETER is ſometimes alſo uſed for the common ſurveying wheel, an inſtrument chiefly uſed in meaſuring roads; popularly called the *way-wiſer*. See PERAMBULATOR.

PEDRA, in *Geography*, a river of Africa, in the kingdom

dom of Adel, which runs into the Arabian ſea, N. lat. 11° 25′.

Pedra *Branca*, a large white rock in the Chineſe ſea. N. lat. 22° 19′. E. long. 114° 57′.

Pedra *da Gala*, a ſmall iſland in the Atlantic, near the coaſt of Africa. N. lat. 21° 48′.

Pedra *da Sureira*, a rock or ſmall iſland in the Atlantic, near the coaſt of Portugal, at the mouth of the Gopalha; four miles S. of the bay of Oporto. N. lat. 41° 6′. W. long. 8° 23′.

PEDRAÇA, a town of South America, in the government of Caraccas; 25 miles S.S.W. of Varinas.

PEDRAGAO, a town of Portugal, in the province of Eſtremadura; 30 miles S.E. of Coimbra.

PEDRAPALORE, a town of Hindooſtan, in the Carnatic; 20 miles S. of Wandiwaſh.

PEDRAS, a river on the N.W. ſide of Punta des Padras, at the ſouthern extremity of Amazon river.

PEDRAZA, a town of Spain, in Old Caſtile; the birth-place of the emperor Trajan; 21 miles N.E. of Segovia.

PEDRERO, Peterero, or *Paterero*, a ſmall piece of ordnance, uſed on board ſhips, for the diſcharging of nails, broken iron, or partridge ſhot, on an enemy attempting to board.

They are generally open at the breech, and their chamber made to take out, to be loaded that way, inſtead of at the muzzle.

PEDRO, in *Geography*, a town on the N.W. coaſt of the iſland of Ternate. N. lat. 0° 50′. E. long. 127° 10′. —Alſo, a ſmall iſland in the Indian ſea, near the W. coaſt of Madagaſcar. S. lat. 14° 50′. E. long. 47° 48′.

Pedro *Bay, Great*, a bay on the S. coaſt of Jamaica. N. lat. 17° 53′. W. long. 77° 41′. Eaſt of it lies Little Pedro point.

Pedro *Bluff*, a cape on the S. coaſt of Jamaica. N. lat. 17° 52′. W. long. 77° 39′.

Pedro *Munoz*, a town of Spain, in New Caſtile; 48 miles S.E. of Toledo.

Pedro *Point*, a cape on the N. coaſt of Jamaica. N. lat. 18° 28′. W. long. 78° 12′.

Pedro, *St.*, a river of Africa, on the Ivory coaſt, which runs into the Atlantic, N. lat. 4° 50′. W. long. 6° 50′. —Alſo, a town of South America, in the province of Carthagena; 50 miles S. of Mompox.—Alſo, a town of S. America, in the province of Venezuela, on the S. coaſt of lake Maracaybo; 100 miles S. of Maracaybo.—Alſo, a town of Braſil, in the government of Para, on the river Amazons; 440 miles W. of Port Rio Negro.—Alſo, a town of S. America, in the province of Moxes, on the Mamora; 50 miles S. of Trinidad.—Alſo, a town of South America, in the audience of Quito; 20 miles N.W. of St. Joſef de Huales.—Alſo, a town of Mexico, in the province of Mechoacan; 15 miles N. of St. Luis de Potoſi. —Alſo, a ſmall iſland in the Pacific ocean, near the coaſt of Terra Firma. N. lat. 4° 2′.—Alſo, a ſea-port of Mexico, in the province of Guaxaca; 75 miles S. of Guaxaca. N. lat. 16°. W. long. 99° 1′.—Alſo, one of the Marqueſas iſlands, called by the natives "Onateya," about three leagues in circuit. S. lat. 9° 55′. E. long. 138° 55′.—Alſo, a town of the biſhopric of Truxillo, and juriſdiction of Sana, ſituated in a fertile ſoil, near the coaſt of the Pacific ocean; 50 miles N. of Truxillo. S. lat. 7° 26′.—Alſo, a town of Eaſt Florida; 44 miles E.S.E. of St. Mark.—Alſo, a ſmall iſland near the coaſt of Spain, ſituated S.E. of the city of Cadiz, from which it is ſeparated by a narrow ſtrait, called "St. Pedro's Channel."—Alſo, a town of the iſland of Cuba; 31 miles S.W. of Bayamo.—Alſo, a town of S. America, in the province of Cordova; 96 miles N. of Cordova.—Alſo, a town of New Navarre; 180 miles W. of Caſa Grandé.—Alſo, a town of Mexico, in the province of Honduras; 15 miles W N.W. of Naco.—Alſo, a bay of the Pacific ocean, on the coaſt of New Albion, between point Fermin and point Laſuen.

Pedro *Novo, St.*, a town of Braſil, on a river which runs into the bay of All-Saints; 50 miles N.W. of St. Salvador.

Pedro *e Pablo, St.*, a river of Mexico, which riſes in Tabaſco, and runs into the bay of Campeachy, N. lat. 18° 20′. W. long. 93° 26′.

Pedro, *St*, and *St. Pablo*, a river of Mexico, which riſes near Zacatlan, in the province of Tlaſcala, and runs into the gulf of Mexico. N. lat. 10° 52′. W. long. 93° 26′.

Pedro *Nolaſco, St.*, a town of Braſil, on the Urubui; 70 miles N.N.E. of Fort Rio Negro.

Pedro *de Sul, St.*, a town of Portugal, in the province of Beira; nine miles N.W. of Viſeu.

Pedro *de Taberna, St.*, a town of Spain, in Aragon; 12 miles N. of Ainſa.

Pedro *de Porco*. See *Hog* Bezoar.

PEDROAS, Os, in *Geography*, a town of Portugal, in Alentejo; nine miles S.W. of Moura.

Pedroas *de Perceveira*, rocks near the W. coaſt of Portugal; two miles S.S.W. of Sines. N. lat. 37° 40′. W. long. 8° 52′.

PEDROGAON, a town of Portugal, in Eſtremadura; 21 miles N.E. of Thomar.

PEDROSA, a town of Spain, in the province of Leon, between Salamanca and Medina del Rio Seco; five leagues from the former.

PEDRUSI, or Pedruzzi, Paul, in *Biography*, was born of a noble family at Mantua in 1646. He entered himſelf among the Jeſuits, and became diſtinguiſhed for his deep knowledge of hiſtory and antiquities. He was choſen by Rannuncio, duke of Parma, to arrange his rich and curious cabinet of medals, and to give explanations of them. In 1694 he began to publiſh an account of this collection, under the title of "I Cæſari in oro raccolti nel Farneſe Muſæo o publicati colle loro congrue interpretazioni," and he continued his labours till his death in 1721. This work, in its complete form, conſiſts of ten volumes, and bears the title of "Muſeo Farneſe:" of theſe he publiſhed ſeven volumes; and the eighth was edited by Peter Piovene, a brother Jeſuit.

PEDUNCLE, in *Botany*. See Pedunculus.

PEDUNCULARIA, a name by which ſome authors have called the *ſtaphiſagria*, or ſtaveſacre: a plant whoſe ſeeds are uſed to kill vermin.

PEDUNCULUS, the flower-ſtalk, or, as ſome call it, *peduncle*, ſprings from the ſtem, and bears the flowers and fruit, but not the leaves. A flower-ſtalk originating immediately from the root, has an appropriate name, Scapus; ſee that article; though ſome prefer *pedunculus radicalis*.

The flower-ſtalk is either ſimple or compound; in the firſt inſtance it commonly bears a ſolitary flower, though it may bear a number of completely ſeſſile ones, conſtituting a ſpike, as in *Potamogeton*. When compound, the ultimate diviſions of this part are called partial flower-ſtalks. See Pedicellus.

Flower-ſtalks differ in ſituation, as well as in degree or mode of ſubdiviſion.

Pedunculus caulinus ſprings immediately out of the main ſtem or trunk, as in *Averrhoa Bilimbi*, and *Cynometra cauliflora*.

P. rameus grows out of a principal branch, as in *Averrhoa Carambola*, and many other plants.

P. axillaris, an axillary flower-ſtalk, is very common, and indeed almoſt general, when the infloreſcence is lateral. It proceeds from the boſom of each leaf; that is, immediately above the inſertion of the leaf, or its footſtalk. The ſame term is applied to a flower-ſtalk ſituated in the fork of a ſtem, or above the origin of a branch.

P. oppoſitifolius is inſerted oppoſite to a leaf, of which ſeveral ſpecies of *Geranium* afford examples.

P. internodis, of more rare occurrence, grows from the intermediate part of a branch between two leaves, as in ſome ſpecies of *Solanum*.

P. *interpetiolaris* is placed laterally between the inſertion of two leaf-ſtalks, as in ſome of the *Contortæ*.

P. gemmaceus grows out of a leaf-bud, as in the Barberry, and ſome kinds of Willow; while in others of the laſt-mentioned genus, ſome buds are entirely deſtined to produce leaves, others flowers.

P. terminalis ſprings from the extremity of a ſtem or branch, which is very common. It always puts a period to the growth of ſuch part, though the branch may, and uſually does in trees and ſhrubs, put forth freſh ſhoots from, or below, the point of inſertion of the flower-ſtalk.

P. lateralis is a general term for a flower-ſtalk that originates from the ſide of a ſtem or branch, whether it be axillary or otherwiſe.

P. ſolitarius is either ſingle on a plant, as in the Snowdrop, or only one in the ſame place, as in the Violet, Thorn-apple, and many common plants.

Pedunculi aggregati, cluſtered flower-ſtalks, are ſuch as grow ſeveral together from one point, in whatever ſituation.

P. ſparſi are ſcattered over the plant or branches, in a ſolitary manner.

P. uniflori, *biflori*, *triflori*, are ſuch as bear each one, two or three flowers.

P. pauciflori bear few, *multiflori* many, flowers.

When there is no flower-ſtalk at all, the flowers are ſaid to be ſeſſile, *flores ſeſſiles*.

Various particulars belonging to flower-ſtalks may be found at INFLORESCENCE, or under various articles there indicated.

The phyſiology of the PEDUNCULUS is in many inſtances curious. Its evident uſe is to ſuſtain the flower and fruit, and to tranſmit their requiſite matter of nouriſhment, till the ſeed is perfected. Hence the part in queſtion, though ſometimes curved during the growth of the flower, that the organs of impregnation may be ſheltered from rain, often becomes erect for the better ſupport of the ſeed-veſſel, leſt the ſeeds ſhould be prematurely, or too ſuddenly, dropped. The ſlender and weak ſtalk of a flower, not unfrequently acquires additional increaſe and ſtrength, for the ſupport of a weighty fruit. Nevertheleſs, when its final purpoſe is anſwered, that very ſtalk ſeparates at ſome deſtined ſpot, where a ſolution of continuity ſpontaneouſly takes place, in parts originally ſo firmly united that no trace of diſunion could be perceived.

PEE, in *Geography*. See PROME.

PEE, in *Mining*, is uſed for the place where two veins meet and croſs one another, thus +.

PEEAYE MEW, in *Geography*. See PROME.

PEEBLES, a royal burgh, and the county town of Peebles-ſhire, or Tweedale, Scotland, is ſituated at the diſtance of twenty-one miles ſouth from Edinburgh, at the confluence of the Eddleſton, or Peebles Water, with the Tweed. It is of great antiquity, and was probably a town even in the time of the Gadeni. At all events there were undoubtedly a conſiderable village, and a church here, before the commencement of the Scoto-Saxon period; "and there was here alſo as early, perhaps, a royal caſtle, with a chapel and other accommodations, which a town only can ſupply." This opinion derives much ſupport from the fact, that Peebles is mentioned in the earlieſt Scottiſh records, "as a town of the royal demeſne, which yielded a firm into the royal exchequer." According to Dr. Pennycuik, it was occaſionally honoured by the reſidence of the Scottiſh monarchs, till the death of Alexander III., who conferred on it many ſpecial marks of his munificence and favour. In the conteſts for the ſucceſſion to the throne which enſued, the inhabitants eſpouſed the cauſe of Baliol, and were afterwards compelled to ſubmit to the uſurpation of Edward I. of England. At this period the town appears to have been governed by a bailiff, and a certain number of burgeſſes, as we find them mentioned to have ſworn fealty to the Engliſh king at Berwick, on the 28th of Auguſt 1296. In 1304, it was granted by that prince to Adomar de Valence, the warden of Scotland, and his heirs. When it became a royal burgh, with ſpecial privileges, is uncertain; but it is known to have ſent two repreſentatives to the parliament, called in 1357 to ratify and provide the ranſom of David II. This monarch afterwards granted Peebles a charter, dated September 20, 1367, in which it is ſtyled a royal burgh; and the ſame was ſubſequently confirmed by king James II. and king James VI. with additional privileges. By virtue of theſe charters the corporation of the town now conſiſts of ſeventeen members, a provoſt, two bailies, a dean of guild, a treaſurer, eleven counſellors, and one deacon. Its revenue is very conſiderable, moſt of the lands in the vicinity being the property of the public. Theſe lands were granted to the borough in the year 1560, in conſideration of "the loyalty, fidelity, and good ſervices" of the inhabitants.

The town of Peebles was much more extenſive formerly than at preſent, and occupied a ſomewhat different ſcite, extending from Eddleſtone Water weſtward, to the Meadowwell-ſtrand. Of its buildings at this period little is known, but they were probably of a comparatively ſuperior caſt, as many of the houſes were occupied by the nobility attending the court, when the monarch reſided in the caſtle. Peebles in fact was to Edinburgh what Windſor now is with reſpect to London. Previous to the reformation it had three churches, beſides ſeveral chapels. The high church, which was dedicated to the Virgin Mary, is ſuppoſed to have been erected in the eleventh century, on the ſcite of ſome more ancient fabric. Its ruins ſtill remain at the weſtern extremity of the old town. This church was deſtroyed at the time of the reformation; when the Croſs-church was converted into the parochial place of worſhip; and continued to be ſuch till the preſent handſome ſtructure was erected in 1784. Peebles is now divided into two parts, called the Old and New Town. The latter is ſituated on the eaſtern bank of the Peebles Water, and appears to have been ſtrongly fortified, both by nature and by art. Over the Tweed is an ancient bridge of five arches; and there are two ſmaller ones over the Eddleſtone, to connect the new town with the old. The chief ſupport of the town is its manufacture of carpets, ſerges, and linen and cotton cloths; but it is likewiſe much indebted to its market, which has been long celebrated for oat-meal. The market day is on Tueſday, weekly, and there are beſides ſeven annual fairs.

The chief remains of antiquity in Peebles, are the ruins of the Croſs-church, and of that which was dedicated to St. Andrew. The former was part of the conventual church of a monaſtery founded, according to Bœcius, Major, and others, by king Alexander III. Some ſay it was erected on the ſpot where the relics of St. Nicholas the Martyr were diſcovered in 1261, an event which is particularly noticed by Fordun. This convent was filled with Red or Trinitarian friars, which order was inſtituted for the redemption of Chriſtian ſlaves from the Turks; a third part of their annual income being appropriated to that purpoſe. Its buildings conſtituted a ſquare, having the church on the ſouthern ſide. This edifice meaſured 102 feet in length, and 32 in width, and was, as well as the houſes and cloiſters, entirely built with whin-ſtone, except the angles, doors, windows, cornices, &c. which were of a white free-ſtone. After the ſuppreſſion the convent was ſuffered gradually to go to decay, but part of the church, as already mentioned, was fitted up for divine ſervice, and the remainder was walled off and converted into a public ſchool. In this ſtate it remained till the building of the new church, when the interior was ſtripped of its ſeats and furniture, but the walls, by a praiſeworthy act of council, were ordered to be protected, as a venerable monument of ancient art.

The church of St. Andrew is of greater antiquity than the Croſs-church. The exact period of its conſtruction is not recorded; but as it is ſtated to have been conſecrated by Joſceline, biſhop of Glaſgow, who died A.D. 1199, its date may be fixed a few years previous to that event. Judging from its remains, it ſeems to have been a large and capacious ſtructure, and is certainly of great age, as all its doors and windows diſplay ſemi-circular arches, or at leaſt ſome ſegment of a circle. This church was the moſt ancient pariſh church in Peebles. After it loſt that rank, in favour of the Croſs-church, it was allowed to fall into ruin. A party of Cromwell's ſoldiers uſed it for ſome time as a ſtable, and at their departure demoliſhed the roof. The only portions of this ſtructure now ſtanding are the ſquare tower, and ſome fragments of the ſide walls. The church-yard is ſtill uſed as a burial ground. Of the royal caſtle of Peebles no veſtiges can be traced, but its ſcite yet retains the name of Caſtle-hill. For an account of the antiquities in the vicinity, ſee the next article.

According to the parliamentary returns of 1811, the burgh and pariſh of Peebles contain 422 houſes, and a population of 2485 perſons.

Beauties of Scotland, vol. ii. Caledonia, vol. ii. by George Chalmers, F.R.S. and S.A. 4to. 1810.

PEEBLES-SHIRE, or TWEEDALE, one of the ſouthern counties of Scotland, is ſituated between 55° 25′ and 55° 50′ of N. latitude, and from 2° 58′ to 3° 34′ of W. longitude from Greenwich. It is bounded on the ſouth by Dumfries-ſhire, on the north and north-eaſt by Edinburghſhire, on the weſt by Lanarkſhire, and on the eaſt by the county of Selkirk. According to Armſtrong's map, it meaſures in length from north to ſouth about 28 miles, and varies in breadth from 10 to 18 miles; the mean length being 27 miles, and the average breadth 13½. Of conſequence, the ſuperficial area ought to be 364 ſquare miles, and its contents 232,960 Engliſh acres; but from a minute calculation, made by Mr. Chalmers, the real ſuperficies is eſtimated at 338 ſquare miles, or 216,320 acres; of which about 20,000 acres are arable, or under tillage. According to the parliamentary returns of 1811, this ſhire contains 1820 houſes, and 9935 inhabitants.

General Aſpect of the County.—Tweedale, when viewed from a diſtance, ſeems to form one continued chain of mountains, and may perhaps be generally deſcribed as a mountainous country. Upon a narrow inveſtigation, however, it is found to poſſeſs many rich and fertile vallies or ſtraths of arable land, lying along the banks of its numerous rivers. Of theſe the dale of the Tweed is the principal, interſecting the centre of the county throughout its whole extent. Hence many vales branch off, following the channels of the ſeveral ſtreams which increaſe that majeſtic river. Theſe, as may be conjectured, are various in ſize, as well as diverſified in appearance. The moſt conſiderable and the moſt fruitful are the vallies of the Lyne and Eddleſtone waters. In general, the dales and the dingles are moſt fertile, and the hills moſt pleaſant in the north and weſt diviſions of the county; while, in the ſouth and eaſt, the vales are more barren, and the hills more bleak.

Mountains.—The ſurface of Peebles-ſhire riſes on both ſides of the great central valley of the Tweed, to a very conſiderable elevation. The higheſt hills are ſituated towards the extremities of the county; and, indeed, thoſe bordering on Annandale are the loftieſt in ſouthern Scotland. On the boundary with Selkirkſhire, Blackhouſe hills meaſure 2360 feet in height above the level of the German ocean; and Scamed Law, about two miles further to the north, mounts to 2120 feet above the ſame level. Minchmoor, on the ſouth-eaſt of Peebles-ſhire, riſes 2285 feet; and Windleſtraw Law, on the north-eaſt of the county, 2295 feet above the ſea. In the pariſh of Manor are two very high hills, called Scrape and Dollarburn, the latter of which is calculated to reach an elevation of 2840 feet. Cardon, or Cadow-hill, in the pariſh of Kilbucko, is about 1400 feet above the level of the Tweed, or 2200 feet above the level of the ocean. This is the higheſt hill on the weſtern ſide of the ſhire, but there are many others very little inferior in altitude. In the pariſh of Kirkurd is a hill called Hell's Cleugh, the ſummit of which is diſtinguiſhed by a ſmall cairn, called the Pykedſtane, whence is a view of the country beyond the Forth, and of a chain of hills ſtretching from the eaſt part of Fife, as far as Dunbartonſhire. South of the Forth, the view extends as far eaſt as North Berwick, likewiſe to the Eildon hills near Melroſe, and Cheviot hills in Northumberland. Dundreigh, or Druids' hill, in the pariſh of Eddleſton, alſo commands a moſt extenſive and diverſified proſpect over Teviotdale, Annandale, Clydeſdale, Perthſhire, Fifeſhire, and the three Lothians. This hill is computed to riſe 2100 feet above the level of the ocean. Near the ſource of the Tweed the hills are in general extremely beautiful, being covered with graſs to their very ſummits: ſome of them are of a great height, particularly Hartfield and Broadlaw, which are ſtated to reach the altitude of 2800 feet from the level of the Forth. Between Minchmoor and Hinderland the hills are more black, craggy, and precipitous, than in any other diſtrict of the county, and are frequently interſected by deep and tremendous chaſms. One of theſe openings, called Grimſcleugh, is upwards of half a mile in length, and not leſs than 300 feet in depth.

Rivers and Lakes.—The rivers of this county are numerous; but all of them, with the exception of the Megget and the North and South Eſks, diſcharge their waters into the Tweed, as the common receiver. This celebrated river, whence the familiar name of the ſhire is derived, has its ſource on the mountainous ridge which ſeparates Tweedale from Annandale, and can boaſt of giving riſe to the three firſt rivers in the ſouth of Scotland: the Annan, which flows ſouthwards into the Solway-frith; the Clyde, which runs north-weſt into the Clyde-frith; and the Tweed, which directs its courſe to the German ocean at Berwick. The laſt-mentioned river flows above 40 miles within the county, in a curvilinear and ſerpentine direction, dividing it nearly into two equal parts. Its current, particularly in that part of its courſe above Peebles, during which it deſcends from a height of 1550 feet, is extremely rapid, as indeed are all the ſtreams in the county. The Tweed is the longeſt river in

Scotland, the diſtance from its ſource to its confluence with the ocean being upwards of 100 miles. It abounds with ſalmon, as well as with trout. Among the rivers which fall into it, belonging to Peebles-ſhire, the moſt conſiderable are the Lyne, the Eddleſton, and the Leithen, on the north; and the Manor and the Quair on the ſouth. The Lyne riſes in the northern confines of the county, at a place called Cauldſtaneſlap; and after a courſe of 21 miles, reaches the Tweed three miles above Peebles. Eddleſtone water has its ſource from King-Seat-hill in Eddleſtone pariſh, and joins the Tweed at the county town. Leithen water runs a courſe of 12 miles from Water-Head to about a mile below Inverleithein church, which derives its Celtic name from that influx, or *inver*. Manor ſtream originates at Foulbrig, in the ſouthern end of Manor pariſh, through which it runs a courſe of 12 miles; and which it drains, as it courſes, with other ſtreamlets to the common channel. The Quair iſſues from a ſpring at Glendean banks, and, after watering the magnificent pleaſure grounds, falls into the Tweed near the noble ſeat of Traquair.

The lakes in Peebles-ſhire are neither numerous nor extenſive. The moſt conſiderable of them, the Water loch in Eddleſtone pariſh, ſcarcely exceeds three quarters of a mile in length, and half a mile in breadth. It is, however, a very beautiful ſheet of water, and gives birth to the South Eſk, which falls into the river Forth, along with the North Eſk, at Muſſelburgh, in Midlothian. The other lakes within the county are Gameſhope loch, and Slipperfield loch; the former of which occupies an uninhabited glen in Tweedſmuir pariſh, and is emptied by Gameſhope rivulet, one of the ſources of the Talla water. St. Mary loch, though it bounds this county for more than a mile, and is hence claimed by ſome Peebles-ſhire topographers, is, properly ſpeaking, a Selkirkſhire lake, as it extends ſeveral miles into that county. The Megget pours its waters into this lake, whence they paſs on to the Yarrow and the Ettrick, two of the moſt celebrated rivers in Scottiſh ſong.

Mineral Products.—Peebles-ſhire, as the mountainous nature of its ſurface would promiſe, is fertile in minerals. If credit may be given to our ancient hiſtorians, Boece and Buchanan, gold was formerly found in Glen-Gaber water, which traverſes the pariſh of Megget. In Lead-Law, a hill above Linton, ſeveral lead mines were formerly wrought, which alſo produced a conſiderable ſupply of ſilver. The ſinks of theſe mines are ſtill apparent, and are diſtinguiſhed by the appropriate name of Silver-holes. About 60 years ago they were again tried, but the attempt proved unſucceſsful; the quantity of ore obtained being ſcarcely adequate to defray the expences of the work. In Traquair pariſh ſeveral attempts have been made to diſcover lead veins, and much ore has been found, but not ſufficiently rich in ſilver to induce any adventurer to open mines.

A ſpecimen of galena ore was diſcovered, a few years ago, in one of the ſtreams that fall into the Quair. Coal is plentiful, particularly in the north-eaſtern diſtrict of the county, where limeſtone is alſo equally abundant. Beds of marle are frequent in the pariſhes of Linton and Newland. They are apparently formed by oozings and ſprings from limeſtone, which encruſt or petrify moſs by depoſitions of limeſtone. In theſe beds the ſhells of the common ſnails are obſerved rotten and friable. Near the lime rocks of Carlops and Spittlehaugh is a bed of blue marle, of a mixed conſiſtency between ſtone and clay. The prevailing ſtone under-ſtratum in the county is whinſtone, but there are likewiſe numerous quarries of white and red freeſtone in different pariſhes. The ſlate quarries here have long been celebrated. In Tramore hill, within Stobo pariſh, are two ſeams of excellent blue ſlate, which has been manufactured for various purpoſes during ſeveral years. In the lands of Lamancha there is a vaſt variety of clays, and in particular a very thick bed of fire clay, like the Stourbridge clay. In the ſame lands are many veins of iron ore; one of them is entirely grain ore, and the remainder is mixed with the ſame ore. Manganeſe is alſo found here, both by itſelf and incorporated with the iron ores; and there are likewiſe here ſome maſſes or beds of iron-ſtone, but there are no ironworks yet eſtabliſhed. White marble, according to Pennycuick, was formerly dug up at Whitfield, in Linton pariſh.

Several mineral ſprings are found within Peebles-ſhire, but none of them are particularly diſtinguiſhed. North from the village of Linton is a ſpring, called "Heaven-aqua water," which bears ſome affinity to that at Tunbridge. Another ſpring, ſimilar to the Harrowgate waters, appears in the pariſh of Inverleithen. There is alſo a copious ſulphureous well in the pariſh of Kirkurd. The water here was analyſed by the late celebrated Dr. Black of Edinburgh, and found to be ſtronger than the ſulphureous water at Moffat. At Lamancha, in Newland pariſh, is a chalybeate ſpring, called the "Vertue Well," which contains a large quantity of fixed air, that holds the iron in ſolution.

Soil and Climate.—The prevailing ſoil on the haughs, or flat grounds neareſt the waters, is generally a ſandy loam, or a compoſition of fine earth depoſited by the water after floods. The level land, lying a little above the haughs, is of a rich loam ſoil, on a gravelly, rocky, or till bottom. Near the ſources of the ſeveral rivers, the ſoil is frequently of a moſſy or mooriſh nature, particularly in the northern diſtrict of the county, where, as already mentioned, the land is the leaſt elevated.

The climate of Peebles-ſhire is various. In the valley of the Tweed, which may be called the body of the county, it is often mild and warm, while in the higher and more remote parts the cold is extremely intenſe. Showers of rain are frequent, but the average quantity which falls in this county is much leſs than in the adjoining counties to the eaſt and weſt, ſeldom exceeding twenty-eight inches annually. Many of the hills are covered with ſnow as early as the commencement of October; and in the autumn months ſome of the vales ſuffer greatly from the prevalence of hoar-froſts or froſty miſts, which blaſt vegetation of every kind, and are eſpecially pernicious to potatoes, clover, and peas.

Agriculture.—From the termination of the eleventh, to the beginning of the fourteenth century, the huſbandry of this county is ſaid to have been in a much more forward ſtate than in moſt of the other counties in Scotland. The ſyſtem, as at preſent, was then a mixture of farming with grazing. The four centuries which ſucceeded, however, were unproſperous in the higheſt degree; and it was not till after the union that any amelioration began to take place, and that prejudice was forced, in ſome meaſure, to yield to the influence of more rational ideas. Among thoſe who have promoted agricultural improvement ſince that period, were "the far famed" Archibald, duke of Argyle, ſir Alexander Murray of Stanhope, Dr. Pennycuick, and James M'Daigal, a farmer near Linton. The exertions of the individual laſt mentioned were particularly uſeful in their conſequences. He introduced the Norfolk rotation of crops, and ſeveral other practices before unknown here; and by his ſucceſs in their application, rouſed in his neighbours a ſimilar ſpirit of enterpriſe and improvement. Dairy farming was revived by Thomas Stevenſon; and the turnip huſbandry was firſt attempted in 1764 by George Dalzel, innkeeper at Linton, who was likewiſe the firſt to cultivate the potatoe on an extenſive plan, by the plough. But the greateſt ſpring to the farming proſperity of the county was fixed about the year 1788, when the lord of Neidpath granted to all his tenants leaſes for fifty-five years, in conſideration of certain fines, which his wants or his rapacity induced him to demand. The idea of property for ſo long a period ſtimulated the farmers to erect commodious houſes, to make incloſures, and to lay out their capitals in various improvements. Incloſing and planting has ſince proceeded rapidly; and the beſt practices in huſbandry are adopted. Oats are the favourite grain, but barley is likewiſe pretty extenſively cultivated on the beſt ſoils. The turnip huſbandry is carried on to a great extent, and has almoſt entirely exploded the practice of ſummer fallowing. Artificial graſſes are raiſed on the arable lands in every diſtrict of the ſhire. Theſe, however, bear but a ſmall proportion, in point of extent, to the natural paſturage lands, which perhaps occupy nine-tenths of the whole area of the county, and are ſtill chiefly appropriated to the rearing and feeding of ſheep. The average extent of ſheep farms here is 1500 acres; but there are many which reach ſo high as 3000 acres, and few fall ſhort of 800. Each of them have a portion of arable land attached to them, ſome more and ſome leſs, according to their diſtance from the vallies. The common breed of ſheep here is "the ſhort-tailed compact-bodied ſheep, with black faces and legs." The practice of ſmearing ſheep with a mixture of tar or train oil, or Orkney butter, is ſtill continued in this county, though the reaſons alleged for the cuſtom do not ſeem very ſatisfactory. Some ſay it improves the wool, but others doubt it, and think its only advantage is, that it keeps the ſheep warm in winter; and certain it is that Tweedale wool is both coarſe and low priced, and fit only for making carpets, ſhalloons, and ſuch like articles of woollen manufacture.

Civil Government and Diviſions.—Peebles-ſhire, like every other county in Scotland, is ſubjected to the juriſdiction of a lord lieutenant, and a ſheriff depute, the latter of whom nominates a ſubſtitute to hold courts in his abſence. When it was firſt elevated to the rank of a ſheriffdom is not preciſely fixed by record, but we find mention of two ſheriffs in Tweedale, one in Traquair, and the other at Peebles, about the year 1184. Theſe two ſheriffwics merged into one before the cloſe of the fourteenth century, under the title of the latter, and have remained in the ſame condition ever ſince. The pariſhes within this ſhire are ſixteen in number; and beſides the royal burgh of Peebles, there are five very conſiderable villages that have markets and annual fairs for ſheep, horſes, and cows. Theſe are Linton, Eddleſton, Skirling, Broughton, and Inverleithen.

The ſituation of Inverleithen is moſt beautiful; and it has lately acquired ſome degree of activity by a woollen manufacture eſtabliſhed there.

Roads.—The improvement in roads within the laſt fifty years has been very great in this county. The public roads indeed are excellent. One from Edinburgh towards Moffat traverſes the whole length of the ſhire, from north-eaſt to ſouth-weſt. Another traverſes it in like manner from weſt to eaſt, from Biggar, by Peebles and Inverleithen, towards Gallaſhiels and Kelſo. This road affords the means of conveying towards Glaſgow all the ſuperfluous grain of this diſtrict. A road alſo runs from Inverleithen towards Middleton, which ſupplies a great part of Peebles-ſhire with coal. It was made in 1794, and ſhortened the line of communication no leſs than fourteen miles.

Manufactures.—Tweedale cannot be called a manufacturing county, for though a conſiderable quantity of linen is made by the inhabitants, none of it comes to ſale, the whole being conſumed by their own families. Woollen and cotton weavers, however, are ſaid to be increaſing about Peebles and its vicinity; where are likewiſe a few ſtocking looms. A woollen manufactory has been lately eſtabliſhed at Inverleithen, which from its congenial ſituation is calculated to flouriſh. It is ſurpriſing that no woollen manufactory has hitherto been fixed at Linton, conſidering its favourable poſition on the turnpike road to Edinburgh, and the numerous advantages it poſſeſſes with reſpect to coal, lime, freeſtone, water, and ſheep-walks.

Antiquities.—The remains of antiquity in Peebles-ſhire are at once numerous and various. Traces of the ancient Britons can ſtill be diſcovered here in the names of places; as alſo in their religious, ſepulchral, and military monuments. At Hairſtanes, in Kirkurd pariſh, are the remains of a Druid temple, conſiſting of a number of large ſtones ſtanding in a circular form. Another curious druidical temple is ſituated on the remarkable peninſula called Sheriffmuir. From each of two ſtanding ſtones there run out to the eaſt, in a curvature, two rows of ſmaller ſtones, which alſo ſtand upright. A third monument of a ſimilar kind is ſeen near Tweedſmuir church, and a fourth, ſmaller one, on the borders between Peebles and Selkirk. Several tumuli or barrows are ſpread over Kirkurd, Glenholm, and Linton pariſhes. In a cairn upon King's Muir, in Peebles pariſh, were lately diſcovered an inverted urn, containing the aſhes of ſome Britiſh warrior, with the blade of his dagger. In Eddleſton pariſh, near the Ship-Law, there is a barrow called the "Ship-horns," becauſe reſembling the inverted hull of a ſhip. A number of ſepulchral cairns are alſo diſcovered in the vale of the Tweed, and on Sheriffmuir. Theſe, however, all yield in intereſt to the grave of Merlin, which is pointed out under a thorn tree, near the influx of Powſail with the Tweed. In that ſacred ſpot, according to tradition, lie the remains of the prophet, to whom ſo many wonderful feats and predictions are attributed in the writings of the ancient bards.

In Peebles-ſhire are many hill-forts, undoubtedly of Britiſh conſtruction, and ſeveral ſtanding ſtones, ſuppoſed to be memorials of battles. The forts are generally of a circular ſhape, but ſometimes deviate from that figure to ſuit the ſummit, or the ground whereon they are placed. On the hill called Cademuir are four Britiſh encampments, one of which is ſurrounded by a rampart of ſtones without cement. This rampart is in ſome places double; but in other parts it is ſingle and of prodigious thickneſs. Janet's brae in Peebles pariſh is alſo diſtinguiſhed by two entrenchments, which are each ſurrounded by a ſingle ditch and vallum. In the ſame pariſh are ſeveral other ſimilar works; particularly one on the ſummit of Meldum, another on the hill above Hutchin field, a third near Hayſton Craig, a fourth on the hill above Wham, and a fifth on the hill called Ew-hill-rig. In Manor pariſh are likewiſe many ſtrengths, on Hound-hill, Caverhill, and on a ſmall eminence called the *Ring-know*. On a height near Inverleithen, are the remains of a Britiſh fortreſs, which appears to have had three ramparts and ditches. The other principal Britiſh military works, are at Milkington-Rings, and North-Shield-Rings, in the pariſh of Eddleſton; on Terrace-hill, in Newlands pariſh; on the riſing ground above Linton, and on the top of Lead-Law. Beſides theſe, however, there are numerous others which our limits will not permit us to particularize.

The Romans, who were unqueſtionably the firſt people that encroached upon the Britiſh aborigines, have left few traces of their reſidence here, and thoſe few are confined to military poſts or encampments. Of theſe the principal one is ſituated on the eaſtern ſide of the Lyne, about ten miles to the eaſtward of the Watling-ſtreet, which traverſes the country within half a mile of the weſtern extremity of the ſhire. This entrenchment is called by the common people Randal's Walls, from a tradition that Randolph, earl of Murray, had a houſe within its area. According to Armſtrong it contains ſix acres and two roods of ground, which has been frequently ploughed, when many Roman coins have been turned up. Another Roman encampment is ſituated on the northern ſide of Upper Whitfield, in the pariſh of Linton. It is in the form of a parallelogram, and is ſurrounded by a ſingle foſſe and rampart, which are now nearly obliterated. A third entrenchment, in the pariſh of Manor, is alſo generally repreſented to be of Roman conſtruction.

Among the other antiquities of this county, the moſt prominent are its terraces and caſtles. Reſpecting the origin and uſes of the former much difficulty prevails; indeed all that has been advanced concerning them is merely conjectural. The opinion of Chalmers, however, that they were intended for the accommodation of large bodies of ſpectators to witneſs ſome ſport, carries with it conſiderable plauſibility; and it likewiſe ſeems probable that ſeveral of them were ſubſequently appropriated for the adminiſtration of juſtice. Of ſuch works the moſt conſiderable are thoſe on a beautiful green mount, called Terrace-hill, above Newlands. Along the whole face of this hill there are eleven or twelve terraces, from fifteen to twenty feet broad, which riſe by a regular gradation to the top. About half a mile to the north is another eminence, called "Moot Hill," which has likewiſe ſeveral tiers of terraces. Similar terraces are to be ſeen at Kirkurd, at Skirling, and at Smithfield.

The remains of the caſtles and fortified towers of this county, are principally ſeated on the banks of the Tweed, and alternately on both ſides of that river, and in ſight of each other, as happens in Selkirkſhire and Berwickſhire. The object of this arrangement was the defence of the country from the incurſions of the border chiefs. On the approach of an enemy, a fire was immediately lighted on the top of the neareſt caſtle, and thus notice of the aggreſſion was ſpread over a diſtrict of at leaſt ſeventy miles in length in the courſe of a few hours. Theſe caſtles were built of ſtone and lime, uſually in a turretted form, and for the moſt part occupied an eminence of difficult acceſs. Thoſe ſituated within ten miles above and below Peebles were at leaſt twenty-ſix in number, and much reſembled each other, except in the circumſtance of greater or leſs magnitude. At Traquair the Scottiſh kings had a caſtle in the twelfth century, where they occaſionally reſided for the purpoſe of hunting in the foreſt. This caſtle is now completely demoliſhed, as well as that at Peebles, which is likewiſe ſaid to have been a royal reſidence. On Woodhill are ſome remains of an ancient building, which is called Macbeth's caſtle; and in Broughton pariſh is another, bearing the ſame name, which is traditionally ſaid to have belonged to the celebrated Macbeth. The remains of Oliver caſtle, the ſeat of the Fraſers, are ſeen in Tweedſmuir pariſh; and on Fruid water are the remains of Fruid caſtle, another baronial manſion, which alſo belonged to that powerful family. Drummelzier caſtle is ſituated cloſe to the river Tweed, and about a mile from it is Thanes caſtle, or Tinnis caſtle, formerly occupied as a ſort of redoubt by the Tweedies, the lords of Drummelzier, who domineered here during ſeveral ages of anarchy. But theſe, and indeed almoſt all the ancient caſtles in this ſhire, are completely ruinous, with the exception of that of Niedpath, in the vicinity of Peebles, which being of vaſt ſtrength, ſtill continues in tolerable preſervation, and conſequently affords an excellent ſpecimen of ſimilar building. This caſtle ſtands on a rock, projecting over the north bank of the Tweed, which here runs through a deep narrow glen well wooded on both ſides. Towards the land it commands an important paſs. The walls are eleven feet in thickneſs, and cemented with lime almoſt as hard as the ſtrong whinſtone of which they are built. Niedpath was anciently the chief reſidence of the Fraſers above-mentioned, and was moſt probably the birth-place of the brave ſir Simon Fraſer, the laſt of the family in the male line, who, in 1303, with only ten thouſand men, repulſed and defeated the Engliſh, thirty thouſand ſtrong, in three ſucceſſive battles, fought in one day on Roſlyn moor. In the reign of Charles I. it was garriſoned for the king, and held out againſt Cromwell longer than any place in Scotland, ſouth of the Forth. The ſituation of this caſtle is extremely beautiful and commanding. Pennycuick, who ſays it was of old called the "Caſtle of Peebles," celebrated it thus:

> " The noble Nidpath Peebles overlooks
> With its fair bridge and Tweed's meand'ring brooks,
> Upon a rock it proud and ſtately ſtands,
> And to the fields about gives forth commands."

Caledonia, or An Account of Hiſtorical and Topographic of North Britain, by George Chalmers, F.R.S. 4to. edit. 1810. Beauties of Scotland, vol. ii. Sinclair's Statiſtical Account of Scotland, vols. iii. iv. xii. xvii. Armſtrong's Companion to the Map of Tweedale.

PEEING-GHIE, a town of the Birman empire, ſituated on the Irawaddy, from which a great quantity of teak timber is carried to Rangoon. The foreſts extend along on the weſtern mountains: the trees are felled in the dry ſeaſon, and when the monſoon ſets in are borne by the torrents to this town and Sahlahdam, a little above it. Peeing-ghie is about 20 miles N.W. of Mayadoun.

PEEK, in the *Sea Language*, a term uſed in various ſenſes; *e.g.* an anchor is ſaid to be *a-peek*, when the ſhip, being about to weigh, comes over her anchor, ſo that the cable hangs perpendicularly between the hawſe and the anchor; the bringing of a ſhip into which poſition they call *heaving a-peek*.

A ſhip is ſaid to ride *a-peek*, when, lying with her main and fore-yards hoiſted up, one end of her yards is brought down to the ſhrouds, and the other raiſed up on end; which is chiefly done when ſhe lies at reſt in rivers, leſt other ſhips, falling foul of her, ſhould break her yards.

PEEK, *to ride a broad*, denotes much the ſame, excepting that the yards here are only raiſed to half the height.

To PEEK *the mizzen*, is to put the mizzen yard perpendicular by the maſt.

PEEK is a name given to the upper corner of all thoſe ſails which are extended by a gaff, or by a yard which croſſes the maſt obliquely, as the mizzen yard of a ſhip, the main yard of a bylander, &c. The upper extremity of thoſe yards and gaffs is alſo called the *peek* or peak.

PEEK is alſo uſed for the room in the hold, from the bitts forward to the ſtem: in this place men of war keep their powder, and merchantmen their victuals.

PEEK-*haliards*, are the ropes or tackles by which the outer end of the gaff is hoiſted as oppoſed to the throat haliards, which are applied to the inner end.

PEEK'S *Hill*, in *Geography*, a ſmall poſt-town of America, in Weſt Cheſter county, New York, on the E. ſide of Hudſon river, and N. ſide of the creek of its name, five miles from its mouth; 50 miles N. of New York.

PEELAS, a ſmall iſland in the Sooloo Archipelago. N. lat. 6° 32′. E. long. 121° 45′.

PEELE, GEORGE, in *Biography*, a dramatic writer in the reign of queen Elizabeth, was a native of Devonſhire, and a ſtudent of Chriſt-church college, Oxford, where he took his degree of M.A. in 1579. He was a good paſtoral poet, and his plays were acted with great applauſe in the univerſity.

Peele, in *Geography*, a ſmall ſea-port town, ſituated on the weſtern coaſt of the Iſle of Man, in the Iriſh channel, was formerly denominated Holm, and appears, from its remains, to have been a place of conſiderable importance in the times of Mankiſh independence. The annexation of Man to the Britiſh crown, and the ſubſequent deſtruction of the ſmuggling trade, however, have reduced it greatly. The harbour, indeed, is now almoſt entirely neglected, notwithſtanding it is an excellent reſort for ſhipping, and the pier is completely deſtroyed. In ſhort, this town offers to the preſent traveller an appearance of decayed grandeur; and is conſequently more an object of intereſt and curioſity than inviting as a place of reſidence, for the man of buſineſs or of pleaſure. Woods, in his account of the Iſle of Man, computes the population of Peele at about twelve hundred perſons. The only church in the town, now uſed for divine ſervice, is that dedicated to St. Peter, but there are beſides the ruins of other two dedicated to St. Patrick and St. Germain. Theſe ſtand within the caſtle, on a ſmall rocky iſland, which is ſeparated from the weſtern extremity of the town by a narrow channel, ſcarcely a foot deep at low water. This iſland and caſtle are connected with the mainland by a ſtrong wall, ſhelving to the top, which was built many years ago to ſecure the harbour. The entrance is on the eaſtern ſide, by a flight of ſteps now ſo ruinous as to be dangerous of acceſs. The walls of this fortreſs meaſure about four feet in thickneſs, and are flanked with towers; the whole incloſing a ſpace of ſomewhat more than two acres of ground. Before the ſale of the Royalty of Man to the Britiſh government, a garriſon of troops, in the pay of the lord of the iſland, was ſtationed here; but ſince that event the caſtle has been altogether neglected, and the entire area is occupied by the ruins of various buildings, walls, and dwelling houſes. About the centre of it is a ſquare pyramidical mound of earth, terminating obtuſely, and having each of its ſides directed to one of the cardinal points. This tumulus is ſurrounded by a ditch five feet and a half broad, and is ſuppoſed either to have been an eminence whence an officer might harangue his troops, or the burial place of ſome great perſonage. Near this mound ſtand the ruined churches abovementioned, both of which are of conſiderable antiquity. Patrick's, however, is by far the older of the two, and is probably of earlier date than the era of the Norman conqueſt. St. Germain's was built about the year 1245, and is the cathedral of the iſland, but has not, for many years, been uſed for any other purpoſe than a burying-place. Its dimenſions are ſeventy-ſix feet by twenty; and beneath one part of it is the eccleſiaſtical priſon or dungeon, where ſuch perſons were confined as were ſo unfortunate as to incur the ſpiritual cenſure. The length of this vault is thirty-four feet, and its breadth ſixteen. The bottom is of earth, and at one corner are the remains of an uncovered well, which muſt have rendered the place damp in the extreme. The only light or air is admitted through a ſmall hole in the wall.

Three miles from Peele is the Tinwald mount, where the Manks parliaments and great councils were convened, and where alſo the ſuperior courts held judicial proceedings at ſtated periods. It is an artificial eminence of very ſingular appearance, and of unknown antiquity. According to ſome etymologiſts, its name is a compound of the Daniſh word *tin* or *ting*, ſignifying an aſſembly or meeting, and *wald*, a field or fenced place. Several modern authors, however, derive it from the Britiſh words *tyng* and *val*, ſignifying "the juridical hill." The approach to the ſummit of this mount is by a flight of turf ſteps on the eaſtern ſide. The diameter at the top is about ſeven feet, and three feet below it is an annular plot four feet wide, which is ſucceeded by another ſix feet broad, and this by a third ſtill wider. The circumference of the outer circle is nearly eighty yards; all the angles are rounded, and almoſt the whole ſurface is of turf.

At a ſhort diſtance from the Tinwald is a ſmall chapel dedicated to St. John, rebuilt about fourteen years ago, after the model of the former chapel, which had fallen completely to ruin. It has no pews, never being uſed for divine ſervice except on the day of the promulgation of the laws. An Account of the Paſt and Preſent State of the Iſle of Man, by George Woods, 8vo. 1811.

PEELING, a town of America, in Grafton county, New Hampſhire, containing 83 inhabitants.

PEEM, a town of the duchy of Holſtein; 9 miles W. of Eutyn.

PEEMDAHATTA, a town of Hindooſtan, in the circar of Ruttunpour; 25 miles N.N.E. of Dumdah.

PEENANG, or *Prince of Wales's Iſland*. See Pinang.

PEENE, a river which runs into the Baltic, W. of the iſland of Uſedom; ſeparating in part of its courſe Hinder Pomerania from Anterior Pomerania. N. lat. 54° 10′. E. long. 13° 50′.

PEENEMUNDE Schanz, a town and fort in the iſland of Uſedom, which it commands, as well as the entrance and mouth of the Peene, near which it ſtands; 6 miles N. of Wolgart. N. lat. 54° 10′. E. long. 13° 48′.

PEENPACK, a town of New York, in Orange county; 25 miles W. of Newburgh.

PEEPAROOL, a town of Bengal; 6 miles from Nattore.—Alſo, a town of Hindooſtan, in Rohilcund; 15 miles W.S.W. of Budayoon.

PEEPLY, a town of Hindooſtan, in Cattack; 5 miles S. of Cattack.

PEER, Par, primarily denotes an equal, or one of the ſame rank and condition. Hence, in ſome councils, or aſſemblies, we find, "with the conſent of our peers, biſhops, abbots, &c."

Peer, afterwards, was applied to the vaſſals, or tenants of the ſame lord, who were obliged to ſerve and attend him in his courts.

They were called peers, *pares*, becauſe equal in function; and *peers in fiefs*, or *fees*, becauſe holding fees of the lord; or becauſe their buſineſs in court was to ſit and judge, under their lord, of diſputes ariſing concerning fees.

The number of peers required to ſit in a court was at leaſt four; and when there happened to be too many peers in the ſame lordſhip, the lord uſually choſe out twelve, who had the titles of peers, by way of diſtinction and eminence.

There are alſo inſtances of women who have aſſiſted at judgment, on account of their tenements, not of their being wives of peers. The origin of theſe peers of fees is as ancient as that of the fees they were appointed to judge of: from theſe we derive our common juries, and our peers of the realm.

Peer *of the Realm*, denotes a noble lord, or perſon who has a ſeat and vote in the upper houſe of parliament; which is hence called the *houſe of peers*. See Nobility.

The right of peerage ſeems to have been originally territorial; that is, annexed to lands, honors, caſtles, manors, and the like; the proprietors and poſſeſſors of which were (in right of thoſe eſtates) allowed to be peers of the realm, and were ſummoned to parliament to do ſuit and ſervice to the king: and when the land was alienated, the dignity paſſed with it as an appendant.

Thus, the biſhops ſit in the houſe of lords, in right of ſucceſſion to certain ancient baronies annexed, or ſuppoſed to be annexed, to their epiſcopal lands: and though they are lords of parliament, they are not properly of the degree of nobility, their blood is not ennobled, nor their peerage hereditary: and, therefore, they are tried not by peers, but by a common jury: and when one of the nobility is tried by his peers in parliament, the ſpiritual lords muſt withdraw, and make their proxies. See Bishop.

But afterwards, when alienations became frequent, the dignity of peerage was confined to the lineage of the party ennobled, and inſtead of territorial, became perſonal. Peers are now created by writ or patent. The creation by writ, or the king's letter, is a ſummons to attend the houſe of peers, by the ſtyle or title of that barony which the king is pleaſed to confer; that by patent, is a royal grant to a ſubject of any dignity and degree of peerage. The creation by writ is the more ancient, but a man is not ennobled thereby, unleſs he takes his ſeat in the houſe of lords; and ſome are of opinion, that there muſt be at leaſt two writs of ſummons, and a ſitting in two diſtinct parliaments, to evidence an hereditary barony (Whitelocke of Parl. p. 114.); and, therefore, the moſt uſual, becauſe the ſureſt way is to grant the dignity by patent, which enures to a man and his heirs, according to the limitation thereof, though he never makes uſe of it. Creation by writ, however, has one advantage over that by patent; for a perſon created by writ holds the dignity to him and his heirs, without any words to that purport in the writ: but in letters patent, there muſt be words to direct the inheritance; or elſe the dignity enures only to the grantee for life. For a man or woman may be created noble for their own lives, and the dignity not deſcend to their heirs at all, or deſcend only to ſome particular heirs; as where a peerage is limited to a man, and the heirs male of his body by Elizabeth his preſent lady, and not to ſuch heirs of any former or future wife. Co. Litt. 9. 16.

Peers of the realm are by their birth hereditary counſellors of the crown, and may be called together by the king, to impart their advice in all matters of importance to the realm, either in time of parliament, or when there is no parliament in being (Co. Lit. 110.): accordingly Bracton, (l. i c. 8.) ſpeaking of the nobility of his time, ſays, they might properly be called "conſules, a conſulendo; reges enim tales ſibi aſſociant ad conſulendum." And in our law-books (7 Rep. 34. 9 Rep. 49. 12 Rep. 96.) it is laid down, that peers are created for two reaſons; "1, ad conſulendum; 2, ad defendendum regem;" on which account the law gives them certain great and high privileges; ſuch as freedom from arreſts, &c. even when no parliament is ſitting; becauſe it intends, that they are always aſſiſting the king with their counſel for the commonwealth; or keeping the realm in ſafety by their proweſs and valour. Inſtances of the peers to adviſe the king, have been in former times very frequent; though now fallen into diſuſe, by reaſon of the more regular meetings of parliament. In caſes of emergency, our princes have at ſeveral times, in a later period, thought proper to call for and conſult as many of the nobility as could be eaſily got together; ſuch was particularly the caſe with king James II., after the landing of the prince of Orange; and with the prince of Orange himſelf, before he ſummoned that convention parliament, which afterwards called him to the throne. Beſides, it is uſually conſidered as the right of each particular peer of the realm to demand an audience of the king, and to lay before him, with decency and reſpect, ſuch matters as he ſhall judge of importance to the public weal. The claims of peerage may be hereafter eaſily ſettled, ſince by a ſtanding order of the houſe of lords, May 1767, the heralds are directed to take exact accounts, and preſerve regular entries of all peers and peereſſes of England, and their reſpective deſcendants; and it is required that an exact pedigree of each peer and his family, ſhall, on the day of his firſt admiſſion, be delivered to the houſe by Garter, the principal king at arms.

As to the privileges of peers, ſee Nobility and Parliament. See alſo Clergy, *Benefit of*.

The houſe of lords have a right to take cognizances originally of all public accounts, and to enquire into any miſapplication, or default in the diſtribution of public monies; or of any other miſmanagement whatſoever.

Towards the latter end of the reign of king Charles I., the houſe of lords aſſerted their juriſdiction of hearing appeals from the chancery, which they do upon a paper petition, without any writ directed from the king; and for this their foundation is, that they are the great court of the king, and that therefore the chancery is derived out of it, and by conſequence that a petition will bring the cauſe and record before them. This was much controverted by the commons in the reign of Charles II., but is now pretty well ſubmitted to, becauſe it has been thought too much, that the chancellor ſhould bind the whole property of the kingdom without appeal.

Peers, *Pares of France*, were, before the revolution, the twelve grand lords of that kingdom. The inſtitution of theſe peers is very uncertain; ſome refer it to Hugh Capet, at the time when the dukes and counts changed the offices they then held of the king into perpetual fiefs: but this is impoſſible; Champagne, one of the titles, not being then erected into a county. Indeed, Paſquier obſerves, that it is an old tradition, that there have been twelve peers in all ages. Of theſe peers, ſix were dukes, and ſix counts, *comtes*; of theſe, again, ſix were eccleſiaſtics, and ſix laymen.

The archbiſhops of Rheims and the biſhops of Laon, and Langres, were dukes and peers; and the biſhops of Noyons, Chalons on the Marn, and Beauvais, were counts and peers.

The dukes of Burgundy, Normandy, and Aquitain, were lay peers and dukes; and the counts of Flanders, Champagne, and Thoulouſe, lay peers and counts.

Theſe lay peers aſſiſted at the coronation of the kings in ceremony, and by way of repreſentatives; where each performed the functions attached to his reſpective dignity: though their peerſhips were in reality all, except that of Flanders, reunited to the crown. Six lords of the firſt quality were choſen to repreſent them. The eccleſiaſtical peers uſually aſſiſted in perſon. At a later period, the title peer, in France, was beſtowed, as in England, on every lord, or perſon, whoſe fee was erected into a lordſhip or peerſhip.

The word peer, according to Paſquier, is derived from *patricius*, the firſt dignity in the eaſtern empire; on the model whereof he ſuppoſes theſe peers to have been inſtituted. But others, with more probability, derive the title from the *pares curiæ*, or *peers of fees*, becauſe of their being equal to each other.

Theſe pares curiæ, on whoſe model they ſuppoſe the peers of realms to have been erected, were a kind of vaſſals, depending all on the ſame lord, whom they were obliged to attend and aſſiſt in court.

All feudal matters, or diſputes, among vaſſals, relating to their fees or dependencies, were terminated by the ſuperior

rior lord of the two contending parties, and by their peers in fee.

If the proceſs were between the lord and the vaſſal, the lord took no cognizance of it, and the peers alone judged it.

Hence all lords or nobles, being *pares nobilitate*, *i. e.* all equally intitled to the privileges of nobility, are denominated *pares regni*, *peers of the realm*.

Some authors attribute the firſt inſtitution of peers of the realm to Charlemagne, but with little probability; ſince moſt of the fiefs, which bear the names of duchies, &c. or give titles to the peers, were not erected into duchies, &c. till long after: the dukes, &c. in thoſe days, being no more than ſimple governors of provinces, without any other title or privileges.

The more probable opinion is, that peers were firſt inſtituted by Philip the Young of France, about the year 1179, and that they firſt acted in capacity of peers at the coronation of his ſon.

Peer, in *Building*. See Pier.

Peer, in *Geography*, a town of France, in the department of the Lower Meuſe, and chief place of a canton, in the diſtrict of Haſſelt; 30 miles N. of Liege. The place contains 1005, and the canton 5351 inhabitants, on a territory of 187½ kiliometres, in 8 communes.—Alſo, a ſmall iſland in the Eaſt Indian ſea. S. lat. 5° 18′. E. long 118° 20′.

PEERAGE, the dignity of a peer attached to a duchy, earldom, barony, or the like.

The king of England confers peerage at pleaſure. King George I. offered his parliament to reſign that branch of his prerogative, and to have the number of peers limited.

The reaſon inſiſted on, was the inconvenience accruing to the ſtate from an arbitrary and immoderate uſe thereof; the prince having it in his power to throw what number of his creatures he pleaſes into the upper houſe of parliament.

The twelve peers created at once in the reign of queen Anne, was a main argument in behalf of the peerage bill. But though a bill for this purpoſe paſſed the houſe of lords, it miſcarried in the houſe of commons, whoſe leading members were then deſirous to keep the avenues to the other houſe as open and eaſy as poſſible. It is recorded as a ſaying of king Charles, that if his friends could but ſecure him a houſe of commons, he would put his whole troop of guards into the upper houſe, but he would have the peers.

Peerage, *to hold land in*, in the *Ancient Cuſtoms*, was a tenure which obliged the perſon to aſſiſt the lord's bailiff in his judgments; as all the ancient vaſſals, called peers, did.

PEERESS. As we have noblemen of ſeveral ranks, ſo we may have noblewomen, and theſe may be by creation, deſcent, or marriage; and firſt, king Henry VIII. made Anne Bullen marchioneſs of Pembroke; king James I. created the lady Compton, wife to ſir Thomas Compton, counteſs of Buckingham, in the life-time of her huſband, without any addition of honour to him; and alſo the ſame king made the lady Finch viſcounteſs of Maidſtone, and afterwards counteſs of Winchelſea, to her and the heirs of her body: and king George I. made the lady Schulenberg ducheſs of Kendal.

A woman noble by creation or deſcent, marrying one under the degree of nobility, ſtill remaineth noble, but if ſhe be noble by marriage only, ſhe loſeth her dignity if ſhe marry afterward a commoner; though not if the ſecond huſband is noble, and inferior in dignity to the firſt huſband; and by the courteſy of England, women noble by marriage, always retain their nobility. 1 Inſt. 16. 1 Inſt. 50. 6 Rep. 53.

A counteſs or baroneſs (either in her own right, or by marriage) may not be arreſted for debt or treſpaſs; for though, in reſpect of their ſex, they cannot ſit in parliament, they are nevertheleſs peers of the realm, and ſhall be tried by their peers, &c. 20 Hen. VI. c. 9.

PEERGAOW, in *Geography*, a town of Hindooſtan, in Dowlatabad; 35 miles S. of Amednagur.

PEERGOTCHY, a town of Bengal; 28 miles W. of Dinagepour.

PEERGUNGE, a town of Bengal; 39 miles N.E. of Purneah.

PEERNAGUR, a town of Hindooſtan, in Oude; 17 miles of Manickpour.

PEERPAR, a town of Bengal; 5 miles N. of Rajemal.

PEER-PUNCHEL, mountains which form the ſouthern boundary of Cachemire.

PEERWALTH, a town of Auſtria; 13 miles S. of Ips.

PEESKEN, a town of Pruſſian Pomerelia; 17 miles S.S.W. of Marienburg.

PEEVIT, or Pewit, in *Ornithology*, a bird of the larus kind, with a black head, and a grey-coloured body. See Larus *Ridibundus*.

PEGANELÆON, a word uſed by the ancients to expreſs oil, in which the leaves and flowers of rue had been infuſed and inſolated.

PEGANERON, a name given by ſome old authors to a plaſter in which rue was a principal ingredient, from *peganon*, the Greek name of rue.

PEGANUM, in *Botany*, a Greek name adopted by Linnæus for this genus, on account of its affinity to Rue; (ſee Ruta.) Πηγανον is the general name for Rue in Dioſcorides; and this very plant, which is the *Harmel* of the Arabians, and thence called *Harmala* by ſome of the earlier modern botaniſts, is the Πηγανον αγριον, or Wild Rue, of that old Greek writer.—Linn. Gen. 239. Schreb. 322. Willd. Sp. Pl. v. 2. 856. Mart. Mill. Dict. v. 3. Sm. Prodr. Fl. Græc. Sibth v. 1. 319. Ait. Hort. Kew. ed. 2. v. 3. 146. Juſſ. 297. Lamarck Illuſtr. t. 401. Gærtn. t. 95. (Harmala; Tourn. t. 133.)—Claſs and order, *Dodecandria Monogynia*. Nat. Ord. *Multiſiliquæ*, Linn. *Rutaceæ*, Juſſ.

Gen. Ch. *Cal.* Perianth inferior, of five linear, ſtraight, acute, permanent, often toothed leaves, the length of the corolla. *Cor.* Petals five, oblong-ovate, ſlightly ſpreading. *Stam.* Filaments fifteen, awl-ſhaped, not half ſo long as the corolla, dilated at the baſe into a cup-like nectary under the germen; anthers oblong, terminal, erect. *Piſt.* Germen roundiſh, three-lobed, elevated on a ſhort ſtalk; ſtyle thread-ſhaped, erect, equal to the ſtamens; ſtigma oblong, triangular. *Peric.* Capſule roundiſh, with three blunt angles, of three cells and three valves, with partitions from the centre of each valve. *Seeds* ſeveral, obovate, acute, roughiſh.

Eſſ. Ch. Petals five. Calyx of five leaves. Capſule with three cells and three valves; the partitions contrary to the valves. Seeds many.

Obſ. Linnæus remarks that *Peganum* differs from *Ruta* as *Celaſtrus* from *Euonymus*; whatever is deducted in number from the piſtil, being added to the ſtamens, and *vice verſâ*.

1. P. *Harmala*. Syrian Rue. Linn. Sp. Pl. 638. Bulliard Herb. de la Fr. t. 343. Sm. Fl. Græc. Sibth. t. 456,

t. 456, unpubliſhed. (Harmala; Ger. em. 1255. Ruta ſylveſtris, armala; Matth. Valgr. v. 2. 97.)—Leaves many-cleft. Stem herbaceous.—Native of open ſandy heaths in Portugal, Spain, and various parts of the Levant. The dreary plains which ſeparate France and Spain, beyond the Pyrenees, are clothed for the moſt part with this plant, far as the eye can reach. It is hardy with us, but not common, flowering in July and Auguſt. The *root* is perennial. *Herb* very buſhy, repeatedly branched and leafy, of a glaucous hue, ſmooth. *Leaves* ſcattered, ſeſſile, deeply three-cleft, pinnatifid, in linear, acute, entire ſegments. *Flowers* terminal, ſolitary, about an inch wide. *Calyx* widely ſpreading or deflexed while in flower, then erect; its leaves ſometimes, but not always, three-cleft. *Petals* white, with green ſtreaks. *Anthers* yellow. The whole plant has a ſtrong ſcent, and bitter acrid flavour, of the rue kind.

2. P. *crithmifolium*. Retz. Obſ. faſc. 3. 34. Willd. n. 2. —Leaves many-cleft. Stem ſhrubby.—Gathered near the Caſpian ſea, by Pallas, who ſent ſeeds to Retzius. The latter diſtinguiſhes this, as a ſpecies, from *P. Harmala*, on account of its ſhrubby perennial *ſtem*, which is three or four feet high, whereas the other is ſcarcely half ſo tall, and the ſmaller ſize of its *flowers*. As to the *calyx*, whoſe leaves he ſays are divided in the *Harmala*, this is but rarely the caſe, and chiefly, as it ſeems to us, in garden ſpecimens.

3. P. *retuſum*, Forſk. Ægypt-Arab. 211. Vahl. Symb. v. 3. 63. Willd. n. 3.—Leaves wedge-ſhaped, abrupt. Stem ſhrubby.—Gathered by Forſkall in Egypt, near Alexandria. The Arabians call it *Gharghed*.—This is a *ſhrub*, with ſpinous downy branches. *Leaves* ſeſſile, ſomewhat fleſhy, wedge-ſhaped, undivided, abrupt. We have ſeen no ſpecimen, nor figure.

4. P. *dauricum*. Linn. Sp. Pl. 638. (Harmala montana, daurica, perennis, multicaulis, polygalæ folio, albo flore; Amm. Ruth. 70. Ruta foliis ſimplicibus alternis; Gmel. Sib. v. 4. 176. t. 68. f. 1.)—Leaves lanceolate, ſlightly crenate. Stem herbaceous.—Native of gravelly places in Siberia.—We have a wild ſpecimen from the baroneſs d'Itzenplitz. This has a thick, woody, perennial *root*. *Stems* numerous, erect, ſlender, moſtly ſimple, leafy, round, ſmooth, ſcarcely a foot high. *Leaves* ſcattered, ſeſſile, lanceolate, acute, half an inch long, ſlightly crenate towards the end, glaucous, beſprinkled with glandular dots. *Flowers* few, ſomewhat corymboſe, at the ſummit of each ſtem, white, not half the ſize of the firſt ſpecies, and differing widely from that in the form of the *calyx-leaves*, which are very ſhort and ovate. The *capſule* is deſcribed by Ammann as of three, rarely four, cells, with two or three *ſeeds* in each.

Linnæus ſeems to have been led by Gmelin's plate to ſuppoſe this had no *calyx*, and therefore he ſays, in the ſhort generic character, "calyx five-leaved, or none," which Willdenow copies. The *calyx* however, though ſmall, is preſent, and reſembles in ſhape, though not in hairineſs, that of *Ruta fruticuloſa*, Labill. Syr. faſc. 1. t. 4. Willd. Sp. Pl. v. 2. 545, to which *P. dauricum* has a conſiderable general reſemblance. The plants nevertheleſs are ſpecifically, and as it appears by Labillardiere's figure of the fruit, generically, diſtinct.

Harmala montana, polygalæ foliis, floribus luteis; Amm. Ruth. 71, is thought by that author to be a mere variety of *P. dauricum*, with yellow flowers. To us it ſeems to merit further enquiry. May it not be ſtill nearer akin to the *Ruta fruticuloſa*, as the flowers of that are yellow? They cannot indeed be the ſame; as Ammann's plant, by the deſcription of the fruit, is a true *Peganum*.

PEGASUS, in *Aſtronomy*, the name of a conſtellation of the northern hemiſphere, figured in form of a flying horſe. The ſtars in this conſtellation, in Ptolemy's Catalogue, are twenty, in Tycho's nineteen, in Hevelius's thirty-eight, in the Britannic Catalogue eighty-nine. See CONSTELLATION.

PEGASUS, in *Ichthyology*, a genus of fiſhes of the order Branchioſtegous, according to the Linnæan ſyſtem, but of the Cartilaginous order in more modern arrangements. The generic character is this: the mouth is beneath; the ſnout retractile; the upper jaw is elongated, denticulate, enſiform, and linear; aperture of the gills ſingle, before the pectoral fins; body compreſſed downwards, articulate with bony inciſures, and mailed; ventral fins behind the pectoral. There are three ſpecies, which are all natives of the Indian ſeas, and which are characterized by the ſhape of the ſnout.

Species.

DRACONIS. This ſpecies has a conical ſnout; it is a ſmall fiſh, three or four inches in length, and is remarkable for the ſize of its pectoral fins, which are ſuppoſed to enable it, like the exocoeti, and ſome other fiſhes, to ſupport itſelf for a few ſeconds in the air, while it ſprings occaſionally over the ſurface of the water. The thorax, or ſuperior part of the body, is of a broad, ſlightly flattened, ſquariſh form, and is marked, both above and beneath by ſeveral radiated ſhields, or bony tubercles of conſiderable ſize; from each ſide of the abdomen ſprings a lengthened cirrus, which may be conſidered as ſupplying the place of a ventral fin; from the thorax the body ſuddenly decreaſes in diameter, and is marked into ſeveral diviſions or tranſverſe ſegments; the tail is ſmall and ſlightly rounded; the pectoral fins are, as it has been already obſerved, large in proportion to the ſize of the animal, and of a rounder ſhape, with a kind of ſcalloped or indented outline; the eyes are large and protuberant, and the ſnout of a ſubconical form, but with a ſlight dilatation towards the tip, ſo as to appear ſpatule-ſhaped when viewed from above; the colour of the whole animal is whitiſh, with a ſlight caſt of pale brown.

VOLANS. Snout enſiform, and denticulate. The length of this fiſh is about three inches; the ſnout is much elongated, flattened, rounded, and ſlightly dilated at the tip; marked by a longitudinal channel, and crenated or denticulated on the edges; on the head is a rhomboidal depreſſion, and behind it are two deep ſub-pentagonal cavities; the laſt joints of the body next the tail are pointed on each ſide.

NATANS. The ſnout of this ſpecies is enſiform and unarmed. It is about the length of the Volans, but much more ſlender: in reſpect to colour it is yellowiſh-brown, whitiſh beneath; ſnout ſlender, ſlightly dilated and rounded at the tip; marked above and beneath by a middle furrow; pectoral fins rounded and of a moderate ſize; the dorſal fin is ſituated on the middle of the back; ſegments of the abdomen about eleven or twelve in number; the tail is ſmall and ſlightly rounded; the ventral cirri ſlender and flexible.

PEGASUS, in *Mythology*, a winged horſe, whoſe origin is thus related by Heſiod: Perſeus, it is ſaid, cut off the head of Meduſa, one of the Gorgons, and from the blood that iſſued from it ſprung the hero Chryſaor, and the horſe Pegaſus: Chryſaor derived his name from a golden ſword which he had in his hand at his birth. He fell afterwards in love with Callirhoe, the daughter of the Ocean, and had by her Geryon, the famous giant with three heads. Pegaſus was ſo named, becauſe he was born near the ſources of the ocean: he inſtantly left the earth, and winged his way to the manſions of the gods. There he now reſides, in the palace of Jupiter himſelf, whoſe thunder and lightning he bears. According to Pindar, the horſe Pegaſus, who is repreſented by Heſiod as having taken flight to the manſions of the gods, was afterwards broke by Minerva, and given to Bellerophon, who mounted him to combat the Chimæra; but that hero having attempted to aſcend to heaven on the wings of that horſe, was thrown down to the earth, and Pegaſus was placed among the ſtars. Ovid, among other fictions, ſays, that Pegaſus, flying through the airy regions, went into Mauritania, where he transformed Atlas, who had given him a bad reception, into that mountain which has ſince borne his name. From thence, continues he, he went into Ethiopia, where he reſcued Andromeda from the monſter that was ready to devour her, and puniſhed Phineus his rival, together with all thoſe who had ſided with him, by ſhewing them the Gorgon's head, which turned them all into ſtones. For an explanation of the fable of the Gorgons, ſee Gorgons. Under that article the reader will find that the three Gorgons were ſhips, called by the names which they bore, that Perſeus's expedition was a ſea voyage, and that Pegaſus was a ſhip with ſails, which Perſeus carried into Greece, after having made uſe of it to reſcue Andromeda. Virgil gives the epithet nine wings to a ſhip, "remigio alarum." If Heſiod, and after him the other poets, ſay that Pegaſus ſprung from the blood of Meduſa, the reaſon is, ſays Banier, that Perſeus did not carry off the ſhip which was ſo called, till after a ſharp engagement, in which much blood was ſhed. Pegaſus was, in a manner, the offspring of that Gorgon, becauſe he belonged to her father Phorcys fleet. When Pauſanias ſays that Pegaſus was broke by Minerva, we may ſuppoſe him to mean, that Perſeus found occaſion for a great ſhare of prudence in managing to advantage a ſhip with ſails, the uſe of which was then unknown to him. If, according to Ovid, Perſeus mounted Pegaſus for his Mauritanian expedition, it is unneceſſary to ſay that it was meant of a ſhip, and not of a horſe. It may however be alleged, that, according to Heſiod, Pegaſus, as ſoon as he was born, left the earth and flew away to the manſions of the gods. A plauſible meaning may be given to this circumſtance by ſaying that Perſeus, upon his return into Greece, as an acknowledgment to the gods for his happy voyage, conſecrated the prow of the ſhip Pegaſus in Jupiter's temple, according to uſual cuſtom; and if this temple ſtood upon mount Olympus, which was accounted heaven, and the manſion of the immortal gods, nothing more would be wanting for developing this part of the fable. As for the poets that are later than Heſiod, who make Pegaſus to have taken flight upon mount Parnaſſus, where, with a blow of his foot, he made the fountain Hippocrene to ſpring up, and which became ſo famous afterwards for the ſeat of Apollo and the Muſes, we may ſuppoſe, that Perſeus conſecrated likewiſe in the temple of Apollo, which was in that mountain, ſome other part of his ſhip. Chryſaor, who iſſued at the ſame time with Pegaſus from the blood of Meduſa, with a golden ſword in his hand, was ſome ingenious artiſt who wrought in gold and ivory; an explanation correſponding both to his name and the ſword in his hand. Phorcys employed him to work the elephants' teeth, and the horns of the other animals which his ſhips brought home: and the meaning of his marrying the beautiful Callirrhoe was, that Phorcys, in order to engage ſo great an artiſt to remain in his dominions, procured for him a conſiderable match. Banier's Mythology, vol. iii.

Pegasus, in *Ornithology*, the grey-bellied humming-bird of Latham, a ſpecies of *Trochilus*, which ſee.

PEGAU, in *Geography*, a town of Saxony, in the circle of Leipſic, on the Elſter, containing two churches and a convent; 10 miles S.S.W. of Leipſic. N. lat. 51° 12'. E. long. 12° 12'.—Alſo, a town of Lower Stiria; ſeven miles N. of Gratz.

PEGERSK, a town of Ruſſia, in the government of Pſkov, near the lake Tchudſkoe; 20 miles W.N.W. of Pſkov. N. lat. 57° 55'. E. long. 27° 32'.

PEGMA, among the Romans, a wooden machine, uſed in theatrical entertainments, which was raiſed and let down by ſecret engines, whence it was ſaid to grow. See Pegmates.

PEGMATES, or rather Pegmares, in *Antiquity*, a name given to certain gladiators, as well as artificers among the Romans.

The ancients ſometimes exhibited ſhows of a ſort of moving machine, called *pegmata*: theſe were ſcaffolds variouſly adorned, ſomewhat after the manner of thoſe now raiſed for fire-works.

Theſe ſcaffolds, being made to play, and riſe aloft, either threw up into the air the matters with which they were charged; and, among the reſt, men, who were thus ſacrificed to afford the people diverſion; or elſe they precipitated them into holes dug in the ground, where they lighted their funeral piles; or finally into the dens of wild beaſts.

Both the miſerable people thus ſacrificed, and the workmen that made and played the machines, were called *pegmates*, or *pegmares*.

According to Caſaubon, fire was ſet to the ſcaffold: and the pegmates were to ſave themſelves through the flames, and the wreck of the machine.

Lipſius only ſays, that the pegmates were ſuch gladiators as fought on ſcaffolds erected for that purpoſe. They were alſo called *petauriſtæ*, q. d. *fliers in the air*.

PEGNA Cova, in *Geography*, a town of Portugal, in the province of Beira; ſeven miles N.E. of Coimbra.

Pegna *da Francia*, a town of Spain, in the province of Leon, anciently called Lancia; 24 miles S.S.E. of Civdad Rodrigo.

Pegna *Garcia*, a town of Portugal, in Beira, on the confines of Spain; 26 miles E. of Caſtel Branco. N. lat. 39° 50'. W. long. 6° 39'.

Pegna *Macor*, a fortified town of Portugal, in Beira, on the confines of Spain, containing three churches, a convent, and hoſpital, and about 2000 houſes; 30 miles N E. of Caſtel Branco. N. lat. 39° 59'. W. long. 6° 40'.

Pegna *Mayor*, a town of Spain, in Galicia; 12 miles E.S.E. of Lugo.

PEGNAFEL, a town of Spain, in Old Caſtile, ſituated at the foot of a mountain, and defended with a caſtle; 25 miles S.E. of Valladolid.

PEGNA-FIRMA, a town on the W. coaſt of Portugal, at the mouth of the river Mongole; nine miles S. of Peniche.

PEGNAFLOR, a town of Spain, in Aſturia, on the W. ſide of the Pravia; ſeven miles N.W. of Oviedo.—Alſo, a town of Spain, in the province of Cordova, on the Guadalquivir; 32 miles S.W. of Cordova.

PEGNARANDA, a town of Spain, in Old Caſtile; 18 miles W. of Oſma.—Alſo, a town of Spain, in the province of Leon; 30 miles S.E. of Salamanca.

PEGNITZ, a river of Germany, which runs into the Rednitz, at Furth.—Alſo, a town of Germany, in the principality of Culmbach; on a river of the ſame name; 10 miles S. of Bayreuth. N. lat. 49° 45'. E. long. 11° 33'.

PEGOMANTIA, Πηγομαντεία, in *Antiquity*, a ſpecies of divination, which was performed with fountain water, by throwing into it a kind of dice. When they ſunk to the bottom they drew happy preſages; but if they remained on the ſurface of the water, it was a bad omen. See Hydromancy.

PEGONGMEW, in *Geography*. See Pagahm.

PEGORELLA, in *Ichthyology*, a name by which ſome have called a fiſh of the truttaceous kind, caught in the Mediterranean, and more uſually called *callarias;* which is a ſpecies of *Gadus*.

PEGUE, or Bagoo, in *Geography*, a country of Aſia, the ſouthern part of which was the Golden Cherſoneſe of the ancients, is bounded on the N. by Arracan and Ava, on the E. and S. by Siam and the ſea, and on the W. by part of Arracan and the bay of Bengal. This country occupies the ſea-coaſt as far as Martaban; Prome and its northern frontier and Siam ſubjoined on the eaſt. It is for the moſt part a level country, ſurrounded by mountains, which ſerve as a frontier on the land ſide, but towards the ſea it is liable to invaſion, and alſo in its interior parts by means of the rivers which paſs through the mountains. Theſe rivers, the chief of which are that of Pegu (or Syriam), and that of Ava (or Irrawaddy), ſo called from the capitals ſituated on their banks, ſtill continue to roll down particles of gold; and it is probable, that their ſands muſt in ancient time have yielded this precious metal in greater abundance. Hence it is not unlikely that the practice of gilding the roofs and ſpires of temples and palaces may have been derived from a remote period, more eſpecially as we are informed, that Shoemadoo was built about 500 years before the Chriſtian era, and this ſplendid appearance might naturally give riſe to the claſſical appellation of the country. We learn from colonel Symes, that gold is diſcovered in the ſandy beds of ſtreams which deſcend from the mountains. Between the Keen Duam and the Irrawaddy to the northward, there is a ſmall river called Sho Lien Kioup, or the ſtream of golden ſand. The air of this kingdom is very healthy; the ſoil is very rich, and productive of corn, fruit, and roots; and it produces various kinds of timber, particularly the teak. The animals that principally abound in Pegu are elephants. Beſides the mines of the richer metals which are found in this country, it abounds with inferior minerals. But the moſt ſingular product of Pegu is the ruby, which is found in a mountain between Syriam and Pegu, and which exceeds in value that of any other country. The gem called the Syriam is alſo found only in Pegu. But for a further account of the productions and inhabitants of this country, as well as of the various revolutions which it has undergone, we refer to the article Birman *empire*. See alſo Arracan and Ava.

Pegue, a city of Aſia, and formerly capital of the kingdom of the ſame name, diſtant by water from Rangoon about 90 miles, moſtly in a northward direction, but on account of the windings of the river, by land in a ſtraight line much leſs. This city, in the year 1600, was one of the moſt ſplendid, large, and populous, in the whole of Aſia; and is deſcribed by thoſe who ſaw it in its proſperity as ſpacious, beautiful, and ſtrong, ſurrounded with ſtone walls and very wide ditches. The extent of the ancient city may ſtill be accurately traced by the ruins of the ditch and wall that encompaſſed it; from theſe it appears to have been a quadrangle, each ſide meaſuring nearly one mile and a half; the ditch, which was once no contemptible defence, is about 60 yards, and its depth 10 or 12 feet. The fragments of the wall evince that it was a large and laborious ſtructure, about 30 feet high, and at the baſe not leſs than 40 feet broad, compoſed of brick, badly cemented with clay mortar. Small equi-diſtant baſtions, about 300 yards aſunder, are ſtill diſcoverable, and there had been a parapet of maſonry; but in its preſent ruinous ſtate, it is ſo covered with weeds and briars, as to exhibit very imperfect veſtiges of its former ſtrength. In the centre of each face of the fort, there was a gateway about 30 feet wide; and theſe gateways were the principal entrances. The paſſage acroſs the ditch is over a cauſeway raiſed on a mound of earth, that ſerves as a bridge, and was formerly defended by a retrenchment, of which there are now no traces. It is impoſſible to conceive, ſays colonel Symes, a more ſtriking picture of fallen grandeur, and the deſolating hand of war, than the inſide of theſe walls diſplays. Alompra, when he got poſſeſſion of the city in the year 1757, razed every dwelling to the ground, and diſperſed or led into captivity all the inhabitants. The temples, or praws, which are very numerous, were the only buildings that eſcaped the fury of the conqueror; and of theſe the great pyramid of Shoemadoo has alone been reverenced and kept in repair. The preſent king of the Birmans has abrogated ſome ſevere penal laws impoſed by his predeceſſors upon the Taliens, or native Peguers; and the only diſtinction ſubſiſting at preſent between a Birman and a Talien, conſiſts in the excluſion of the latter from places of public truſt and power. Nothing has contributed more to reconcile the Peguers to the Birman yoke, than the reſtoration of their ancient place of abode, and the preſervation and embelliſhment of the temple of Shoemadoo. Accordingly the king ſome time ago iſſued orders to rebuild Pegue, encouraged ſettlers by grants of ground, and invited the ſcattered familes of former inhabitants to return and repeople their deſerted city. His Birman majeſty, on the death of the late Maywoon, or viceroy, directed his ſucceſſor, the preſent governor, to quit Rangoon, and to make Pegue the place of his future reſidence, and the ſeat of provincial government of the 32 diſtricts of Henzawuddy, the ſanſcrit name given by the Birmans to the province of Pegu. The ſucceſs of theſe meaſures has been ſuch, that a new town has been built within the ſcite of the ancient city; but Rangoon poſſeſſes ſo many advantages over Pegu, in a commercial point of view, that perſons of property in buſineſs, will not eaſily be prevailed upon to leave one of the fineſt ſea-ports in the world, to encounter the difficulties of a new ſettlement, where commerce, if any can ſubſiſt, muſt be very confined for the want of commodious navigation. The preſent inhabitants who have been induced to return, conſiſt chiefly of Rhahaans, or prieſts, and poor Talien families, who were glad to gain a ſettlement in their once magnificent metropolis. Their number all together does not, perhaps, exceed ſix or ſeven thouſand; thoſe who dwelt in Pegu, during its former days of ſplendour, are now nearly extinct, and their deſcendants and relatives ſcattered over the provinces of Tongho, Martaban, and Talowmeou; and many alſo live under the protection of the Siameſe. It is apprehended, however, that reſpect for their favourite temple of worſhip, and the encouragement, as well as ſecurity, held out to thoſe who venture to return, will, in time, accompliſh the wiſe and humane intentions of the Birman monarch.

Pegue, in its renovated and contracted ſtate, ſeems to be built on the plan of the former city, and occupies about one half of its area. It is fenced round by a ſtockade from ten to twelve feet high; on the north and eaſt ſides it borders on the old wall. The plane of the town is not yet filled with houſes, but a number of new ones are building. There is one main ſtreet running eaſt and weſt, croſſed at right angles by two ſmaller ſtreets not yet finiſhed. At each extremity of the principal ſtreet, there is a gate in the ſtockade, which is ſhut early in the evening; and after that time entrance during the night is confined to a wicket. Each of theſe gates is defended by a wretched piece of ordnance, and a few muſqueteers, who never poſt ſentinels, and are uſually aſleep in an adjoining ſhed. There are two inferior gates on the north and ſouth ſide of the ſtockade. The ſtreets of Pegue are ſpacious.

The new town is well paved with brick, which the ruins of the old plentifully ſupply; and on each ſide of the way there is a drain to carry off the water. The houſes of the meaneſt peaſants of Pegue, and throughout the Birman empire, poſſeſs manifeſt advantage over Indian dwellings, by being raiſed from the ground either on wooden poſts or bamboos, according to the ſize of the building. The kioums or monaſteries of the Rhahaans, and the habitations of the higher ranks, are uſually elevated ſix or eight, thoſe of the lower claſſes from two to four feet.

There are no brick buildings either in Pegue or Rangoon, except ſuch as belong to the king, or are dedicated to their divinity Gaudma: his majeſty having prohibited the uſe of brick or ſtone in private buildings, from the apprehenſion, as we were informed, (ſays Col. Symes,) that if people got leave to build brick houſes, they might erect brick fortifications, dangerous to the ſecurity of the ſtate. The houſes, therefore, are all made of mats, or ſheathing boards, ſupported on bamboos or poſts; but from their being compoſed of ſuch combuſtible materials, the inhabitants are under continual dread of fire, againſt which they take every precaution. The roofs are lightly covered, and at each door ſtands a long bamboo, with an iron hook at the end, to pull down the thatch: there is alſo another pole, with a grating of iron at the extremity, about three feet ſquare, to ſuppreſs flame by preſſure. Almoſt every houſe has earthen pots, filled with water, on the roof: and a particular claſs of people, whoſe buſineſs it is to prevent and extinguiſh fires, perambulate the ſtreets during the night.

Theſe people are called Pagwaat; they are ſlaves of government; men who have been found guilty of theft, and, through mercy, had their lives ſpared. They are diſtinguiſhed by a black circle on each cheek, cauſed by gunpowder and punctuation; as well as by having on their breaſt, in Birman characters, the word *thief*, and the name of the article ſtolen, as, on one that we aſked to be explained to us, Putchoo Khoo, *cloth thief*. Theſe men patrole the ſtreets at night, to put out all fires and lights after a certain hour. They act as conſtables, and are the public executioners.

The Maywoon's habitation, though not at all a magnificent manſion for the repreſentative of royalty, is, notwithſtanding, a building of much reſpectability, compared to the other houſes of Pegue. From an outſide view, we judged it to be roomy, and to contain ſeveral apartments, excluſive of that in which he gives audience: it poſſeſſes, however, but few ornaments. Gilding is forbidden to all ſubjects of the Birman empire; liberty even to lacker and paint the pillars of their houſes is granted to very few: the naked wood gave an unfiniſhed appearance to the dwelling of the Maywoon, which, in other reſpects. ſeemed well adapted for the accommodation of a Birman family.

The object in Pegue that moſt attracts and moſt merits notice, is the noble edifice of Shoemadoo, or the Golden Supreme. This extraordinary pile of buildings is erected on a double terrace, one raiſed upon another. The lower and greater terrace is about ten feet above the natural level of the ground, forming an exact parallelogram: the upper and leſſer terrace is ſimilar in ſhape, and riſes about twenty feet above the lower terrace, or thirty above the level of the country. We judged a ſide of the lower terrace to be 1391 feet; of the upper, 684. The walls that ſuſtained the ſides of the terrace, both upper and lower, are in a ruinous ſtate; they were formerly covered with plaſter, wrought into various figures; the area of the lower is ſtrewed with the fragments of ſmall decayed buildings, but the upper is kept free from filth, and is in tolerably good order. There is reaſon to conclude that this building and the fortreſs are coeval, as the earth of which the terraces are compoſed appears to have been taken from the ditch; there being no other excavation in the city, or in its neighbourhood, that could have afforded a tenth part of the quantity.

The terraces are aſcended by flights of ſtone ſteps, which are now broken and neglected. On each ſide are dwellings of the Rhahaans, raiſed on timbers four or five feet from the ground; theſe houſes conſiſt only of a large hall; the wooden pillars that ſupport them are turned with neatneſs; the roofs are covered with tiles, and the ſides are made of boards; and there are a number of bare benches in every houſe, on which the Rhahaans ſleep; but we ſaw no other furniture.

Shoemadoo is a pyramidical building, compoſed of brick and mortar, without excavation or aperture of any ſort; octagonal at the baſe, and ſpiral at top; each ſide of the baſe meaſures 162 feet; this immenſe breadth diminiſhes abruptly, and a ſimilar binding has not unaptly been compared in ſhape to a large ſpeaking trumpet.

Six feet from the ground there is a wide projection that ſurrounds the baſe, on the plane of which are fifty-ſeven ſmall ſpires of equal ſize, and equidiſtant; one of them meaſured twenty-ſeven feet in height, and forty in circumference at the bottom. On a higher ledge there is another row, conſiſting of fifty-three ſpires of ſimilar ſhape and meaſurement.

A great variety of mouldings encircle the building; and ornaments ſomewhat reſembling the fleur-de-lis ſurround the lower part of the ſpire; circular mouldings likewiſe girt it to a conſiderable height, above which there are ornaments in ſtucco not unlike the leaves of a Corinthian capital; and the whole is crowned by a *tee*, or umbrella, of open iron-work, from which riſes a rod with a gilded pennant.

The tee or umbrella is to be ſeen on every ſacred building that is of a ſpiral form: the raiſing and conſecration of this laſt and indiſpenſable appendage, is an act of high religious ſolemnity, and a ſeaſon of feſtivity and relaxation. The preſent king beſtowed the tee that covers Shoemadoo. It was made at the capital; and many of the principal nobility came down from Ummerapoora to be preſent at the ceremony of its elevation.

The circumference of the tee is fifty-ſix feet; it reſts on an iron axis fixed in the building, and is farther ſecured by large chains ſtrongly rivetted to the ſpire. Round the lower rim of the tee are appended a number of bells, which, agitated by the wind, make a continual jingling.

The tee is gilt, and it is ſaid to be the intention of the king to gild the whole of the ſpire. All the leſſer pagodas are ornamented with proportionable umbrellas of ſimilar workmanſhip, which are likewiſe encircled by ſmall bells.

The extreme height of the edifice, from the level of the country, is 361 feet, and above the interior terrace, 331 feet.

On the ſouth-eaſt angle of the upper terrace there are two handſome ſaloons, or kioums, lately erected, the roofs compoſed of different ſtages, ſupported by pillars; we judged the length of each to be about ſixty feet, and the breadth thirty: the ceiling of one is already embelliſhed with gold leaf, and the pillars are lackered; the decoration of the other is not yet completed. They are made entirely of wood: the carving on the outſide is laborious and minute: we ſaw ſeveral unfiniſhed figures of animals and men in groteſque attitudes, which were deſigned as ornaments for different parts of the building. Some images of Gaudma, the ſupreme object of Birman adoration, lay ſcattered around.

At each angle of the interior and higher terrace there is a temple ſixty-ſeven feet high, reſembling, in miniature, the great temple: in front of that, in the ſouth-weſt corner, are four gigantic repreſentations, in maſonry, of Palloo, or the evil genius, half beaſt half human, ſeated on their hams, each with a large club on the right ſhoulder. The Pundit who accompanied us, ſaid that they reſembled the Rakuſs of the Hindoos. Theſe are guardians of the temple.

Nearly in the centre of the eaſt face of the area are two human figures in ſtucco, beneath a gilded umbrella; one, ſtanding, repreſents a man with a book before him and a pen in his hand; he is called Thaſiamee, the recorder of mortal merits and mortal miſdeeds; the other, a female figure kneeling, is Mahaſumdera, the protectreſs of the univerſe, ſo long as the univerſe is doomed to laſt; but when the time of general diſſolution arrives, by her hand the world is to be overwhelmed and everlaſtingly deſtroyed.

A ſmall brick building near the north-eaſt angle contains an upright marble ſlab, four feet high, and three feet wide; there is a long legible inſcription on it. We were told it was an account of the donations of pilgrims of only a recent date.

Along the whole extent of the north face of the upper terrace there is a wooden ſhed for the convenience of devotees who come from a diſtant part of the country. On the north ſide of the temple are three large bells of good workmanſhip, ſuſpended nigh the ground, between pillars; ſeveral deers horns lie ſtrewed around; thoſe who come to pay their devotions firſt take up one of the horns, and ſtrike the bell three times, giving an alternate ſtroke to the ground: this act, we were told, is to announce to the ſpirit of Gaudma the approach of a ſuppliant. There are ſeveral low benches near the foot of the temple, on which the perſon who comes to pray places his offering, commonly conſiſting of boiled rice, a plate of ſweetmeats, or cocoa-nut fried in oil; when it is given, the devotee cares not what becomes of it; the crows and wild dogs often devour it in preſence of the donor, who never attempts to diſturb the animals. We ſaw ſeveral plates of victuals diſpoſed of in this manner, and underſtood it to be the caſe with all that was brought.

There are many ſmall temples on the areas of both terraces, which are neglected, and ſuffered to fall into decay. Numberleſs images of Gaudma lie indiſcriminately ſcattered. A pious Birman who purchaſes an idol, firſt procures the ceremony of conſecration to be performed by the Rhahaans; he then takes his purchaſe to whatever ſacred building is moſt convenient, and there places it within the ſhelter of a kioum, or on the open ground before the temple; nor does he ever again ſeem to have any anxiety about its preſervation, but leaves the divinity to ſhift for itſelf. Some of thoſe idols are made of marble that is found in the neighbourhood of the capital of the Birman dominions, and admits of a very fine poliſh, many are formed of wood, and gilded, and a few are of ſilver; the latter, however, are not uſually expoſed and neglected like the others. Silver and gold are rarely uſed, except in the compoſition of houſehold gods.

On both the terraces are a number of white cylindrical flags, raiſed on bamboo poles; theſe flags are peculiar to the Rhahaans, and are conſidered as emblematic of purity, and of their ſacred function. On the top of the ſtaff there is a henza, or gooſe, the ſymbol both of the Birman and Pegue nations.

From the upper projection that ſurrounds the baſe of Shoemadoo, the proſpect of the circumjacent country is extenſive and pictureſque; but it is a proſpect of nature in her rudeſt ſtate; there are few inhabitants, and ſcarcely any cultivation. The hills of Martaban riſe to the eaſtward, and the Sitang river, winding along the plains, gives an interrupted view of its waters. To the north-weſt, about forty miles, are the Galladzet hills, whence the Pegue river takes its riſe; hills remarkable only for the noiſome effects of their atmoſphere. In every other direction the eye looks over a boundleſs plain, checquered by a wild intermixture of wood and water.

Tradition reports that the temple of Shoemadoo was founded 2300 years ago by two merchants, who were brothers, and who came to Pegue from Tallowmeou, a diſtrict of one day's journey E. of Martaban. Theſe pious traders at firſt raiſed a temple one Birman cubit (22 inches) in height: a cubit was miraculouſly added in one night; the merchants added another cubit, which was again miraculouſly doubled; and thus the building attained the altitude of 12 cubits: and the temple was afterwards gradually augmented by ſucceſſive monarchs of Pegue.

The cows in the vicinity of Pegue are of a diminutive ſize, reſembling the breed on the coaſt of Coromandel, but the buffaloes are noble animals, ſuperior to thoſe of any other part of India. Theſe are uſed both for draft and agriculture. The only article of conſequence manufactured at Pegue is ſilk and cotton cloth; it is well wrought, but they make no more than what ſuffices for their own conſumption.

In the town of Pegue there are only three perſons, beſides the Maywoon or viceroy, whoſe rank entitles them to diſtinction. Theſe officers exerciſe the function of magiſtrates, and hold ſeparate courts at their own houſes, for the determination of petty ſuits; but all cauſes of importance relating to property, and matters of an high criminal nature, are ſolemnly tried in open court, in which the three officers unite, and form a tribunal which ſits at the "Rhóom," or public hall of juſtice, and the ultimate deciſion reſts with the Maywoon. N. lat. 17° 40'. E. long. 96° 11' 15". Symes's Ava, vol ii. Aſiatic Reſearches, vol. v.

PEGUE, a river of Aſia, in the vicinity of the city of the ſame name. It is called by the natives "Bagoo Kioup," or Pegue rivulet, to diſtinguiſh it from Mioup, or river. This river is navigable but a very few miles to the northward of the city of Pegue, and for this it is indebted wholly to the action of the tide. It has no communication with the ſea, except by the Rangoon river, and, in the fair ſeaſon, at low water, is almoſt dry. This ſtream has been ſometimes miſtaken for the Sitang river, about 15 miles E. of Pegue, which is a large and independent body of water, that partly deſcribes the courſe that in the map is given to what is called the Pegue river.

PEGUNNOCK, a N.W. branch of Paſſaik river, in New Jerſey, North America, which riſes in Suſſex county. The town of its name lies between it and Rockaway, another branch S. of this river, N.W. of Morriſtown.

PEHL, a town of Auſtria; 6 miles W. of Wells.

PEI, a city of China, of the ſecond rank, in Se-tchuen, on the Kincha river; 720 miles S.S.W. of Peking. N. lat. 29° 50'. E. long. 107°.

PEICHELSTEIN, a town of Tyrol; 5 miles S.S.W. of Reutten.

PEJEND, or PAJANA, the moſt conſiderable lake of Finland, about 80 miles in length by 15 in breadth, which gives ſource to the river Kymmen.

PEJEPSCOL, or PEGYPSKEAG, a townſhip of America,

rica, in Cumberland county, Maine, adjoining Poland, Durham, &c. on the weſterly bank of Great Ameriſkoggen river, about 30 miles N. of Portland.

PEI-HO, or *White River*, a river formed by ſeveral ſtreams in the province of Pe-tche-li, and which runs into the gulf of Pe-tche-li. The mouth of the river is traverſed by a bar, ſtretching N.N.E. and S.S.W., over which, at low water, the depth is not more than three or four feet, and in many places it is almoſt dry. The tides riſe and fall ſix or ſeven feet at the mouth of the river: the time of high water, at the full and change of the moon, is about half after three; and five or ſix miles outſide of the mouth of the river a large bamboo beam is placed upon the bar, together with ſome of a ſmaller ſize, continued nearly in a ſtraight line to the ſhore, intended as marks to direct veſſels entering into the river. The town of Ta-coo lies within the Pei-ho, and is the firſt place of any note in this part of the N.E. frontier of China. Yachts, or large covered barges, and boats of burthen, calculated to paſs over the ſhallows of the Pei-ho, may be obtained here, in order to enable perſons to proceed as far as this river leads, towards Pekin, the capital of the empire. The progreſs upon the Pei-ho is neceſſarily very ſlow, as the courſe of the river is remarkably ſerpentine. The fields on each ſide exhibit a high ſtate of cultivation, and are generally covered with the holcus ſorghum, or the talleſt of the vegetables producing eſculent grain, commonly called Barbadoes millet; it grows to 10 or 12 feet high, and the loweſt calculation of its increaſe is one hundred-fold. The houſes in the villages near the river are conſtructed of bricks ill-burnt, or baked in the ſun, which, as well as the tiled roofs, are plaſtered over with a muddy coloured ſubſtance, unmixed with lime. Near ſome of the towns and villages are pyramids about 15 feet high, but of different dimenſions as to both length and thickneſs. They conſiſted of bags of ſalt, heaped together in that form, and covered merely with common matting. As ſoon as night comes on, the banks of this river are illuminated with variegated lights, from lanterns whoſe tranſparent ſides were made of different coloured paper. The different numbers of lanterns hoiſted on the maſts' head of the various veſſels in the river denote the ranks of the paſſengers they hold; all which, together with the lights from the cabins of the junks, reflected from the water, produce a moving and parti-coloured illumination. The ſalt, already mentioned, brought from Quan-tong and Fo-chien into the Pei-ho, is ſufficient to load annually nearly 2000 veſſels of 200 tons burden each.

At *Tien-ſing* (which ſee) two rivers unite; one of which retains the name of Pei-ho; and the other is called "Yun-leang-ho," or grain-bearing river, from the quantities of wheat conveyed upon it from the province of Shen-ſee, and ſent up by the Pei-ho to the neighbourhood of Pekin. About 30 miles beyond Tien-ſing, towards Pekin, the tide of the Pei-ho ceaſes, and the progreſs of the yachts, &c. is effected by rowing with oars, or towing with ropes, and their advance is very ſlow againſt the current of the river. Large junks, to the number of 1000, each of which contains not leſs than 50 perſons, and therefore in the whole amount to 50,000, are paſſing between Tong-choo-foo and Tien-ſing; and as many more of other kinds of craft; ſo that upon a branch of a ſingle river, the population of its moveable habitations amounts to 100,000 perſons. Tong-choo-foo, where the water becomes too ſhallow for the navigation of yachts of any burden, is 90 miles diſtant from Tien-ſing, and 12 miles from the city of Pekin. The mouth of the river Pei-ho, in the gulf of Pe-tche-li, is in N. lat. 39°.

PEILLAC, a town of France, in the department of the Morbihan; 16 miles E. of Rocheſort.

PEILSTEIN, a town of Auſtria; 4 miles S. of Aigen.

PEINA, a town of Weſtphalia, in the biſhopric of Hildeſheim, in a marſhy country, on the Fuſe, formerly reckoned among the fortreſſes. The inhabitants are chiefly Lutherans. It has an epiſcopal palace, a Capuchin convent, and a ſuburb called the "Damon," which is moſtly inhabited by ſhopkeepers and Jews; 15 miles N.N.E. of Hildeſheim. N. lat. 52° 10′. E. long. 10° 18′.

PEINT, a town of Hindooſtan, in Baglana; 28 miles N.W. of Naſſuck.—Alſo, a town of Hindooſtan, in Guzerat; 20 miles S. of Dungerpour.

PEINTADE, in *Ornithology*. See NUMIDA *Meleagris*.

PEIPUS LAKE, or *Tchudſkoe*, in *Geography*, a lake of Ruſſia, which lies between the governments of Pſcove, Reval, Riga, and St. Peterſburg, extending in length to about 80 and in breadth to 60 verſts. By means of a very broad ſtrait it is connected with the Pſcove lake, the length of which is ſtated to be 50, and the breadth, which is always decreaſing, 40 verſts. This latter receives the river Velikaia. Out of the Peipus comes the Narova, which through the Embach has communication with the Vertz-erb lake; out of this, on the other hand, flows the Fellin into the gulf of Riga; and conſequently a very beneficial water-paſſage might be made between Riga and ſome of the inland provinces, by way of the Peipus lake. In this lake there are a few ſmall iſlands, none of which are ſufficiently important to deſerve notice except Perka or Bork, called by the Eſthonians Porkaſaar, which is not only inhabited, but furniſhed with foreſts, and has no leſs than three villages upon it. Among the ſeveral brooks and rivers that flow into the Peipus, the Embach is the moſt conſiderable. The exit is through the Narva river into the gulf of Finland. The multitude of fiſh that breed in this lake afford a lucrative occupation to the boors of theſe parts, and increaſe the revenues of the adjoining eſtates, the owners of which let out the parts on which their lands abut at a certain rent. The fiſh are principally rebſe, a ſpecies of herring, and barbel. Beſides theſe, here are pike, pearch, a ſpecies of carp, whiting, quebb, koruſhki, gudgeons, &c. The pike and ſome others are dried in the air and exported: the rebſe are ſometimes ſmoked. N. lat. 58° to 59° 10′. E. long. 27° to 27° 28′.

PEIRA, a town of Malacca, on the W. coaſt; 100 miles N.W. of Malacca. N. lat. 3° 40′.

PEIRCE, JAMES, in *Biography*, was born in London in the year 1673. He had the misfortune in early life to loſe both his father and mother, and was placed under the care of his guardian, Mr. Matthew Mead, a celebrated miniſter at Stepney, in whoſe houſe he was inſtructed in the rudiments of learning by a private tutor. After this he ſpent ſome years in different grammar ſchools, till he was prepared for entering upon a courſe of academical ſtudies, when he was ſent to Utrecht. Here he attended the lectures of the moſt celebrated profeſſors, among whom were Witſius, Leydecker, Grævius, and Leuſden: he cultivated a ſtrict friendſhip with ſome of the moſt diſtinguiſhed of his fellow ſtudents, particularly with Adrian Reland. From Utrecht he removed to Leyden, where he had the opportunity of hearing Gronovius, Spanheim, and other profeſſors of the higheſt character in the republic of letters. Having ſpent ſeveral years in theſe ſeminaries he returned to England, and lived for ſome time with his relations at London, and then took apartments at Oxford, where he had conſtant acceſs to the Bodleian library. After this, at the requeſt of his friends, he preached a Sunday evening lecture at Miles' Lane, London, but he does not appear to have intereſted himſelf in the diſpute then ſubſiſting between the Independents and Preſbyterians. With the miniſters of the latter denomination he became well acquainted, and at their ſolicitation he ſettled at Cambridge, where he acquired the reſpect and eſteem of many members of the univerſity. From Cambridge he removed to Newbury, in Berkſhire, where he appeared to great advantage, in the year 1707, in a controverſy with Dr. Wells, a clergyman of Leiceſterſhire, who had attacked the principles and practice of the Diſſenters, and whoſe miſtakes and miſrepreſentations he ably expoſed. Mr. Peirce after this publiſhed, at different periods, various able controverſial tracts, relating to the rites impoſed under the eſtabliſhment; the validity of the diſſenting miniſtry, and preſbyterian ordination; and the imputed ſin of ſchiſm.

The next work of our author was called for by the appearance of "A Defence of the Doctrine and Diſcipline of the Church of England," written in the Latin tongue, and ſubmitted to the judgment of foreign divines, by Dr. Nichols, Latin ſecretary to the Society for the Propagation of the Goſpel. In this work the author had given ſuch a view of the controverſy between the Church and Diſſenters, as was intended to expoſe the latter to the cenſure and condemnation of their foreign brethren, on which account Mr. Peirce was earneſtly ſolicited to undertake their vindication in the ſame language, for the purpoſe of counteracting the effects of Dr. Nichols' performance. He accordingly publiſhed his "Vindiciæ Fratrum Diſſentientium," in which he gave a full and very ſatisfactory anſwer to his antagoniſt. This work was publiſhed in 1717 in the Engliſh language, with the title of "A Vindication of the Diſſenters, &c." It conſiſted of three parts: the firſt contains the hiſtory of nonconformity; the ſecond treats of the doctrine of the church of England; and the third contains all the heads relating to diſcipline and worſhip. It, in fact, preſents the reader with a view of almoſt the whole controverſy between the eſtabliſhed church and the Diſſenters. In 1718, Mr. Peirce took part in the controverſy relating to the Teſt Act, and publiſhed "Letters" on the ſubject to a friend, and to Dr. Snape. He had previouſly to this removed from Newbury to Exeter, having had a general and moſt unanimous invitation from the three united congregations of the Diſſenters in that city. In this ſituation he gave the greateſt ſatisfaction in the diſcharge of the paſtoral duties, till there aroſe a controverſy concerning the explication of the Trinity, which was productive of very diſgraceful conſequences. He had been educated in the trammels of orthodoxy as it was called, but had, during his miniſtry, learnt to ſhake off all thoſe unſcriptural phraſes, which then, as well as now, were looked on as a kind of teſt of a man's religious opinions. He conſidered the ſcriptures as the only rule of faith, and from a very early period he took care to uſe their language in his ſermons, when he introduced any doctrinal topic, and as he advanced in years he grew more careful in his adherence to this practice. The doctrine of the Trinity he looked upon as a *myſtery*, and was averſe from ſpeaking or even thinking upon it. But his attention was unavoidably drawn to it by the clamour which was raiſed concerning his friend Mr. Whiſton, for whom he had a high eſteem, and at firſt he was exceedingly hurt to learn that Mr. Whiſton had declared againſt the current doctrines of the day. He expoſtulated with his friend, but inſtead of convincing him of his error, he himſelf became a convert to the hereſy that he had been ready to condemn.

"The reader," ſays Mr. Peirce, "will eaſily imagine that this muſt have been a terrible ſhock to me, and that I muſt have had a great concern upon my mind, when I found myſelf at a loſs about a doctrine, of which I had been all along fond, to a great degree of uncharitableneſs. However, this cauſed me to read the bible with more care, and make it more my prayer to God, that I might be led into the truth." It was not long before he was fully ſatisfied that the common opinion was not accordant with the doctrines held forth in ſcriptures. Being ſuſpected of holding heretical opinions, he was attacked in the moſt hoſtile manner, and there can be no doubt that had his opponents poſſeſſed the power, they would moſt cheerfully have burnt him at the ſtake.

They required him to ſubſcribe a teſt he refuſed, becauſe he believed that the worſt miſchief had been done to the church of God by impoſing unſcriptural creeds and teſts upon men, and he ſaid he would never tamely ſurrender the liberty with which he had been made free. They turned him out of his meeting, and excited the clamour of the mob againſt him, by ſtigmatizing him and his friends with the then opprobrious epithet of *Arians*. Under theſe circumſtances, Mr. Peirce found it neceſſary, for the vindication of his own character, and that of his friends, to lay a true ſtate of the affair before the public, and accordingly publiſhed "The Caſe of the Miniſters ejected at Exon." In 1720 he gave the world a much larger work, entitled "The Weſtern Inquiſition, or a Relation of the Controverſy which has been lately among the Diſſenters in the Weſt of England," which contains a full account of the origin, progreſs, and iſſue of the nefarious and cruel perſecution with which our author was haraſſed. To this a reply was publiſhed, entitled "An Anſwer to Mr. Peirce's Weſtern Inquiſition, &c." Mr. Peirce now took leave of the controverſy by a very able and ſatisfactory piece, entitled "Inquiſition Honeſty diſplayed, or the Weſtern Inquiſition defended againſt the pretended Anſwer, &c."

From this period Mr. Peirce applied himſelf to the diligent diſcharge of his paſtoral duties among a reſpectable people, by whom he was highly honoured and beloved, and to the completion of ſome explanations of the ſacred writings, in which he had made conſiderable progreſs. The firſt fruits of his learned ſtudies were given to the world in 1725, but without his name, in "A Paraphraſe and Notes on the Epiſtle of St. Paul to the Coloſſians," 4to.; in which he endeavoured to follow the admirable rules and example of Mr. Locke, whom he conſidered as having done more than any other writer towards rendering St. Paul's epiſtles eaſy and intelligible. This publication was well received; and in the ſame year he gave the world "A Paraphraſe and Notes on the Epiſtle of St. Paul to the Philippians." He intended to proceed with ſimilar commentaries on all the other Epiſtles attributed to this apoſtle, excepting thoſe that had been before paraphraſed by Mr. Locke. His next attempt was on "The Epiſtle to the Hebrews," which he did not live to finiſh, for while he was engaged in it, he was attacked by a diſorder which put an end to his life, on the 30th of March 1726, in the 53d year of his age.

The perſecution which he had met with during his life purſued him even to the grave: for his relations having directed that a Latin inſcription, containing an encomium on his learning and virtues, ſhould be cut on a tomb-ſtone, the rector of the church in which his remains were depoſited would not permit it to be placed in his church-yard; ſtating that he could not, in conſcience, ſuffer a perſon ſo notorious for hereſy to be warmly recommended to poſterity in any place under his care and inſpection. When it was afterwards requeſted that theſe words might be inſcribed on his tomb, "Here lies the reverend, learned, and pious Mr. James Peirce," ſtill it was refuſed, the rector aſſuming that Mr. Peirce could not be *reverend*, becauſe he was not lawfully ordained, and that he was not pious, becauſe he taught errors, ſo that the only inſcription allowed, was "Mr. James Peirce's tomb." On a monument erected to his memory in the meeting-houſe in which he latterly officiated, he is held out to the veneration of poſterity, as a rational, judicious, and affectionate preacher; a very laborious and ſagacious interpreter of the Holy Scriptures; a ſincere lover and ſtrenuous defender of the truth; and a courageous ſufferer for maintaining the doctrines of the goſpel of Chriſt, and for aſſerting the liberties of Chriſtians.

After the death of this excellent man, his "Paraphraſe and Notes on the Epiſtle of St. Paul to the Hebrews, with Diſſertations on ſeveral Texts of Scripture," were publiſhed in 1727, though evidently left in an unfiniſhed ſtate. The work was afterwards completed by Mr. Joſeph Hallet. From Mr. Peirce's MSS. were alſo publiſhed "An Eſſay in favour of the ancient Practice of giving the Euchariſt to Children" and other tracts.

PEIRESC, Nicholas-Claude Fabri de, a conſiderable promoter of literature, deſcended from the ancient family of Fabri of Piſa in Italy, was born in Provence in 1580. At ten years of age he was ſent, with his younger brother, to the Jeſuits' college at Avignon, where he continued five years. At the early age of ſeven he was appointed to the ſole ſuperintendance of his brother's education, who was about a year and a half younger than himſelf. In 1595 he removed to Aix, where he commenced the ſtudy of philoſophy. At this time he became paſſionately fond of the medallic ſcience, and the remains of antiquity. In 1596 he finiſhed his courſe of philoſophy and mathematics in the Jeſuits' college at Tournon, and he afterwards ſtudied the law at Aix. He was ſent, in 1599, with his brother and a tutor to travel in Italy, and further proſecute his legal ſtudies at Padua. He paid frequent viſits to Venice, and became acquainted with ſeveral diſtinguiſhed perſons, particularly with father Paul, and the procurator Fred. Contarini. The fine cabinet of medals poſſeſſed by the latter was a peculiar object of attention to Peireſc, who gave the owner explanations of the Greek inſcriptions. Rome was the next object of our youthful traveller's curioſity, and it gave ample gratification to his love of antiquities, and his deſire of forming acquaintances among the learned. In 1601 he proceeded to Naples, and having thoroughly ſurveyed every thing worthy of obſervation in that city and its vicinity, he completed the tour of Italy, by returning along the coaſt of the Adriatic to Padua. He there reſumed the ſtudy of the law, and likewiſe, at the ſame time, acquired a knowledge of the oriental languages, in which he was aſſiſted by a learned rabbi named Solomon. Returning to France in 1602, he continued his ſtudies at Montpelier, and in 1604 he took the degree of doctor of laws at Aix, after ſuſtaining diſputations for three days with great applauſe. In the following year he went to Paris, and in 1606 he viſited England, where he was graciouſly received by king James. Of the learned men in this country, Camden, on account of his antiquarian knowledge, was particularly acceptable to him. On his return by Holland, he became perſonally acquainted with Joſeph Scaliger and Grotius. After he had finiſhed his travels, he was made counſellor to the parliament of Aix, which office he held, though in 1618 he entered into the eccleſiaſtical ſtate, and was preſented to an abbacy of the Benedictine order.

The great occupation of Peireſc during his whole life was the acquiſition of knowledge, and the encouragement of learned men, and no perſon of his time maintained ſuch an extenſive correſpondence with the literati of different claſſes and countries. The chief objects of his enquiries and communications embraced philoſophical experiments, natural hiſtory, rare products of art, antiquities, hiſtory, and philology. He formed for himſelf a muſeum of valuable curioſities, and a copious library, and then liberally opened his ſtores to authors and ſtudents. He has been characterized as a true citizen of the republic of letters, and a kind of general agent of learning throughout civilized Europe. He died in 1637, in the 57th year of his age. His funeral at Aix was conducted with great ſolemnity, and a collection of eulogies to his memory was printed in a variety of languages. The vaſt variety of objects which his ſtudies comprehended prevented him from finiſhing any thing, ſo as, in his own opinion, to be fit for the public eye, but he left behind him a great number of MSS. on local hiſtory and antiquities, mathematics and aſtronomy, the medallic ſcience, languages, &c. Of the writings of this ſcholar there have been publiſhed 48 Italian letters, addreſſed to Paolo and Giambattiſta Gualdo, in the "Lettere d'uomini illuſtri;" a conſiderable number of letters among thoſe of Camden, and a long and learned diſſertation on an ancient tripod found at Frejus, in the Mém. de Literature et de l'Hiſtoire," by Deſmalets, in 1731.

PEISDORF, in *Geography*, a town of Bohemia, in the circle of Konigingratz; 14 miles N.E. of Gitſchin.

PEISKREITSCHAM, or Pyslowice, a town of Sileſia, in the principality of Oppeln; 12 miles W.N.W. of Beuthen.

PEITSCHENDORF, a town of Pruſſia, in Bartenland; 22 miles S. of Raſtenburg.

PEITZ, a town of Brandenburg, in the Ucker Mark, on a ſmall river which runs into the Spreke. In its vicinity are iron mines, and manufactures of pitch and turpentine; 20 miles E.S.E. of Luben. At the peace of Tilſit, this town was ceded to Saxony. N. lat. 51° 53'. E. long. 14° 40'.

PEIXE, in *Ichthyology*. See Zeus *Gallus*, and Centriscus *Scutatus*.

PEKAN, in *Zoology*. See Mustela *Canadenſis*.

PEKEA, in *Botany*, a Weſt Indian name for a tree of Cayenne, which bears an excellent nut, ſometimes ſold in the fruit-ſhops of London, by the name of Suwarrow nut. Aublet figures this ſpecies in his t. 239, and another in t. 238. See Rhizobolus.

PEKENEN, in *Geography*, a town of Africa, on the Grain coaſt; 15 miles S. of Sanguin.

PEKET, a town on the N. coaſt of the iſland of Cumbava. S. lat 8 15'. E. long. 117° 36'.

PE-KIANG, a river of China, which riſes near Nan-yang, in the north part of the province of Quan-tong, and runs into the river Canton, 30 miles below Canton. This river continues its courſe through an extent of about 260 miles, to the city of Canton; from thence it falls, after a further courſe of about 80 miles, into the ſouthern ſea of China, near which it takes, among foreigners, the name of Bocca Tigris. For a great part of its courſe to the northward of Canton, it lies between two ranges of calcareous hills, conſiſting of rugged eminences with intervening plains between them, on which are erected ſmall neat houſes, ſurrounded by patches of land under cultivation, and apparently acceſſible only by the river. In its bed frequently occur heaps of ſtones, with ſtakes of wood, forming dams, with ſluices, through which the water runs, and in theſe are placed baſkets of wicker-work, which allow the fiſh to paſs, but prevent their regreſs; thus rendering them a prey to the proprietors of theſe ſnares. As ſoon as the hills oppoſite to each other begin to be leſs rugged, tobacco is planted on their ſlanting ſides; but ſome of the mountains are barren and of a horrid aſpect, and formed of rocks piled upon rocks in a variety of fantaſtic forms, and threatening paſſengers ſailing on the river under their over-hanging heads. Other hills conſiſt chiefly of mines of coal riſing directly from the river, and opening into day; the contents of which are loaded immediately on barges from the mouth of an horizontal ſhaft. This is a pulverizable kind of coal, uſually called culm coals. As the river becomes ſufficiently deep and wide, the paſſage barges are changed for larger and more commodious yachts. The volume of water is increaſed by the junction with another conſiderable ſtream proceeding from the N.W. At their confluence ſtands the city of "Chau-coo-foo," the environs of which are pleaſant and romantic. The plains are ſown with rice and tobacco, whilſt the riſing grounds produce cotton and the ſeſanqua. On one ſide of the river is an immenſe rock of grey coarſe marble, eſtimated to be about 600 feet in height; and in a fiſſure cloſe to the water's edge, and acceſſible only by boats, is a temple, inhabited by Ho-ſhaung, or prieſts of Fo, who worſhip in it a variety of deified heroes, and of virtues and paſſions perſonified. This temple conſiſts of ſeveral apartments, one over the other, of conſiderable height, conſiſting chiefly of excavations made into the rocks; and above them is an immenſe maſs of ſtalactites, not leſs, in appearance, than a ton in weight, out of which proceed a vaſt number of ramifications. A plain, terminated only in the horizon, at length ſucceeds to the double range of heights through which the river had flowed moſtly from its ſource. The ſtream is here widened, and ſoon meets the tide flowing from the ſouthward. The adjoining country is interſected by large canals for the purpoſes of navigation, and others of a ſmaller ſize for occaſionally watering the grounds. The whole exhibits every mark of fertility, induſtry, and populouſneſs. The principal cultivation is that of rice, with ſome groves of mulberry trees. Along this river, as it approaches Canton, are nurſeries of curious plants and country houſes belonging to the principal native merchants of that city. The city and ſuburbs of Canton are ſituated moſtly on the eaſtern bank of the Pe-kiang river. See CANTON.

PE-KING, or PEKIN, the capital of the province of Pe-tche-li, and of the whole empire of China proper. Its name is ſaid to ſignify the "Northern court," and it is ſo called by way of diſtinction from the city of Nan-king, denominated the "Southern court." Pekin was the Cambalu, or city of the Chan, in writings of the middle ages, the capital of Cathay, as Nan-king was of Mangé. It is ſituated in a fertile plain, 20 leagues diſtant from the great wall. The road to it from Tong-choo-foo forms a magnificent avenue, for perſons and commodities bound for that capital from the eaſt and from the ſouth. It is perfectly level; the central part, to the width of about 20 feet, is paved with flags of granite, brought from a conſiderable diſtance, and of a ſize from ſix to ſixteen feet in length, and about four feet broad. On each ſide of this granite pavement is a road unpaved, wide enough for carriages to croſs upon it; the road is bordered in many places with trees, particularly willows of a very uncommon girth. The paſſage lies over a marble bridge, very wide, and ſubſtantially built, which traverſes a rivulet, not ſubject to inundations; and is little elevated above the level of the roads, which it connects together. Thoſe who enter the city in this direction, arrive at length at one of the eaſtern ſuburbs, along a ſtreet that is paved, and that exhibits a buſy ſcene of manufacturers, ſhop-keepers, and buyers. We ſhall firſt trace the progreſs of the embaſſy under lord Macartney through this city, and then more particularly deſcribe the city itſelf. To traverſe the ſuburb, required about 15 minutes, when the party arrived before the walls of Pekin. Near the gate of entrance the walls were faced with ſtone, but elſewhere with brick; over the gate was a watch-tower ſeveral ſtories high. In each ſtory were painted port-holes for cannon. Round the gate, on the outſide, was a ſemi-circular wall, with a lateral gate. The city walls were about 40 feet high; the parapet was deeply crenated, but had no regular embraſures, nor did any cannon appear upon the walls; but in the merlons were loop-holes for archery. The thickneſs of the walls at the baſe was about 20 feet, and 12 acroſs the terre-pleine, upon which the parapet was erected. The outſide of the city wall, though not perfectly perpendicular, was ſmooth, but the inſide was upon a conſiderable level; the rows of bricks which form it being placed, like ſteps, one above and behind the other, ſuch as are deſcribed to be the faces of the Egyptian pyramids. The walls were flanked on the outſide by ſquare towers, at about 60 yards diſtance from each other, and projecting from the curtain between them 40 or 50 feet. Several horſemen might ride abreaſt upon the ramparts, aſcending to them upon ſlopes of earth raiſed on the inſide.

Few of the houſes in Pekin were higher than one ſtory; none more than two: while the width of the ſtreet which divided them was conſiderably above 100 feet: ſo that it was airy, gay, and lightſome. The ſtreet was unpaved, and water ſprinkled on it to lay the duſt. A light handſome building was erected acroſs it, called by the Chineſe "Pei-loo," tranſlated ſo as to ſignify a triumphal arch, though no part of it reſembles an arch. The whole was built of wood, and conſiſted of three handſome gate-ways, of which the middle is the higheſt and largeſt. Over theſe were conſtructed three roofs above each other, richly decorated. Large characters painted or gilt upon the uprights or tranſoms, indicated the purpoſe for which the pei-loo was erected. They are meant to compliment particular perſons, or to perpetuate the memory of ſome intereſting event.

The firſt ſtreet extended in a line directly to the weſtward, until it was interrupted by the eaſtern wall of the imperial palace, called the Yellow wall, from the colour of the ſmall roof of varniſhed tiles, with which the top of it is covered. Various public buildings, ſeen at the ſame time, and conſidered as belonging to the emperor, were covered in the ſame manner. Theſe roofs, uninterrupted by chimnies, and indented in the ſides and ridges into gentle curves, which heightened the effect, were adorned with a variety of figures, either in imitation of real objects, or more commonly as mere works of fancy: the whole ſhining like gold under a brilliant ſun, immediately caught the eye with an appearance of grandeur in that part of buildings where it was not uſual to ſeek for it. Immenſe magazines of rice were ſeen near the gate: and looking from it to the left, along the city wall, was perceived an elevated edifice, deſcribed as an obſervatory, erected, in a former dynaſty, by the emperor Yong-loo, to whom the chief embelliſhments of Pekin are ſaid to be owing. In front of moſt of the houſes in this main ſtreet were ſhops, painted, gilt, and decorated, in a grand ſtyle. Over ſome of them were broad terraces, covered with ſhrubs and flowers. Before the doors were hung ſeveral lanterns of horn, muſlin, ſilk, and paper, fixed to frames, in varying the form of which the Chineſe ſeemed to have exerciſed their fancy to the utmoſt. Outſide of the ſhops, as well as within them, was diſplayed a variety of goods for ſale.

As ſoon as the perſons belonging to the embaſſy had arrived at the eaſtern ſide of the Yellow wall, they turned along it to the right, and found on its northern ſide much leſs buſtle than in the former ſtreet. Inſtead of ſhops all were private houſes, not conſpicuous in the front. Before each houſe was a wall or curtain, to prevent paſſengers from ſeeing into the court into which the ſtreet-door opened. This is called the wall of "reſpect." A halt was made oppoſite to the treble gates, which are nearly in the centre of this northern ſide of the palace-wall. It appeared to incloſe a large quantity of ground. It was not level like all the lands without the wall: ſome of it was raiſed into hills of ſteep aſcent: the earth taken to form them left broad and deep hollows, now filled with water. Out of theſe artificial lakes, of which the margins were diverſified and irregular, ſmall iſlands aroſe with a variety of fanciful edifices, interſperſed with trees. On the hills of different heights the principal palaces for the emperor were erected. The whole had ſomewhat the appearance of enchantment. On the ſummit of the higheſt eminences were lofty trees ſurrounding ſummer-houſes, and cabinets contrived for retreat and pleaſure. From the ſpot whence an opportunity thus offered to take a glance through the gates of the palace-wall, of part of what was incloſed within it, the eye, turning to the north, obſerved through a ſtreet extending to the city wall, the great palace, of conſiderable height, which includes a bell of prodigious ſize and cylindric form, that, ſtruck on the outſide with a wooden mallet, emits a ſound diſtinctly heard throughout the capital. Beyond it, but more to the weſtward, was one of the northern gates, the watch-tower over which rendered it viſible above the intermediate buildings. Proceeding on beyond the palace-gates directly to the weſtward, between the Yellow wall and the northern buildings of the city, is a lake of ſome acres in extent, which in autumn was almoſt entirely overſpread with the peltated leaf of the nymphæa nelumbo, or lien-wha of the Chineſe.

The route was continued weſterly through the city. Among other buildings was ſeen a library of foreign MSS. one of which was ſaid to be an Arabic copy of the Koran. Some Mahometans were obſerved diſtinguiſhed by red caps; and alſo natives of Tartary, or females of a Tartar race. Their feet were not cramped, like thoſe of the Chineſe; and their ſhoes with broad toes, and ſoles above an inch in thickneſs, were as clumſy as thoſe of the original Chineſe ladies were diminutive. Some few of the former were well-dreſſed, with delicate features, and their complexions heightened by the aid of art. A thick patch of vermilion in the middle of the lower lip, ſeemed to be a favourite mode of uſing paint. Some of them were ſitting in covered carriages, of which, as well as of horſes, there are ſeveral to be found for hire in various parts of the town. A few of the Tartar ladies were on horſeback, and rode aſtride like men. Several of the ſtreets were narrow, and at the entrance of them gates were erected, near which guards were ſtationed, for quieting any occaſional diſturbance in the neighbourhood. Theſe gates are ſhut at night, and opened only in caſes of exigence. The train of the embaſſy croſſed a ſtreet which extended N. and S. the whole length of the Tartar city, almoſt four miles, and is interrupted only by ſeveral pei-loos, or triumphal fabrics; and paſſing by many temples and other ſpacious buildings and magazines, they reached, in little more than two hours from their entrance on the eaſtern ſide, to one of the weſtern city gates. Near this gate, and along the outſide of the weſtern wall, ran the ſmall rivulet, (here widened into a conſiderable ditch,) which, after almoſt ſurrounding Pekin, runs towards Tong-choo-foo, and falls into the Pei-ho: the ſuburb beginning at this weſtern gate, being more extenſive than that through which they had entered into the city, took for traverſing it upwards of twenty minutes.

The embaſſy found, in proceeding N.W. from Pekin, the ſame kind of granite pavement over which they had travelled to that city from Tong-choo-foo. It led them to the open town of Hai-tien, containing few other buildings beſides thoſe intended for the ſale of goods, and for the accommodation of artificers, near the autumnal palace of Yuen-min-yuen, which lies a little way beyond it. The ſhops of Hai-tien, beſides neceſſaries, abounded in toys and trifles, calculated to amuſe the rich and idle of both ſexes. Between Hai-tien and Yuen-min-yuen, was the villa intended for the ambaſſador and his ſuite, which was an incloſure of twelve acres. It contained a garden laid out in ſerpentine walks, a rivulet winding round an iſland, a grove of various trees, interſperſed with patches of graſs ground, and diverſified with artificial inequalities, and rocks rudely heaped upon each other. The building in this place conſiſted of ſeveral ſeparate pavilions, erected round ſmall courts. The apartments were handſome, and not ill contrived. Several of them were adorned with landſcapes, painted in water-colours.

The capital of Pekin bears not in ſize the ſame proportion to the reſt of China that London does to Britain. The principal part of it is called the Tartar city, from the circumſtance of its having been laid out anew in the 13th century, in the time of the firſt Tartar dynaſty, or as Du Halde ſays, becauſe the houſes were allotted to the Mandſhurs, in the beginning of the preſent dynaſty. It is in the form of a parallelogram, of which the four walls face the four cardinal points. They include an area of about fourteen ſquare miles, in the centre of which is the imperial palace, occupying within the Yellow wall at leaſt one ſquare mile, the whole being about one-third larger than London, on its preſent extended ſcale; whereas the fifteen ancient provinces of China, independently of the vaſt acceſſion of territory from the great wall to the neighbourhood of the Caſpian ſea, bear a proportion to Great Britain of about 15 to 1. Adjoining, indeed, to the ſouthern wall of the Tartar city, is another, called, by way of diſtinction, the Chineſe city. Here moſt of the people lodge, who come occaſionally upon buſineſs from the provinces to the capital. Its walls, which are greatly in decay, include likewiſe a very conſiderable ſpace, about nine ſquare miles. A ſmall part only, however, is occupied by buildings, which are indifferent, crowded, and irregular; the reſt is empty, and part of it is in cultivation. Within this compaſs has been raiſed the "Sien-nong-tan," or eminence of venerable agriculturiſts. Thither the emperor repairs every ſpring, and in compliance with ancient uſages, goes through the ceremony of directing with his own hand the plough through a ſmall field, by way of doing honour to the profeſſion of a huſbandman. When this part of the ceremony is finiſhed, a group of peaſants chaunt round him hymns in praiſe of huſbandry, following his example, and making ſeveral furrows with the plough in his preſence. The produce of the ground he has ploughed is carefully collected, and ſolemnly announced to ſurpaſs, in quality and quantity, what any other ſpot of equal dimenſions had yielded in the year. The celebration of this feſtival is made known as far as the remoteſt village of the empire. Within the walls of the Chineſe city has likewiſe been erected the "Tien-tan," or eminence of heaven. The ſingle character "tien," or heaven, is inſcribed upon the principal building in this eminence. Its form is round, in alluſion to the vault of the heavenly firmament, as it ſtrikes the eye; in like manner the "Tee-lan," a temple dedicated to the earth, which the ancient Chineſe ſuppoſed to be a perfect ſquare, is of a ſquare form In the ſummer ſolſtice, when the heat and power of the ſun are at the higheſt, the emperor comes in ſolemn proceſſion to pay obedience, and offer thanks for its benign influence, and in the winter ſolſtice ſimilar ceremonies are performed in the temple of the earth. This ſolemn adoration of heaven and earth is confined to the perſon of the emperor ; and for his convenience is performed at Pekin, where he likewiſe appears abroad, in a variety of other grand proceſſions, ſuggeſted by the mixed views of policy and religion. There are few other ceremonies performed in Pekin.

Pekin is merely the ſeat of the government of the empire. It is not a port, nor a place of inland trade nor manufacture. No repreſentative diet, nor general ſtates, with numerous retainers, aſſemble there to aſſiſt, or check, or examine, the meaſures of the crown. It forms no rendezvous for pleaſure and diſſipation. Pekin owes little of its extent and populouſneſs to the various circumſtances that contribute to aggrandize and enlarge European cities. Moſt men there have ſtations regularly allotted them, or are occupied in attending or providing for thoſe who have. From the operation of a variety of cauſes in China, there is a conſtant tendency to level wealth : as there is no right of primogeniture, nor any hereditary dignity, the extremes of wealth and poverty are equally unknown. There are properly but three claſſes of men in China, men of letters, from whom the mandarins are taken, cultivators of the ground, and mechanics, including merchants. To theſe we might add a fourth claſs, *viz.* the military. In Pekin alone is conferred the higheſt degree of literature, upon thoſe who, in public examinations, are found moſt able in the ſciences of morality and government, as taught by the ancient Chineſe writers ; with which ſtudies the hiſtory of their country is intimately blended. Among ſuch graduates, all the civil offices in the ſtate are diſtributed by the emperor ; and they compoſe all the great tribunals of the empire. The candidates for theſe degrees are ſuch as have ſucceeded in ſimilar examinations in the principal city of each province. Thoſe who have been choſen in the cities of the ſecond order, or chief town of every diſtrict in the province, are the candidates in the provincial capital. They who fail in the firſt and ſecond claſſes have ſtill a claim on ſubordinate offices, proportioned to the claſs in which they had ſucceeded. Theſe examinations are carried on with great ſolemnity, and apparent fairneſs. Military rank is likewiſe given to thoſe who are found, upon competition, to excel in the military art, and in warlike exerciſes. The great tribunals are ſituated, for the ſake of convenience, near the ſouthern gate of the imperial palace at Pekin. To them all the tranſactions of the empire are regularly tranſmitted. They are councils of reference from the emperor, to whom they report every buſineſs of moment, with the motives for the advice which they offer on the occaſion. His imperial majeſty generally conforms to the ſuggeſtions of theſe tribunals, of which there are ſeveral, ſuperior and ſubordinate.

The eſtimated population of Pekin was ſuppoſed, in the laſt century, by the Jeſuit Grimaldi, to amount to ſixteen millions. Another miſſionary reduces, at leaſt that of the Tartar city, to one million and a quarter. According to the beſt information given to the embaſſy, the whole was about three millions. The low houſes of Pekin ſeem ſcarcely ſufficient for ſo vaſt a population ; but very little room is occupied by a Chineſe family, at leaſt in the middling and lower claſſes of life. In their houſes they have no ſuperfluous apartments. A Chineſe dwelling is generally ſurrounded by a wall, ſix or ſeven feet high. Within this incloſure a whole family, of three generations, with all their reſpective wives and children, will frequently be found. One ſmall room is made to ſerve for the individuals of each branch of the family, ſleeping in different beds, divided only by matts hanging from the ceiling. One common room is uſed for eating. This arrangement renders the younger orderly and temperate in their conduct, under the authority and example of the older ; and it enables the whole to ſubſiſt, like ſoldiers in a meſs, with more economy and advantage.

The ſtreets of Pekin are thronged with people, the multitude of whom is increaſed by the mandarins of rank, appearing always with numerous attendants ; and ſtill more by circles of the populace round auctioneers, venders of medicines, fortune-tellers, ſingers, jugglers, and ſtory-tellers. The nobility of the court and princes of the blood never appear in public, without being ſurrounded by a large body of cavalry ; and as their preſence is required at the palace every day, their train alone would be ſufficient to create confuſion in the city. Beſides, as there is a continual influx of the riches and merchandize of the whole empire into this city, the number of ſtrangers that reſort hither is immenſe. Theſe are carried in chairs, or ride on horſeback ; and they are always attended by a guide acquainted with the ſtreets, and with the houſes of the nobility, and principal people of the city. In ſummer there are to be ſeen ſmall temporary ſhops, where people are ſerved with water cooled by means of ice ; and eating-houſes are every where to be met with, with refreſhments of tea and fruits. Each kind of proviſion has a certain day and place appointed for its being expoſed to ſale. Nevertheleſs, the crowds of people at Pekin do not prevent it from being healthy. The Chineſe, indeed, live much in the open air, increaſing or diminiſhing the quantity of their apparel according to the weather. The atmoſphere is dry, and does not engender putrid diſorders ; and exceſſes productive of them are ſeldom committed. Great order is preſerved among ſuch multitudes ; and the commiſſion of crimes is rare. The police of the capital is ſo well regulated, that the ſafety and tranquillity of the inhabitants are ſeldom diſturbed. At the end of every croſs ſtreet, and at certain diſtances in it, there is a kind of croſs bars, with ſentry boxes, in each of which is placed a ſoldier ; and few of theſe ſtreets are without a guard-houſe. Beſides, the proprietor or inhabitant of every tenth houſe, like the ancient tythingmen of England, takes it in turn to keep the peace, and be reſponſible for the good conduct of his nine neighbours. If any riotous company ſhould aſſemble, or any diſturbances happen within his diſtrict, he is to give immediate information of it to the neareſt guard-houſe. The ſoldiers alſo go their rounds, and inſtead of crying the hour like our watchmen, ſtrike upon a ſhort tube of bamboo, which gives a dull hollow ſound, that prevents thoſe unaccuſtomed to it from ſleeping. The viceroy of Pekin is of the Tartar race, and is ſtyled governor of the nine gates, that being the number of gates belonging to the city. His juriſdiction extends not only over the ſoldiers, but alſo over the people in every thing that concerns the police. In the ſuburbs only public women are regiſtered and licenſed : they are not very numerous, being proportioned to the ſmall number of ſingle men, and of huſbands abſent from their families to be found in the metropolis. In Pekin, as well as in other parts of China, parents are leſs frequently neglected than infants are expoſed. Female infants are, for the moſt part, choſen for this cruel ſacrifice, becauſe daughters are conſidered more properly to belong to the families into which they paſs by marriage ; while the ſons continue to be the ſupport and comfort of their own.

Notwithſtanding all the means adopted for reſtraining this barbarous practice, a miſſionary, who was not inclined to exaggerate the evil, has reported that in Pekin about 2000 infants were every year expoſed, of whom a conſiderable number periſhed. The miſſionaries, to their honour it muſt be acknowledged, have contributed to preſerve many, and afterwards to maintain and educate them.

The principal building in Pekin is the imperial palace already mentioned: it ſtands in the middle of the Tartar city, at a little diſtance from the ſouth gate; and the entrance to it is through a ſpacious court, to which there is a deſcent by a marble ſtaircaſe, ornamented with two large copper lions, and a baluſtrade of white marble, which runs in the form of a horſe-ſhoe, along the banks of a rivulet, that winds acroſs the palace with a ſerpentine ſweep: the bridges over it are of marble. At the bottom of this firſt court ariſes a façade with three doors: that in the middle is for the emperor only; the mandarins and nobles paſs through thoſe on the ſides. Theſe doors conduct to a ſecond court, which is the largeſt in the palace; it is about 300 feet long, and 50 broad; an immenſe gallery runs round it, in which are magazines, containing rich effects, belonging to the emperor as his private property; for the public treaſure is entruſted to a ſovereign tribunal, called "Hou-pon." In this ſecond court is the royal hall, called "Teintotien," or the hall of the grand union: it is built upon a terrace about 18 feet high, incruſted with white marble, and ornamented with baluſtrades of excellent workmanſhip. Here the mandarins arrange themſelves, when they come, on certain days, to renew their homage, and perform thoſe ceremonies that are appointed by the laws of the empire. This hall is almoſt ſquare, and about 130 feet long; the ceiling is carved, varniſhed green, and loaded with gilt dragons. The pillars which ſupport the roof within are ſix feet in circumference towards the baſe, and are coated with a kind of maſtich varniſhed red; the floor is partly covered with coarſe carpets, after the Turkiſh manner; but the walls have no kind of ornament, neither tapeſtry, luſtres, nor paintings. The throne, which is in the middle of the hall, conſiſts of a pretty high and very neat alcove. It has no inſcription but the character "ching," which denotes excellent and perfect, as well as moſt wiſe and holy. It is aſcended by ſteps in the front and on each ſide. Tripods and veſſels of incenſe are placed on the ſides, and before it is a ſmall table, as an altar, on which are laid offerings of tea and fruit to the ſpirit of the abſent emperor. As the Chineſe attribute to their emperor perfections belonging to the deity, they conceive his dominion as virtually extending over the whole world. Believing the majeſty of the emperor to be ubiquitary, they ſacrifice to him when abſent; and it is not therefore ſurpriſing that they ſhould adore him when preſent. The adoration, or "Koteou," they pay him conſiſts in nine proſtrations of the body, the forehead being each time made to touch the floor; which is not only a token of the deepeſt humility and ſubmiſſion, but implies a conviction of the omnipotence of the perſonage to whom this act of veneration is performed. Theſe abject proſtrations are required not only from the ſubjects and tributary princes of the empire, but alſo from all ſtrangers, however exalted. Upon the platform, oppoſite to the hall juſt mentioned, ſtand large veſſels of bronze, in which incenſe is burnt, when any ceremony is performing. There are alſo chandeliers ſhaped like birds, and painted of different colours, as well as the wax candles that are lighted up in them. This platform is extended towards the north, and has upon it two leſſer halls; one of them is a rotunda, that glitters with varniſh, and is lighted by a number of windows. Here the emperor changes his dreſs before or after any ceremony. The other is a ſaloon which opens to the north: through this door the emperor muſt paſs, when he goes from his apartment to receive on his throne the homage of the nobility: he is then carried in a chair by officers dreſſed in long red robes bordered with ſilk, and caps ornamented with plumes of feathers. We may here obſerve, that the temples of Pekin have no claim to elegance, when compared to its palaces. The religion of the emperor is performed with great magnificence in Tartary, but in China it is new. The mandarins and men of letters venerate Confucius, and aſſemble in halls of ſimple conſtruction; and the lower claſſes of the people are unable to contribute to the erection of ſplendid edifices for public worſhip. Beſides, their attention is much taken up with their houſhold gods. Every houſe has its altar and its deities. (See China.) The imperial palace, which preſents an aſſemblage of vaſt buildings, extenſive courts, and magnificent gardens, is ſhut up on all ſides by a double wall; the intervening ſpace being occupied by houſes belonging to the officers of the court and eunuchs, and by different tribunals. The exterior circumference of this palace is reckoned to be 1½ league. The extent, grandeur, regular diſpoſition of apartments, and ſingular ſtructure of the pavilion roofs (already noticed), cannot fail to ſtrike beholders with ſurpriſe. N. lat. 39° 55'. E. long. 116° 28'. Earl of Macartney's Embaſſy, by Sir G. Staunton, vol. ii. Barrow's China. Groſier's China, vol. i.

PELADA, a kind of alopecia, or diſtempered ſtate of the body, occaſioning the ſhedding of the hair, ariſing from a venereal cauſe.

PELÆAS, Πελειας, in *Ornithology*, the name by which the ancients called that ſpecies of pigeon now known by the name of the *livia*, and *ſaſſarolla;* a grey pigeon, of a very ſmall ſize, and with ſome variegations of purple and green. See Livia.

PELAGIA, in *Natural Hiſtory*, the name by which Pliny, and other of the ancient naturaliſts, have uſually called the *purpura*.

Pelagia, *St.*, in *Geography*, a town of Naples, in the province of Otranto; 3 miles N. of Tarento.

PELAGIÆ, formed of ϖελαγος, *marine*, or belonging to the ſea, in *Natural Hiſtory*, a term uſed to expreſs ſuch ſea ſhells and fiſhes, as never, or very rarely, are found near the ſhores; but always reſide in the deep, or in thoſe parts of the bottom of the ſea which are moſt remote from land.

PELAGIANS, Pelagiani, in *Eccleſiaſtical Hiſtory*, the denomination of a ſect, well known in the church by the writings of St. Auguſtine.

The author of this ſect, Pelagius, properly called Morgan, was a monk of Bangor: but the learned are at a loſs whether it was of the monaſtery of Bangor in Wales, or that of the ſame name and order in Ireland. But he was a contemporary with St. Jerom and St. Auguſtine; and quitted his country to go and live in the Eaſt, according to the cuſtom of the monks of thoſe days, who were attached to particular houſes like thoſe of our own time.

Cœleſtius, as ſome ſay, a native of Ireland, according to others, of Scotland, and again, as others ſay, of Campania, in Italy, was the colleague of Pelagius, in forming this ſect. They both lived at Rome in great reputation, and were univerſally eſteemed on account of their extraordinary piety and virtue. About the year 410 they publiſhed their doctrine, firſt in Sicily, and afterwards in Africa. From Africa Pelagius paſſed into Paleſtine, and Cœleſtius remained at Carthage, whence, his errors being condemned in a council, A.D. 412, he went into the Eaſt. The former, under the protection of John, biſhop of Jeruſalem, made a public profeſſion of his opinions, and formed diſciples in ſeveral places. In the year 415 he was accuſed by Oroſius, a Spaniſh preſbyter, whom Auguſtine had ſent into Paleſtine for that purpoſe, before an aſſembly of biſhops who met at Jeruſalem, but was diſmiſſed without the leaſt cenſure, and was ſoon after fully acquitted of all errors by the council of Dioſpolis, a city of Paleſtine, known in Scripture by the name of Lydda. However, after this council, Pelagius and Cœleſtius were condemned again, A.D. 416, by the African biſhops aſſembled at Carthage, and thoſe of Numidia aſſembled at Milevum. Soon after the controverſy was brought to Rome, and referred by Pelagius and Cœleſtius to the deciſion of Zoſimus, who was raiſed to the pontificate, A.D. 417; and he pronounced in their favour, declared them ſound in the faith, and unjuſtly perſecuted by their adverſaries. However, he was prevailed upon by the remonſtrance of the Africans to change his mind, and he ſeverely condemned thoſe two perſons, whom he had honoured with his approbation, and covered with his protection. They were alſo condemned by the council of Epheſus, A.D. 431; and, in ſhort, the Gauls, Britons, and Africans, by their councils, and emperors, by their edicts and penal laws, demoliſhed this ſect in its infancy.

Pelagius abſolutely denied all original ſin, which he held to be the mere invention of St. Auguſtine; and taught that men are entire maſters of their actions, and perfectly free creatures; in oppoſition to all predeſtination, reprobation, election, &c.

He owned, indeed, that the natural power of man needed to be aſſiſted by the grace of God, to enable him to work out his own ſalvation; but, by this grace, he only meant outward aſſiſtance, *viz.* the doctrines of the law, and of the goſpel.

Though, when preſſed by thoſe words of St. Paul, "Deus eſt enim, qui operatur in nobis," &c. he owned that it is God, in effect, that makes us will what is good, when he warns and excites us by the greatneſs of the glory we are to obtain, and by the promiſes of rewards; when he makes us love him by revealing his wiſdom, &c.

Theſe are Pelagius's own words, as cited by St. Auguſtine; who confutes him, and ſhews, that, beſides theſe exterior graces, there are required other real and interior ones.

He owned, that the will of man is indeed aided by a real grace; but he added, that this grace is not abſolutely neceſſary in order to live well; but that it only helps us to do well with the more eaſe.

Julian, one of his adherents, went farther yet; and owned that the aſſiſtance of grace was abſolutely neceſſary to enable us to do perfect works.

In effect, the grand doctrine of the Pelagians was, that a man might accompliſh all the commands of God by the mere power of nature; and that the gifts of grace were only neceſſary to enable him to act well more eaſily, and more perfectly.

PELAGIANS, *Semi.* See SEMI-PELAGIANS.

PELAGIE, in *Geography*, a river of Louiſiana, which runs into the Miſſouri, N. lat. 38° 30′. W. long. 91° 30′.

PELAGIUS I. pope, in *Biography*, was a native of Rome, and became a deacon of the Roman church, and was employed in the capacity of nuncio at the court of Conſtantinople by ſeveral of the popes in ſucceſſion. He was firſt ſent to the imperial reſidence by pope Agapetus, in the year 535, where he roſe into extraordinary favour with the emperor Juſtinian, the empreſs, and the leading perſons at court. About the year 539 he was commiſſioned, together with Ephraim, patriarch of Antioch, and Peter, patriarch of Jeruſalem, to decide on the caſe of Paul, who had been baniſhed to Gaza, on account of a deacon's death, to which he was ſaid to have been privy. Having repaired to Gaza after the trial of the African prelate, ſentence of depoſition was pronounced upon him. While Pelagius was returning to Conſtantinople he met with ſome Paleſtine monks on their journey to that city, in order to prefer complaints to the emperor againſt the followers of Origen; and having promiſed them his intereſt at court, he ſucceeded in obtaining an edict from Juſtinian in 541, by which ſentence of condemnation was paſſed upon the Origeniſts. In the mean time, he had betrayed the intereſts of pope Silverius at Conſtantinople, and, to ingratiate himſelf with the empreſs, became privy to the meaſures for ſecuring the popedom to Vigilius, the uſurper of the ſee. About the year 545 he returned to Rome, being either recalled by Vigilius, or, according to others, ſent by Juſtinian with a large ſum of money for the relief of that city, which was reduced to great diſtreſs by the incurſions of the Goths. In 547 he was deputed by the citizens of Rome on an embaſſy to Totila, king of the Goths, for the purpoſe of diſſuading that prince by his prayers from beſieging the city, when, though he failed in the object of his miſſion, by his interceſſion he was the means of preſerving the lives and liberties of numbers of the conquered Romans. In the ſame year Totila ſent him in the character of ambaſſador to Conſtantinople, to negociate a peace between the Goths and Romans. He adhered to Vigilius in all his diſputes: in all his changes, condemning or approving thoſe articles which the pope condemned or approved. With him he was baniſhed for rejecting the fifth council; but recanting, when the pope recanted, he was with him releaſed from his exile and recalled to Conſtantinople. He attended Vigilius on his return from the Eaſt; and upon the death of the pope in the iſland of Sicily, in the year 555, he haſtened to Rome, the emperor having promiſed to raiſe him to that ſee if he ſurvived Vigilius, upon his engaging to cauſe the fifth council to be univerſally received in the Weſt. When Pelagius arrived at Rome, he found the people and clergy ſo highly enraged againſt him, that inſtead of electing him their biſhop, they all with one conſent ſeparated themſelves from his communion. What induced many to concur in this meaſure, was a ſtrong report, that, in order to ſecure the object of his ambition, he had been acceſſory to the death of his predeceſſor. But Pelagius, relying on the ſupport of the emperor, reſolved to have himſelf ordained in defiance of the canons, as well as the electors. Having, therefore, engaged two Italian biſhops to ſecond his views, but theſe not being ſufficient, he ſubſtituted in the room of a third a preſbyter of Oſtia, and by means of theſe three he was ordained a biſhop. The Roman people ſtill declared againſt his power, determining never to acknowledge him for their lawful biſhop. Under theſe circumſtances Pelagius applied to the emperor, and obtaining his intereſt and ſupport, he was acknowledged the lawful biſhop. No ſooner was he ſettled in the quiet poſſeſſion of his ſee, than he endeavoured to perform his engagement to the emperor, by perſuading the weſtern biſhops to receive the fifth council. With this view he addreſſed letters to them, in which he attempted to prove, that the conſtitution of Vigilius was in no reſpect derogatory to the decrees of Chalcedon, and conſequently that ſuch as did not receive it ought to be deemed ſchiſmatics. So far, however, were his letters from producing the deſired effect, that the biſhops of Tuſcany, Liguria, Venetia, Illyricum, Gaul, Spain, and Ireland, declared loudly againſt that conſtitution, and the fifth council, and the Italian biſhops, as well as the Iriſh, beſides cenſuring the pope in the ſtrongeſt terms, ſeparated themſelves from his communion.

Thus abandoned by almoſt all the biſhops in the Weſt, and finding his endeavours to ſatisfy them of his orthodoxy were ineffectual, he wrote to the emperor's chief general Narſes, exhorting him to reſtrain by his authority and power, thoſe whom a reverence for St. Peter and his ſee could not reſtrain, or bring to a ſenſe of duty. Narſes being of a mild and humane diſpoſition, inſtead of acting as the pope deſired, endeavoured by entreaties and perſuaſion to gain over thoſe Italian biſhops who were the ſubjects of the empire, and though he was at firſt not ſucceſsful, by ſteadily adhering to the ſyſtem of pacification, he in the end prevailed upon ſome of the biſhops of Tuſcany and Liguria to renew their communion with the ſee of Rome. About the year 557, a report was ſpread in Gaul, that the pope had departed from the genuine Catholic doctrine. Childebert, king of the Franks, ſent an ambaſſador to Rome, for the purpoſe of examining into its truth, and of demanding of Pelagius a confeſſion of his faith. In compliance with the king's demand, the pope tranſmitted to the monarch his confeſſion, accompanied with ſolemn declarations, that he not only received, but was ready to defend, at the expence of his life, the holy faith of Chalcedon; yet maintaining, that nothing had been defined in the fifth council, but what was entirely agreeable to that faith and doctrine. Pelagius died in 560, after a pontificate of nearly five years, during which he had the mortification to ſee the authority claimed by the pretended ſucceſſors of St. Peter almoſt univerſally diſregarded by the weſtern biſhops, who perſevered in condemning and rejecting a council which he had approved and received, and even ſuſpected the orthodoxy of his creed becauſe he received it. Sixteen letters which have been attributed to him, may be found in the fifth vol. of the Collect. Concil. of which, however, the firſt is admitted by the editors of that work to be ſpurious.

Pelagius II. pope, was of Gothic extraction, and the ſon of Winigild, but a native of Rome. Upon the death of pope Benedict in 578, the ſee continued vacant four months, at the expiration of which Pelagius was choſen to fill that dignity. His election having taken place at a time when the Lombards were maſters of the greateſt part of Italy, and kept Rome itſelf cloſely beſieged, it was judged expedient that he ſhould be ordained before the emperor's confirmation could be received; but as ſoon as the ſiege was raiſed, he ſent Gregory, then deacon in the Roman church, and afterwards his ſucceſſor in the popedom, to excuſe the informality, and to entreat the emperor's acquieſcence in a proceeding which had been rendered neceſſary by the calamitous circumſtances of the times. The Lombards, by their ravages, had now ſpread ſuch devaſtation and terror in every part of Italy, that perſons who had the character of holy men regarded them as the inſtruments of the divine vengeance to depopulate the country; and ſome of them fancied that they had revelations, which foretold them that the Lombards were the forerunners of the laſt day, and that the end of the world was at hand. By the report of their viſions the credulous multitude was terrified to ſuch a degree, that inſtead of uniting againſt the common enemy, they abandoned themſelves to deſpair, and ſuffered the barbarians to plunder and deſtroy without oppoſition. In this ſtate of the empire in the Weſt, the church continued to be divided by the ſchiſm which had been occaſioned by the conſtitution of pope Vigilius, and not terminated by his ſucceſſors. The taſk of healing that ſchiſm, Pelagius conſidered to be one of the firſt objects that merited his attention, and he determined to apply to it with the utmoſt zeal. The Lombards, however, occaſioned the moſt ſerious alarms to the church, and obliged his holineſs to pay more attention to the ſecular concerns of the ſtate than to its ſpiritualities. They had conquered the important city of Pavia, and having made it the metropolis of their new kingdom, extended their conqueſts from thence over the adjacent provinces, threatening to advance a ſecond time againſt Rome. This threat they were enabled to carry into execution without delay, ſince the exarch Longinus had not ſufficient forces to meet them in the field. Under conſtant apprehenſions, therefore, that they would ſpeedily make their appearance at the gates of the city, Pelagius ſent new legates to the emperor Tiberius, in the year 580, to lay before him an account of the defenceleſs ſtate of Italy, and to ſolicit a ſupply of men and money, that the city of Rome itſelf might not fall into the hands of the barbarians. But the emperor, though wiſhing well to the cauſe, had it not in his power to ſend them any relief. Finding Italy thus abandoned by the emperor, in 581 the pope applied to Guntram, king of Burgundy, who was diſtinguiſhed for his attachment to the biſhops of Rome, and their ſee, exhorting and entreating him to renounce the alliance which he had lately concluded with the Lombards, and by turning his arms againſt them, prevent the entire ſubjugation of Italy. In this he was likewiſe unſucceſsful. In 584, Pelagius ſent three letters to the biſhops of Iſtria, in which he intimated that the diſputes which divided them were fooliſh and idle; enlarged on the evils attending a diviſion among the Catholic prelates; exhorted them, with great tenderneſs, to return to the unity of the church; and propoſed a conference, to be held at Rome, or, if more convenient for them, at Ravenna, which he hoped would end to their ſatisfaction and his. To theſe letters the Iſtrian biſhops replied in the order in which they received them; but ſo far were they from making any impreſſion on their minds, that theſe prelates came to a determination to decline all communication with Rome. Pelagius, finding that he could not ſucceed in his deſign by perſuaſion, reſolved to have recourſe to perſecution. He accordingly wrote to the exarch, exciting his reſentment againſt the Iſtrian prelates, by repreſenting them to be incorrigible diſturbers of the peace of the empire as well as the church. Zamaragdus, inſtead of following the prudent and humane example of his predeceſſor Narſes, in the pontificate of Pelagius I., ſuffered himſelf to be the tyrannical inſtrument of papal vengeance, and ſeized and impriſoned the refractory prelates.

From this period we meet with no farther particulars relating to Pelagius before the year 588, when a council was held at Conſtantinople, for the trial of Gregory, patriarch of Antioch, who had been accuſed of inceſt, and ſeveral other very ſerious crimes. After the patriarch had been honourably acquitted, the council, before it broke up its meeting, confirmed to John of Conſtantinople, on his own application, the title of œcumenical or univerſal biſhop, to be enjoyed by him, and his ſucceſſors in that ſee. Though it does not appear that this title was attended with any acceſſion of power, yet Pelagius was alarmed leſt the dignity of his biſhopric ſhould be eclipſed, and endeavoured to excite the whole Chriſtian world againſt John, as if he intended to engroſs all eccleſiaſtical power to himſelf and his ſee. As much diſturbed and concerned as if the council had condemned ſome fundamental article of the Chriſtian religion, he immediately, by the authority, and in the name of St. Peter, declared all the acts of that aſſembly null and void, excepting their acquittal of Gregory. He alſo diſpatched meſſengers to Conſtantinople with letters to the patriarch, and to his nuncio at the imperial court; the former he commanded to relinquiſh the anti-chriſtian title which he had aſſumed, and the latter he enjoined not to communicate, nor aſſiſt in divine ſervice on any occaſion with the biſhop of Conſtantinople, till he had renounced that diſtinction. Notwithſtanding this, John probably continued the uſe of his title as long as he lived, though the pope was prevented, by death, from proceeding farther in this affair. In 589 the Catholic cauſe received an acceſſion of ſtrength by the converſion of the Goths in Spain, who, after having profeſſed the doctrine of Arius during more than two centuries, were perſuaded by their king Recaredus to renounce it, and to embrace the Catholic faith. This event gave great ſatisfaction to the Catholic party, though Pelagius ſurvived but a ſhort time to enjoy it. In conſequence of an inundation of the Tiber, which laid the greater part of the city of Rome, and the adjacent country under water, a dreadful diſtemper broke out, which proved fatal to Pelagius in February 590, after he had preſided over the Roman ſee eleven years and about a quarter. Ten "Letters," and ſix "Decrees" under his name, are inſerted in the fifth vol. of the Collect. Concil.; ſome of them are, however, ſuppoſititious.

PELAGIUS, the diſtinguiſhed leader of a Chriſtian ſect. See PELAGIANS.

PELAGNISI, in *Geography*, an iſland in the Grecian Archipelago, about eight miles in circumference. N. lat. 39° 30′. E. long. 24° 8′.

PELAGONIA, in *Ancient Geography*, a country of Macedonia, called alſo "Tripolitis," on account of its three cities, according to Strabo.—Alſo, a town of the ſame country.—Alſo, a town of the iſland of Sicily.

PELAGOSA, in *Geography*, an iſland in the Adriatic, near the coaſt of Dalmatia. This iſland, and the adjacent rocks, are the remains of an ancient volcano; and its preſent aſpect, which is rugged and ruinous, indicates many violent eruptions; 16 miles S.W. of Agoſta. N. lat. 42° 45′. E. long. 16° 10′.

PELAMYS, in *Ichthyology*, a name by which the ancients expreſſed the young brood of the *thynnus*, or tunny fiſh, at a certain age and ſize; but later writers have appropriated the word for the name of a diſtinct ſpecies of fiſh of the ſame genus, called by others *ſarda;* and by ſome by the two names joined into one, *pelamys-ſarda.* It is a ſea-fiſh, of the ſhape of the tunny: but of a ſmooth ſkin, and free from ſcales every where, except about the gill-fins; its teeth are large, long, and crooked. Theſe are the only external marks by which it is to be known from the young brood of the tunny; but when brought to the table, it is eaſily diſtinguiſhed by the hardneſs of its fleſh.

PELAMYS *Vera*, a name given by Rondeletius, and ſome other authors, to the fiſh more diſtinctly known by the name of *amia*.

PELANG, in *Geography*, a town of the Birman empire; 8 miles N.E. of Pagongmew.

PELANI, Πελανοι, among the Athenians, a kind of cakes uſed in their libations.

PELARGONIUM, in *Botany*, ſo called from πελαργος, *a ſtork*, in alluſion to the beak of the fruit, which reſembles the bill of that bird; as well as to preſerve an analogy with the *Geranium*, or Crane's bill. The name and the genus were firſt ſuggeſted by Dillenius, in Hort. Elth. 149, and ſubſequently adopted by Burmann and l'Heritier, as well as by the editors of the firſt edition of *Hortus Kewenſis*. *Pelargonium* embraces what are commonly known by the appellation of African Geraniums, and which doubtleſs conſtitute a moſt natural genus, clearly diſtinguiſhed from GERANIUM, as well as from ERODIUM, (ſee thoſe articles,) by the irregularity of the flower and its tubular nectary, to ſay nothing of number of ſtamens,—Burm. Afr. 89. L'Herit. Geraniol. unpubliſhed. Ait. Hort. Kew. ed. 1. v. 2. 417. Willd. Sp. Pl. v. 3. 641. Lamarck Illuſtr. t. 574. (Geranium; Linn. Gen. 350. Schreb. 458. Juſſ. 268.)—Claſs and order, *Monadelphia Heptandria*. Nat. Ord. *Gruinales*, Linn. *Gerania*, Juſſ.

Gen. Ch. *Cal.* Perianth inferior, in five deep, oblong, permanent ſegments, the uppermoſt protracted downwards into a honey-bearing tube, running along the flower-ſtalk, with which it is united. *Cor.* Petals five, oblong or roundiſh, ſpreading, longer than the calyx, irregular. *Stam.* Filaments ten, awl-ſhaped, flat, united at their baſe into a ſort of cup, three of them, rarely five, abortive, and without anthers; anthers ſeven, rarely but five, oblong, verſatile. *Piſt.* Germen ſuperior, oblong, with five furrows, beaked; ſtyle central, awl-ſhaped, ſpirally furrowed, as long as the ſtamens, permanent; ſtigmas five, reflexed. *Peric.* Capſules five, aggregate, membranous, obovate, vertical, ſeparating at their inſide, pointed at the baſe, each tipped at its ſummit with a long, linear, flat, pointed, rigid awn, hairy on its outſide, and at length ſpirally twiſted, adhering by its point to the ſummit of the ſtyle. *Seeds* ſolitary, erect, ovate.

Eſſ. Ch. Calyx in five deep ſegments, the uppermoſt elongated at the baſe into a nectariferous tube, running down the flower-ſtalk. Petals five, irregular. Filaments ten, unequal, three or five of them abortive. Fruit beaked, of five aggregate capſules, each tipped with a long ſpiral awn, bearded on the inſide.

This vaſt and favourite genus, for which we are almoſt entirely indebted to the Cape of Good Hope, conſiſts of a great number of well-marked ſpecies. But that number is greatly augmented, in almoſt every book, by the admiſſion of ſpurious hybrid ſpecies or varieties, which continually ſtart up from ſeed wherever many of the primary ones are cultivated, and are for a while propagated by cuttings, or even by ſeed. Sooner or later, however, they for the moſt part vaniſh, even before the eyes of thoſe who witneſſed their origin. Willdenow defines 120 ſpecies of *Pelargonium*, ſeveral of which we know to have been the production of European gardens. He arranges them in eight ſections. We ſhall ſelect examples of each, ſubjoining ſuch remarks as ſeem to us neceſſary, but abſtaining from the hazardous and unimportant undertaking of claſſing, or accounting for, every evaneſcent variety, with figures of which ſome authors, otherwiſe of good credit, have burthened and bewildered the ſcience. All theſe plants have rather a fleſhy habit, and more or leſs of a peculiar ſcent, in ſome inſtances exquiſitely agreeable. Some are herbaceous, with a tuberous *root*, that ſupplies the place of the ſhrubby *ſtem* obſervable in moſt of the others. Their *foliage* is moſtly downy, ſometimes glaucous. *Flowers* more or leſs umbellate, rarely endowed with any ſcent, except what ariſes from the herbage, though ſome, whoſe colours are of the yellowiſh-green or lurid kind, are deliciouſly fragrant at night. The prevailing colour, throughout the greater part of the genus, is crimſon, ſcarlet, or light purple, in various beautiful ſhades and combinations, often intermingled with white. Yellow and blue are both equally rare in this natural order, and the latter ſcarcely occurs at all in the genus of which we are treating.—Every known ſpecies, except perhaps one or two, is perennial. They are greenhouſe plants in England, flowering at various ſeaſons, and conducing greatly to the ornament of a collection. In ſome few inſtances the number of *petals*, as well as of the *ſtamens*, differs a little from the generic deſcription.

Section 1. *Stem wanting. Root turnip-like. Umbel compound.* Twenty-two ſpecies in Willdenow.

P. *longifolium*. Long-leaved Stork's-bill. Willd. n. 1. Jacq. Ic. Rar. t. 518. (Geranium longifolium; Burm. Geran. 50. n. 67. t. 2. Cavan. Diſſ. 235. t. 102. f. 1. G. prolificum ε; Linn. Sp. Pl. 950.)—Stem none. Umbel compound, leafy. Leaves lanceolate, acute, entire, ſmooth; the older ones pinnatifid, linear. Petals linear-obovate. Anthers four.—Gathered firſt by Oldenland at the Cape of Good Hope. *Root* ovate-oblong. Radical *leaves* ſeveral, on longiſh ſtalks, ſpreading, above two inches long, and near one broad; moſtly accompanied by ſome younger ones, that are deeply pinnatifid, and very narrow. *Flower-ſtalk* ſolitary, three or four inches high, bearing about three unequal, downy, partial ſtalks, accompanied by a leaf or two, each terminating in a downy *umbel*, of ſeveral roſe-coloured *flowers*. Analogy ſhews the ſtalk of this plant to be but a *ſcapus*, not a true *caulis*, though it generally elevates a leaf or two from the root. It muſt however be confeſſed that, like many others in this genus, it forms an intermediate link between a ſtem and flower-ſtalk, or rather combines the two.

P. *longiflorum*. Long-flowered Stork's-bill. Willd. n. 2. Jacq. Ic. Rar. t. 521.—Stem none. Umbel compound, ſomewhat leafy. Leaves lanceolate, acute, entire. Petals linear. Anthers four.—Of this Jacquin's *depreſſum*, t. 520, is juſtly made a variety by Willdenow; and we would venture alſo to refer to it his *ciliatum*, t. 519, which Willdenow, on account of two little occaſional appendages to the leaves, terms *auriculatum*, n. 7.—Perhaps they are all but varieties of *longifolium*, differing in their narrower *petals*, which are buff-coloured, with a deeper purple ſtain at the baſe of ſome of them. The *footſtalks* of all are hairy, at leaſt at their baſe, as are the *umbels* and partial *flower-ſtalks*. There is a general conformity in their foliage and aſpect, which will ſcarcely allow us to truſt to any apparent ſpecific differences, but we offer our ſentiments, on ſo obſcure a tribe, in the way of conjecture only.

P. *auritum*. Eared Stork's-bill. Willd. n. 8. (Geranium auritum; Burm. Geran. 47. n. 61. G. prolificum δ; Linn. Sp. Pl. 950. Mant. 433. G. africanum, foliis plerumque auritis, floribus ex rubro purpuraſcentibus; Comm. Hort. v. 2. 121. t. 61.)—Stem none. Umbels ſimple or compound. Leaves ovate-oblong, obtuſe, ſimple or ternate, ſlightly notched, hairy. Petals obovate, oblong. Anthers five.—Burmann ſays this is the rareſt of all the Cape Geraniums. Linnæus had it in the Upſal garden, as appears by his herbarium. It is nearly allied to the foregoing, but ſeems altogether more hairy, and the *leaves* are moſt frequently truly ternate, and obtuſe. The *petals* are of a deep crimſon. We cannot aſcertain the number of *anthers*, but Linnæus ſays they are five.

To this are nearly allied *hirſutum* of Burmann, n. 68. t. 2. Willd. n. 12, and *heterophyllum*, Jacq. Ic. Rar. t. 516. Willd. n. 15. Both vary much in the diviſion of their *leaves*, but the ſegments always partake either of a wedge-like or obovate figure, and are by no means linear. They are alſo conſtantly hairy.

P. *pinnatum*. Pinnate Stork's-bill. Ait. Hort. Kew. ed. 1. v. 2. 417. Willd. n. 18. Curt. Mag. t. 579. (P. aſtragalifolium; Jacq. Ic. Rar. t. 511. Geranium pinnatum; Linn. Sp. Pl. ed. 1. 677. G. prolificum γ; Linn. Sp. Pl. 950. G. africanum aſtragali folio; Comm. Prælud. 53. t. 3.)—Stem none. Umbels ſimple or compound. Leaves pinnate; leaflets numerous, ovate, undivided, hairy on both ſides. Anthers five.—Commelin received ſeeds of this from the Cape about the year 1699. Whatever may be thought of the reſt of this tribe, the preſent plant is certainly a very well marked ſpecies. The *leaves* are very like thoſe of ſeveral *Aſtragali*. Sometimes the *leaflets* are placed in fours. The *flower-ſtalks* are hairy, ſometimes ſimple, but moſtly bearing three umbels, with a ſmall leaf or two. The *petals* vary in breadth and colouring, but are generally obovate-oblong, pale buff, or cream-coloured, the two uppermoſt ſpeckled with red. *Anthers* five.

P. *luteum*. Dwarf Yellow Stork's-bill. (Geranium luteum; Andr. Repoſ. t. 423.)—Stem none. Umbels moſtly ſimple. Leaves pinnate; leaflets ſtalked, ovate, acute, divided. Anthers five.—This flowered in 1803, in the collection of Mr. G. Hibbert at Clapham, having been received by him, amongſt many other rarities, from the Cape.

We know nothing of it but from Andrews's work, yet we have no doubt of its being diſtinct from all in Willdenow. The ſtalked and cloven *leaflets* are very peculiar. Whether they are ſmooth or hairy is not mentioned, but the figure expreſſes the former. The numerous *flower-ſtalks* are all drawn ſimple and ſmooth, nor does any pubeſcence appear on the *umbel* or *calyx*. The *petals* are linear-obovate, of a full yellow; the two uppermoſt ſtreaked with red. *Anthers* five.

P. *barbatum*. Bearded-leaved Stork's-bill. Willd. n. 19. Jacq. Ic. Rar. t. 513. (Geranium prolificum β; Linn. Sp. Pl. 949. G. proliferum; Burm. Geran. 51. n. 70. t. 2. Cavan. Diſſ. 259. t. 120. f. 3.)—Stem none. Umbel compound. Leaves pinnate; leaflets linear-lanceolate, acute, partly three-cleft, bearded at the tips. Anthers five.—This ſpecies appears to have been one of the firſt, of its tribe, brought from the Cape into the European gardens. Linnæus cultivated it with ſucceſs at Upſal. The narrow, decurrent, frequently three-cleft *leaflets*, and eſpecially the tuft of two or three briſtly hairs at the point of each ſegment, afford its diſcriminative characters. The *umbels* and their ſtalks are downy. *Flowers* ſmall and inconſpicuous, fleſh-coloured with ſome purple ſtreaks.

P. *rapaceum*. Turnip-rooted Stork's-bill. Ait. Hort. Kew. ed. 1. v. 2. 418. Willd. n. 22. Jacq. Ic. Rar. t. 510. (Geranium rapaceum; Linn. Syſt. Nat. ed. 10. v. 2. 1141. G. prolificum α; Linn. Sp. Pl. 949. G. africanum, myrrhidis folio, flore albicante, radice rapaceâ; Comm. Hort. v. 2. 125. t. 63.)—Stem none. Umbel compound. Leaves pinnate; leaflets doubly pinnatifid, linear, downy. Corolla ſomewhat papilionaceous.—This uſed formerly to be known in gardens by the name of the Horſe's head Geranium, in alluſion to the remarkable ſhape of the *flower*, by which alone it is clearly diſtinguiſhed as a ſpecies. Three of the *petals*, much the broadeſt, cohere like the wings and keel of a papilionaceous flower, and are white or pale bluſh-coloured; the other two, narrower, roſe-coloured and ſpotted, are reflexed, and look like a divided ſtandard of the ſame kind of bloſſom. The *root* is very thick and tuberous, often divided. *Leaves* downy, pinnate; their leaflets doubly pinnatifid, in linear ſegments, which are variable in length and breadth.—If Linnæus had ſeen this alive, he could never have confounded it with any other.

Section 2.—*Stem very ſhort. Root tuberous.* Four ſpecies.

P. *lobatum*. Lobe-leaved Stork's-bill. Ait. Hort. Kew. ed. 1. v. 2. 418. Willd. n. 23. (Geranium lobatum α; Linn. Sp. Pl. 950. Cavan. Diſſ. 250. t. 114. f. 2. G. africanum, noctu olens, tuberoſum, vitis foliis hirſutis; Comm. Hort. v. 2. 123. t. 62.)—Stem ſcarcely any. Umbel compound. Leaves ternate or quinate; leaflets broad, roundly lobed, crenate, downy beneath. Anthers

ſix.—An old plant in the European gardens, yet not very common, flowering in the greenhouſe or conſervatory in April and May, and highly deſirable on account of the nocturnal fragrance of its *flowers*, which is like that of the bergamot pear, though far ſuperior. The *petals* are obovate, and of that dull browniſh or tawny green, appropriated to many night-ſcented flowers, as *Heſperis triſtis*, *Cheiranthus triſtis*, &c. The *leaves* are a ſpan or more in breadth, ſoft and downy, acutely crenate. *Flower-ſtalks* hairy. *Umbels* downy. *Root* much like the laſt.

P. *triſte*. Night-ſcented Stork's-bill. Willd. n. 24. (Geranium triſte; Linn. Sp. Pl. 950. Cornut. Canad. 109. t. 110. Cavan. Diſſ. 261. t. 107. f. 1.)—Stem ſhort. Umbels ſimple. Leaves hairy, pinnate; leaflets doubly pinnatifid, in oblong acute ſegments. Root of many jointed knobs.—This is ſo like the laſt in its *flowers*, that it might be ſuppoſed a variety with deeply divided *leaves*, but it is more cauleſcent, and the *root* differs eſſentially in being compoſed of many elliptical jointed knobs, inſtead of conſiſting of one great ſolid body. Cornuti's plate, publiſhed in 1635, however miſplaced in a work on Canada plants, is we believe the firſt that appeared of any African Geranium, or *Pelargonium*, and has alſo great merit in the execution. He ſays the *roots* are eatable.

P. *flavum*. Carrot-leaved Stork's-bill. Willd. n. 26. (P. daucoides; Jacq. Ic. Rar. t. 522. Geranium flavum; Linn. Mant. 257. G. daucifolium; Cavan. Diſſ. 260. t. 120. f. 2. G. africanum, folio ſtaphylini; Riv. Pentap. Irr. t. 107.)—Stem ſhort. Umbels ſimple. Leaves hairy, repeatedly ſubdivided, in linear-lanceolate ſegments. Root of many jointed knobs.—This we are perſuaded is but a variety of the laſt, with more divided and narrower *leaves*, though Willdenow inſerts, between the two, a moſt diſtinct ſpecies, which is the following.

P. *appendiculatum*. Broad Stipulaceous Stork's-bill. Willd. n. 25. (Geranium appendiculatum; Linn. Suppl. 304. Cavan. Diſſ. 262. t. 121. f. 2.)—Stem ſcarcely any. Flower-ſtalks angular. Leaves doubly pinnate, hairy. Stipulas dilated, rounded, coriaceous, ribbed, united with the baſe of the footſtalks.—It does not appear from whom Linnæus received his wild African ſpecimens of this very ſingular ſpecies, which we have not heard of in any garden. The remarkable *ſtipulas*, often an inch wide, at once diſtinguiſh the plant. Perhaps it ought to ſtand in the firſt ſection, as more akin to ſeveral there to be found, than to the *triſte* and its allies.—The *root* is nearly globoſe. *Leaves* nearly all radical, three or four inches long, extremely hairy, finely divided. *Flower-ſtalks* hairy, rather taller than the leaves, divided a little above the baſe into two angular, ſtrongly furrowed branches, each bearing a hairy *umbel* of many ſmalliſh roſe-coloured *flowers* on long ſtalks. The ſpecimen figured by Cavanilles is the very counter-part of the Linnæan ones, and having been ſent by Thunberg, we may preſume they were all gathered by him, and that no other botaniſt has met with this remarkable plant.

Section 3. *Stem elongated, herbaceous, or ſomewhat ſhrubby.*
Twenty-ſix ſpecies.

P. *œnotheræ*. Evening-primroſe Stork's-bill. Willd. n. 27. Jacq. Ic. Rar. t. 525. (Geranium œnotheræ; Linn. Suppl. 305.)—Umbels of about three flowers. Leaves oppoſite, lanceolate, obtuſe, with tooth-like ſerratures, very finely downy on both ſides. Stem aſcending, herbaceous.—Jacquin at firſt miſtook this for *G. ovatum* of Cavanilles; ſee our next-mentioned ſpecies. We have not ſeen it in any garden. The Linnean ſpecimen ſeems to be one of thoſe brought from the Cape by Thunberg, which his venerable preceptor was juſt able to contemplate with ſatisfaction, but not to deſcribe. The *ſtem* is divided into ſeveral herbaceous branches, a ſpan long, ſpreading, and partly decumbent. *Leaves* on long ſtalks, oblong-lanceolate, deeply and unequally ſerrated. Whole *plant* clothed with denſe, ſoft pubeſcence, like ſome kinds of *Œnothera*. *Flowers* two or three in each umbel, nearly regular, ſmalliſh, roſe-coloured. *Fruit* large, with a downy beak.

P. *ovale*. Oval Hoary Stork's-bill. Willd. n. 29. L'Herit. Geran. t. 28. (G. ovatum; Cavan. Diſſ. 238. t. 103. f. 3.)—Umbels of about four flowers. Leaves ovate, acute, ſtrongly ſerrated, hoary. Stem trailing. Anthers ſeven. Reſembles the laſt in general habit, but differs in the ſhape of the *leaves*, and their much longer ſtalks. The *flowers* are much larger, and rather more numerous in each umbel; *fruit* ſmaller. *Anthers* ſeven, though Cavanilles ſays five; but as he ſaw only dried ſpecimens, we preſume he might eaſily miſtake this point, and we rather refer his ſynonym to this ſpecies, than to the *erioſtemon*, under which Willdenow has doubtingly cited him.

P. *erioſtemon*. Woolly-filament Stork's-bill. Willd. n. 32. Jacq. Hort. Schonbr. v. 2. 4. t. 132.—Umbels of about four flowers. Leaves elliptical, obtuſe, crenate, finely downy. Stem erect. Upper petals notched. Stamens woolly. Anthers five.—This ſpecies has been much miſunderſtood. Burmann himſelf ſent it to Linnæus, doubting whether it were diſtinct from his own *G. ovale*, Prodr. Cap. 19; and Linnæus, far more unaccountably, ſuppoſed it a variety of his *G. malacoides*, while his ſon gueſſed it to be *betulinum!* The ſpecimen however is rightly marked as having but five anthers. The erect though humble *ſtem*, and obtuſe cloſely crenate *leaves*, at once diſtinguiſh it from the laſt. The *petals* are white; the two uppermoſt broad, acutely notched, ſpotted with crimſon at the baſe. *Anthers* and *ſtyle* red.

P. *ſtipulaceum*. Narrow Stipulaceous Stork's-bill. Willd. n. 34. (Geranium ſtipulaceum; Linn. Suppl. 306. Cavan. Diſſ. 254. t. 122. f. 3.)—Umbels of about three flowers. Leaves heart-ſhaped, cut and crenate, ſlightly hairy. Stem ſhort, gibbous, ſomewhat jointed. Stipulas awl-ſhaped, rigid, permanent.—Thunberg found this at the Cape, and gave it to Linnæus, as well as to Cavanilles. The *ſtem* is very remarkably tumid, fleſhy, and jointed, ſubdivided, though of humble growth, each joint beſet with numerous, rigid, thorn-like, permanent *ſtipulas*. The *leaves* are few, ſtalked, heart-ſhaped, and obtuſe, variouſly cut and lobed, paler beneath, clothed on both ſides with ſhort ſcattered hairs; their length about an inch. *Flower-ſtalks* three or four inches long, pale, nearly ſmooth, umbellate. *Flowers* three or four, ſmall. *Fruit* with a hairy beak.

P. *tabulare*. Rough-ſtemmed Stork's-bill. Willd. n. 36. L'Herit. Geran. t. 9. (Geranium tabulare; Linn. Sp. Pl. 947. excluding Burmann's ſyn. G. elongatum; Cavan. Diſſ. 233. t. 101. f. 3.)—Umbels three-flowered. Leaves kidney-ſhaped, five-lobed, notched, ſlightly hairy. Stem aſcending, rough with deflexed briſtles.—Native of the Cape of Good Hope, but whether of the Table Mountain, as its name implies, is very doubtful, ſo many things having been confounded under this name. We are however certain of l'Heritier's plant, on his own authority, though his figure does not well expreſs the peculiar character of the coarſe briſtles of the *ſtem*, inclined rather downwards. The original ſpecimen of Linnæus is the ſame. But *G. tabulare* of Burmann and Cavanilles is extremely different, being Willdenow's *P. ſaniculæfolium*, n. 75, and, if we miſtake not, *variegatum*, n. 78.

The true *tabulare* is not one of the moſt ornamental kinds, and therefore cultivators are apt to neglect it. The *root* is perennial and woody. *Stems* weak and tender, often dying down to the ground, diſtinguiſhed by their peculiar hairineſs. *Leaves* on long ſtalks, dull green, ſcarcely marked with any concentric ſhade or zone, but beſprinkled with ſhining tawny hairs. *Umbels* of about three ſmall, very pale fleſh-coloured yellowiſh *flowers*, on very long ſmooth ſtalks, oppoſite to the leaves. *Calyx* hiſpid. *Petals* narrow. *Anthers* five. *Style* elongated beyond the beak, before it divides into *ſtigmas*.

P. *alchemilloides*. Lady's-mantle-leaved Stork's-bill. Willd. n. 37. (Geranium alchemilloides; Linn. Sp. Pl. 948. Cavan. Diſſ. 234. t. 98. f. 1. G. africanum, folio alchimillæ maculato; Riv. Pentap. Irr. t. 104.)—Umbels of about four flowers. Leaves kidney-ſhaped, deeply five-lobed, cut, very hairy. Stem diffuſe, rough with deflexed briſtles. Stigmas ſeſſile.—Very near the laſt, but well diſtinguiſhed in the Hortus Kewenſis, by the *ſtigmas* being ſeſſile, without any elongation of the *ſtyle* beyond the hairy beak. The *ſtem* is very hairy with deflexed briſtles, the *flower-ſtalks* with ſpreading ones. *Leaves* more hairy than in *P. tabulare*, often marked with a purpliſh zone; their lobes more ſtraight and deep, coarſely cut at the extremity.

The younger Linnæus confounded with this a very curious and little-known ſpecies, *P. articulatum*, Willd. n. 35, adopted by that writer from Cavanilles, who has correctly figured it, t. 122. f. 1. Willdenow has no leſs judiciouſly placed it between *P. ſtipulaceum* and *tabulare*. The baſe of the *ſtem* is jointed and ſwollen, clothed with permanent, membranous, ſomewhat ſpinous *ſtipulas*, reſembling *ſtipulaceum*; but the reſt of the *ſtem*, as well as the *foliage*, are nearly akin to *tabulare* and *alchemilloides*. The *flowers* are larger than in either, apparently yellowiſh, their two larger *petals* ſtreaked with purple.

P. *odoratiſſimum*. Nutmeg-ſcented Stork's-bill. Willd. n. 38. (Geranium odoratiſſimum; Linn. Sp. Pl. 948. Cavan. Diſſ. 241. t. 103. f. 1. G. africanum humile, folio fragrantiſſimo molli; Dill. Elth. 157. t. 131.)—Umbels of about five flowers. Leaves roundiſh-heart-ſhaped, crenate, very ſoftly downy.—This ſpecies is known by the delicate ſoftneſs of its *leaves*, and their highly aromatic and powerful ſmell, which is renewed by rubbing, even after the plant has been dried twenty years or more. For this ſcent it is chiefly valued, the *flowers* being ſmall, whitiſh and inconſpicuous. The coarſe engraving of Dillenius is more truly excellent, as expreſſing the ſoft habit of the plant, than many a fine coloured plate probably would have been.

We doubt much whether *G. africanum*, Cav. Diſſ. 242. t. 104. f. 1, can be a variety of this, though it is ſo conſidered by Willdenow. The *flowers* are five times as large, and *leaves* more hairy. The ſpecific name is truly unfortunate, as applying equally to this whole genus.

P. *alceoides*. Muſk-mallow-leaved Stork's-bill. (P. columbinum; Jacq. Hort. Schonbr. v. 2. 4. t. 133. Willd. n. 42. Geranium alceoides; Linn. Sp. Pl. 948. G. folio alceæ tenuitèr laciniato, flore pentapetalo purpuraſcente, ſemine tenui; Mart. Cent. 16. t. 16.)—Umbels many-flowered. Leaves ternate, deeply three-cleft, laciniated. Stem herbaceous, decumbent, hairy. Nectary ſhorter than the ſegments of the calyx.—This has the aſpect of an European rather than a Cape Geranium, and the ſhortneſs of its nectariferous tube combines with the habit, to bring it very near *Erodium*. As however that tube is preſent, no doubt can remain of the genus. Jacquin, who raiſed the plant from Cape ſeeds, and kept it flowering throughout the winter in his ſtove, was not aware of its being a Linnæan ſpecies, concerning which the herbarium of Linnæus removes all doubt. We cannot therefore ſubmit to the alteration of its very expreſſive ſpecific name. The fertile *filaments* are uſually five, though it ſeems one of them occaſionally wants its *anther*. The *petals* are ſmall, purple; the two uppermoſt prettily marked with an eye-like ſpot.

P. *tricolor*. Three-coloured Stork's-bill. Curt. Mag. t. 240. Willd. n. 45. (P. violareum; Jacq. Ic. Rar. t. 527.)—Umbels three-flowered. Leaves oblong, bluntiſh, hoary, cut and ſomewhat pinnatifid, obſcurely three-lobed. Two upper petals glandular at the baſe.—Seeds of this were ſent by Mr. Maſſon from the Cape to Kew garden in 1792. It was firſt publiſhed by Mr. Curtis, and is a favourite plant in collections, though not one of the eaſieſt to preſerve. We notice it here chiefly for its ſingular beauty. The *petals* are roundiſh. and nearly uniform in ſhape, but very different in colour. The three lowermoſt are uſually milk-white, rarely ſtriped ſlightly with red; the two uppermoſt of a moſt rich and deep blood red, darkly veined, with a velvet-like reflection, their baſe almoſt black, beſet with ſhining glandular points. *Seeds* are rarely produced in England, yet the ſpecies is very diſtinct and permanent.

P. *coriandrifolium*. Coriander-leaved Stork's-bill. Willd. n. 50. Jacq. Ic. Rar. t. 528. (Geranium coriandrifolium; Linn. Sp. Pl. 949. Cavan. Diſſ. 263. t. 116. f. 1. G. africanum, foliis coriandri; Riv. Pentap. Irr. t. 108.)—Umbels of about three flowers. Leaves bipinnate; leaflets pinnatifid, linear. Anthers five. Petals uſually four. Stem herbaceous, roughiſh.—An old inhabitant of greenhouſes, whoſe *ſtem* is diffuſe, herbaceous, and uſually annual, though the *root*, if properly preſerved, is, as at the Cape, its native country, perennial. The finely divided *leaves*, and the large *flowers*, make this worth cultivating for variety. The two upper *petals* are much the largeſt, obovate, and veined with purple; the three lower, of which the middlemoſt is generally wanting, are narrow, and pure white.

Section 4. *Stem ſhrubby. Leaves neither divided nor angular.* Four ſpecies.

P. *glaucum*. Glaucous Spear-leaved Stork's-bill. L'Herit. Geran. t. 29. Willd. n. 53. (Geranium glaucum; Linn. Suppl. 306. G. lanceolatum; Cavan. Diſſ. 235. t. 102. f. 2. Curt. Mag. t. 56.)—Stalks moſtly ſingle-flowered. Leaves lanceolate, entire, pointed, ſmooth, glaucous.—This, one of the moſt ſingular of its genus in foliage, was raiſed by the late Mr. Lee, from ſeeds picked out of Cape ſpecimens at ſir Joſeph Banks's, about the year 1775. Great diſputes have always exiſted concerning the ſpecific name, *glaucum* as well as *lanceolatum* being each ſo ſtrikingly oppoſite, that the firſt which is heard ſeems entitled to bear down all oppoſition. That given by Linnæus himſelf, and publiſhed by his ſon, has however prevailed. So glaucous are the *leaves*, even in a dry ſtate, that they appear to have been white-waſhed. Their form is lanceolate, inclining to obovate, with a point; their length nearly two inches. The *ſtem* is ſhrubby and branched, angular, glaucous with a purple tinge. *Footſtalks* ſtout, angular, from one to three inches long, connected with the *leaf* by a joint, and both together are nearly upright. *Stipulas* in pairs, lanceolate, acute. *Flower-ſtalks* axillary, bearing one, rarely two, elegant *flowers*, whoſe partial ſtalk is often longer than the general one, and accompanied, nearly all the way to its baſe, by the nectariferous tube. *Petals* obovate, of a delicate bluſh-colour, with crimſon veins. This ſpecies is increaſed readily by cuttings, like moſt of the ſhrubby kinds.

P. *betulinum*. Birch-leaved Stork's-bill. Willd. n. 55. Curt. Mag. t. 148. (Geranium betulinum; Linn, Sp. Pl. 946. G. fruteſcens, &c.; Burm. Afr. t. 33. f. 1, 2.)—Umbels of about three flowers, downy. Leaves ovate, unequally ſerrated, nearly ſmooth.—A handſome well-named ſpecies, of which both the varieties, figured by Burmann, are common in every collection, the larger one being preferred. The *flowers* are pale pink, their upper *petals* obovate, near an inch long, richly veined with purple. *Nectary* rather ſhort.

P. *acetoſum*. Sorrel-leaved Stork's-bill. Willd. n. 56. Curt. Mag. t. 103. (Geranium acetoſum; Linn. Sp. Pl. 947. Cavan. Diſſ. 239. t. 104. f. 3.)—Umbels of about three flowers, ſmooth. Leaves roundiſh-obovate, crenate, ſmooth. Petals linear. The Dutch brought this very early from the Cape, and it has long been generally diſperſed throughout Europe. Its perfect ſmoothneſs; the ſomewhat glaucous hue, rounded undivided ſhape, and acid flavour of the *leaves*; with the narrow *petals*, which are fleſh-coloured, with ſtraight pink veins, clearly diſtinguiſh the *P. acetoſum*. Miller ſpeaks of a variety with ſcarlet *flowers*, to which we have ſeen ſome near approaches.

Section 5. *Stem ſhrubby. Leaves either angular, lobed, or palmate.* Thirty-ſeven ſpecies.

P. *hybridum*. Hybrid Stork's-bill. Willd. n. 59. (Geranium hybridum; Linn. Mant. 97. Cavan. Diſſ. 239. t. 105. f. 2. G. africani arboreſcentis, malvæ folio pingui, varietas; Dill. Elth. 152. t. 125. f. 152.)—Umbels many-flowered. Leaves roundiſh, crenate, nearly ſmooth, ſlightly lobed, unſpotted. Petals obovate-oblong, broader than the ſegments of the calyx.—Dillenius ſays this was produced from ſeed of *P. inquinans*, hereafter mentioned, and he points out its reſemblance, in many points, to the *acetoſum*. Linnæus therefore called it *hybridum*. He might have applied a ſimilar name to ſeveral others, had he lived to cultivate many of the new-diſcovered ſpecies. The preſent, whether a real mule, or a permanent intermediate ſpecies, has remained for a long courſe of years in the gardens, being chiefly, if not entirely, increaſed by cuttings. The *ſtem* is ſmooth. *Leaves* very like the *acetoſum*, but broader, obſcurely lobed, and in ſome degree downy. *Flowers* of a ſcarlet red, with much broader *petals* than the laſt, but longer than thoſe of the *inquinans*.

P. *zonale*. Horſe-ſhoe Stork's-bill. Willd. n. 60. (Geranium zonale; Linn. Sp. Pl. 947. Cavan. Diſſ. 230. t. 98. f. 2. G. africanum arboreſcens, alchimillæ hirſuto folio, floribus rubicundis; Comm. Præl. 51. t. 1.)—Umbels many-flowered. Leaves heart-ſhaped, rounded, ſlightly lobed, toothed, roughiſh, marked with a concentric zone.—The moſt popular of all the ſpecies, which the Dutch originally obtained from the Cape, in 1700, and whoſe many varieties are the ornament of every greenhouſe and conſervatory. Their copious roſe-coloured *flowers*, produced in plentiful ſucceſſion, are very ſhowy; their *leaves* are always diſtinguiſhed by a dark concentric tranſverſe ſtripe, various in breadth and intenſity, and there is a common, but leſs luxuriant kind, whoſe foliage is blotched with white or yellow, and whoſe *petals* are narrower than in ſome of the reſt.

P. *inquinans*. Scarlet Stork's-bill. Willd. n. 61. (Geranium inquinans; Linn. Sp. Pl. 945. Cavan. Diſſ. 243. t. 106. f. 2. G. africanum arboreſcens, malvæ folio pingui, flore coccineo; Dill. Elth. 151. t. 125. f. 151. G. afr. arbor. malvæ folio lucido, flore elegantiſſimo kermeſino; Mart. Cent. 3. t. 3.)—Umbels many-flowered. Leaves orbicular-kidney-ſhaped, ſlightly lobed, crenate, downy and viſcid.—Martyn ſays this ſplendid ſpecies was firſt brought into England about the year 1718. It ſoon became common, and is juſtly admired for the vivid ſcarlet of its copious *flowers*. The greateſt peculiarity of this *Pelargonium* is that which its name expreſſes, of ſtaining the finger with a greaſy red moiſture, exuding from the whole ſurface of its ſoft downy branches. There are ſeveral varieties, differing in the magnitude or ſplendour of their *flowers*. This is ſuppoſed to be the mother, *acetoſum* the father, of *P. hybridum* above deſcribed.

P. *heterogamum*. Lady Coventry's Stork's-bill. Ait. Hort. Kew. ed. 1. v. 2. 424. Willd. n. 62. L'Herit. Geran. t. 18.—Umbels many-flowered. Leaves orbicular-kidney-ſhaped, acutely lobed and toothed, hairy. Stem rough with deflexed briſtles.—This ſhould ſeem to have been produced between the laſt-mentioned and *P. alchemilloides*, Willd. n. 37. The pubeſcence and *leaves* much reſemble the latter; the ſcarlet *flowers*, and upright ſhrubby *ſtem*, accord with the former. It is allowed on all hands to be a hybrid plant, and, as Mr. Lee informs us, originated in Lady Coventry's greenhouſe. The *anthers* are ſix. *Stigmas* elevated on a ſhort ſimple *ſtyle*, above the hairy beak; not ſeſſile, as in *alchemilloides*.

P. *peltatum*. Ivy-leaved Stork's-bill. Willd. n. 65. (Geranium peltatum; Linn. Sp. Pl. 947. Mill. Ic. t. 140. Curt. Mag. t. 20.)—Umbels of few flowers. Leaves five-lobed, entire, fleſhy, ſmooth, more or leſs peltate. A common plant in every greenhouſe and window, having been early introduced from the Cape, nor can it be confounded with any other, on account of the five-lobed, dark, ſhining, ivy-like *leaves*. The *flowers* are roſe-coloured and handſome. The inſertion of the *footſtalk* is uſually peltate, or a little way from the baſe of each leaf. We are however convinced by our own obſervation, and the practical authority of Mr. Lee, that *P. lateripes*, Willd. n. 66. L'Herit. Geran. t. 24, which differs in this reſpect from the common *peltatum*, and has moreover leſs angular *branches*, is nevertheleſs but a variety, and not a very permanent one.

P. *tetragonum*. Square-ſtalked Stork's-bill. Willd. n. 67. L'Herit. Geran. t. 23. Curt. Mag. t. 136. (Geranium tetragonum; Linn. Suppl. 305. Jacq. Ic. Rar. t. 132. Cavan. Diſſ. 231. t. 99. f. 2. G. trigonum; Scop. Del. Inſubr. v. 1. 12. t. 5.)—Stalks two-flowered. Branches fleſhy; quadrangular. Petals four.—Sent from the Cape by Mr. Maſſon, in 1774. The ſmooth, fleſhy, ſomewhat jointed *ſtem*, with three or four prominent angles; ſmall, rounded, lobed, notched *leaves*, beſprinkled with long hairs, and ſometimes beautifully variegated with roſe-colour and white, as in Curtis's figure, ſtrikingly mark this ſpecies. The *flowers* are no leſs peculiar and very handſome; their two upper *petals* are near one inch and a half long, obovate, reflexed, pale pink with branched crimſon veins; two lower ſmall and white, the middle one being wanting. *Stamens* crimſon, with ſeven anthers. Its ſucculent nature renders it rather more difficult of cultivation than ſome others.

P. *cucullatum*. Hollow-leaved Stork's-bill. Willd. n. 69. (Geranium cucullatum; Linn. Sp. Pl. 946. Cavan. Diſſ. 241. t. 106. f. 1. G. africanum maximum; Riv. Pentap. Irr. t. 98.)—Umbels many-flowered. Leaves kidney-ſhaped, hooded, ſlightly ſcolloped, finely toothed.—A large and ſhowy ſpecies, well known in gardens, remarkable for its greyiſh hoary aſpect; rounded, funnel-like, ſcarcely lobed *leaves*; and copious, hairy *umbels*, of large purple *flowers*, whoſe two upper *petals* are finely pencilled, and marked with a dark central ſpot.

P. *anguloſum*. Angular Hoary Stork's-bill. Ait. Hort. Kew. ed. 1. v. 2. 426. Willd. n. 70. (Geranium acerifolium; Cavan. Diſſ. 243. t. 112. f. 2. G. africanum arboreſcens, foliis cucullatis anguloſis; Dill. Elth. 155. t. 129. G. afr. arbor. ibiſci folio anguloſo, floribus amplis purpureis; Mart. Cent. 28. t. 28.)—Umbels many-flowered. Leaves rounded, hooded, angular, toothed.—This perhaps is ſtill more frequently met with in gardens than the laſt, of which we are diſpoſed to think it a mere variety, differing only in the acute angles of the *leaves*, and their rather more coarſe or unequal teeth. Some experienced cultivators are of our opinion. Linnæus did not even diſtinguiſh the preſent plant as a variety, but the former is the genuine *cucullatum* of his herbarium.

P. *variegatum*. Variegated Glaucous Stork's-bill. Willd. n. 78. P. ſaniculæfolium; Willd. n. 75. P. cortuſæfolium; Jacq. Ic. Rar. t. 539. Geranium variegatum; Linn. Suppl. 305. Cavan. Diſſ. 251. t. 118. f. 3? G. tabulare; Burm. Geran. 36. n. 44. t. 1. Cavan. Diſſ. 232. t. 100. f. 2.)—Umbels of about five flowers. Leaves palmate, five-lobed, flat, glaucous, ſmooth, ſharply toothed. Stipulas heart-ſhaped. *Nectary* not longer than the calyx.—We feel little reluctance in combining all the above ſynonyms under one ſpecies. The Linnæan *G. variegatum* appears to have been little known to any body, and was rendered more obſcure by the doubtful and imperfect figure in Cavanilles, which has only two flowers on a ſtalk, and ſhews nothing of the length of the nectariferous tube. The Linnæan ſpecimen has four or five *flowers* in each *umbel*, and anſwers exactly to Jacquin's t. 539, except that the *leaves* are rather more deeply lobed, without any appearance of a zone, at leaſt in a dried ſtate. The *flowers* appear by Jacquin's figure to vary in ſize, and Burmann's *tabulare* exhibits them of ſtill ſmaller dimenſions, perhaps becauſe his plate was taken from a dry ſpecimen. This ſpecies therefore, known in our gardens by the name of *ſaniculæfolium*, but which ought to retain its original appellation, *variegatum*, is readily diſtinguiſhed by being perfectly ſmooth and glaucous, with numerous round *branches*. *Leaves* on long ſpreading *ſtalks*, more or leſs deeply five-lobed, the middle lobe often three-cleft, and all of them ſharply cut or ſerrated. Moſt generally, as it ſeems, the diſk is marked with a brown or purpliſh, concentric, broken zone. The *ſtipulas* are of a broad-ovate or heart-ſhaped form, and vary in ſize. *Umbels* on very long ſtalks, oppoſite to the *leaves*, of four or five handſome *flowers*. *Calyx* with a few briſtly hairs about the baſe, well expreſſed by Jacquin, its ſegments full as long as the nectariferous tube, whoſe termination is very evident. Two upper *petals* large, obovate, roſe-coloured, with a purple central ſpot, and many dark veins; three lower ones linear and whitiſh.

Very poſſibly *P. fuſcatum*, Jacq. Ic. Rar. t. 540. Willd. n. 74, may be but a ſlight variety of *variegatum*. Its *branches* are ſaid to be rough when young.

P. *grandiflorum*. Large-flowered Glaucous Stork's-bill. Willd. n. 77. (Geranium grandiflorum; Andr. Repoſ. t. 12.)—Umbels of two or three flowers. Leaves palmate, five-lobed, flat, glaucous, ſmooth, ſharply toothed. Stipulas ovate. Nectary thrice as long as the calyx.—Mr. Maſſon is ſaid to have ſent this ſpecies from the Cape in 1792. It is juſtly admired for the ſize and beauty of its *flowers*, which are only two or three on each ſtalk, and eſſentially diſtinguiſhed from *variegatum* by the great length of their nectariferous tube, which is about two inches, being thrice that of the *calyx*. The *petals* are white; the two uppermoſt elegantly ſtained with roſe-colour; the reſt narrower, and rather ſhorter. The *leaves*, and whole habit, exactly agree with our ſpecimen of *variegatum*; but the *ſtipulas* are more rounded, or obovate, not heart-ſhaped. The plate of Cavanilles, done for the laſt, may very probably have been taken from a ſpecimen of the preſent ſpecies. We ſuſpect moreover that *P. patulum*, Jacq. Ic. Rar. t. 541. Willd. n. 76, is but too nearly related to this, though, having ſeen no ſpecimen, we cannot ſpeak with confidence.

P. *cotyledonis*. Peltate Downy Stork's-bill. Willd. n. 79. L'Herit. Geran. t. 27. (Geranium cotyledonis; Linn. Mant. 569.)—Umbels compound. Leaves heart-ſhaped, peltate, rugged, moſt downy beneath. Stem fleſhy, without thorns.—This is one of the very few ſpecies which do not readily bloſſom in gardens. We never ſaw the *flowers*, nor did Linnæus, Cavanilles, nor Willdenow. The plant was brought to England from Holland in 1768, according to Mr. Fairbairn, but the Hort. Kew. ſays it is a native of St. Helena, and was introduced in 1765, by Mr. John Buſh. It is however allowed to be likewiſe a Cape ſpecies. The *ſtem* is peculiarly thick and fleſhy, each branch crowned with a number of ſtalked, peltate, rounded, ſlightly lobed *leaves*; finely reticulated, corrugated, and minutely downy above; veiny, and clothed with ſoft, denſe, hoary pubeſcence beneath. L'Heritier's fine plate repreſents the *flower-ſtalk* a foot high, hairy, repeatedly compound, bearing ſeveral *umbels*, of about four *flowers* each. The *petals* are roundiſh, and nearly uniform. *Nectary* very ſhort.

P. *echinatum*. Prickly-ſtalked Stork's-bill. Curt. Mag. t. 309. Willd. n. 80. (P. hamatum; Jacq. Hort. Schonbr. v. 2. 7. t. 138.)—Umbels many-flowered. Leaves roundiſh-heart-ſhaped, lobed, crenate, ſoft, denſely downy beneath. Stem fleſhy. Stipulas permanent, ſpinous.—Somewhat ſimilar to the laſt, but abundantly diſtinct, having ſimple *umbels*; *leaves* ſofter, neither peltate nor rugoſe, and the *ſtem* armed with ſtrong, conical, curved thorns, originating from the permanent *ſtipulas*. The *petals* are inverſely heart-ſhaped, nearly regular, pure white, ſometimes purple, two of them beautifully ſtriped and ſpotted with that colour. *Nectary* running down almoſt to the very baſe of each partial flower-ſtalk. Curtis and Jacquin deſcribed this plant unknown to each other. It is not yet become common, though both ſingular and ornamental.

P. *auſtrale*. Botany-bay Stork's-bill. Willd. n. 81.—Umbels many-flowered, capitate. Leaves heart-ſhaped, crenate, ſlightly lobed; moſt downy beneath. Nectary very ſhort.—Native of New South Wales.—This is one of thoſe ſpecies found in New Holland, and not at the Cape of Good Hope, all which have a general reſemblance among themſelves, and are not much like any of the African ſpecies, except perhaps *althæoides*, Willd. n. 41, and *capitatum*, n. 83. hereafter deſcribed. Their habit is downy; *flowers* generally ſmall, pale purple, in numerous, denſe, hairy *umbels*; *leaves* heart-ſhaped, crenate, but ſlightly lobed; *nectary* very ſhort. We hope to ſee them well diſtinguiſhed in the ſecond part of Mr. Brown's Prodromus. In the mean while we would remark that Willdenow's n° 40, *anceps*, Jacq. Coll. v. 4. 184. t. 22. f. 3, is one of theſe New Holland ſpecies, and not, we believe, found in Africa. It is leſs hairy than the reſt, but not entirely ſmooth. As far as we know this tribe, they have none of the aromatic ſcent, uſual in their genus, nor much beauty. We have ſpecimens of four very diſtinct ones from Port Jackſon.

P. *capitatum*. Roſe-ſcented Stork's-bill. Willd. n. 83. (Geranium capitatum; Linn. Sp. Pl. 947. Cavan. Diſſ. 249. t. 105. f. 1. G. africanum, folio malvæ; Riv. Pentap. Irr. t. 99.)—Umbels many-flowered, capitate. Leaves heart-ſhaped, lobed, wavy, crenate, ſoft and downy. Stem

diffuſe. Nectary very ſhort.—The old favourite roſe-ſcented Stork's-bill was among the firſt brought from the Cape, and is ſtill preſerved in collections, though far leſs frequently than formerly. The delicate ſcent of roſe-water, which its herbage exhales when touched, is leſs powerful than that of the *graveolens*, of which we ſhall preſently ſpeak. The *flowers* are pale purple, with dark veins, and, having very ſhort partial ſtalks, are crowded into a denſe head. One of our New Holland ſpecies agrees with them in this reſpect, and vies with them in ſize. Indeed though L'Heritier diſtinguiſhed the latter by the name of *P. extraneum*, we can ſcarcely think it different from *capitatum*, and if we are right, the ſpecies before us is therefore a native of New South Wales as well as of ſouthern Africa.

P. *tomentoſum*. Penny-royal Stork's bill. Willd. n. 86. Jacq. Ic. Rar. t. 537. Curt. Mag. t. 518.—Umbels many-flowered, ſomewhat panicled. Leaves heart-ſhaped, five-lobed, rather haſtate, ſerrated, very ſoft and downy. Nectary very ſhort.—Remarkable for its ſtrong ſcent, like pepper-mint or penny-royal. It has been introduced from the Cape, ſince the firſt edition of Hort. Kew. was publiſhed. The *ſtem* is much branched, widely ſpreading and brittle. *Flowers* numerous, but not ſhowy, white, with crimſon lines, and *ſtamens* of the latter colour.

P. *graveolens*. Ottar of roſe Stork's-bill. Willd. n. 89. L'Herit. Geran. t. 17. (Geranium terebinthinaceum; Cavan. Diſſ. 250. t. 114. f. 1.)—Umbels many-flowered, capitate. Leaves palmate, ſeven-lobed, their ſegments oblong, obtuſe; revolute and very rough at the margin. Nectary about half as long as the calyx. Our readers would hardly recogniſe, under the names of *graveolens* and *terebinthinaceum*, the deliciouſly fragrant "Ottar of roſe Geranium," as it is commonly called, which has ſupplanted the old *capitatum*, being far more powerful, though perhaps leſs delicate, in its ſcent. This perfumed kind, however, though now ſo common, is, it ſeems, but a variety of one leſs agreeable, and is firſt mentioned as ſuch by Cavanilles. The ſhape of the *leaves* readily diſtinguiſhes this *Pelargonium* from every other. If we were to indulge our imagination in gueſſing at hybrid ſpecies, the preſent might be ſuppoſed an offspring of *capitatum*, impregnated by *Radula*, and that its ſcent varies according as it partakes more of the conſtitution of one parent or the other. We find it not much inclined to produce *ſeeds*. Willdenow mentions a roſe-ſcented variety of *Radula*, impregnated by *graveolens*, and a leſs agreeable one of *graveolens* impregnated by *Radula*.

P. *Radula*. Raſp-leaved Stork's-bill. Willd. n. 92. L'Herit. Geran. t. 16. (Geranium Radula; Cavan. Diſſ. 262. t. 101. f. 1. G. revolutum; Jacq. Ic. Rar. t. 133.)—Umbels of few flowers. Leaves digitate, doubly pinnatifid, toothed, linear, revolute, very rough. Nectary nearly as long as the calyx.—Introduced from the Cape in 1774, and now frequent in collections. The narrow linear ſegments of the deeply divided rough *leaves*, and their ſtrong mint-like ſcent, are enough to determine this ſpecies, of which we greatly ſuſpect Willdenow's *aſperum*, n. 90, and *denticulatum*, n. 93, to be varieties.

Section 6. *Stem ſhrubby. Leaves either three-cleft or ternate.* Seventeen ſpecies.

P. *bicolor*. Two-coloured Stork's-bill. Willd. n. 94. Curt. Mag. t. 201. (Geranium bicolor; Jacq. Hort. Vind. v. 3. 23. t. 39. Cavan. Diſſ. 248. t. 111. f. 1.)—Umbels many-flowered. Leaves heart-ſhaped, deeply three-cleft, wavy, hairy; their ſegments obtuſe, three-lobed, cut and toothed. Nectary nearly as long as the flower-ſtalk.—The native country of this elegant ſpecies ſeems not to have been aſcertained, for we do not find its name in Thunberg's long liſt of Cape Geraniums, nor has it been heard of but in gardens. Jacquin and Curtis ſay the ſeeds are ſcarcely ever perfected; yet we know not to what particular kinds it is ſufficiently allied for us to gueſs at its hybrid birth. The *petals* are deep crimſon, with a white edge, not unlike the pretty *Silene quinquevulnera*. The *leaves* are ſometimes ſo deeply divided as to become ternate.

P. *ſcabrum*. Rough Stork's-bill. Willd. n. 96. L'Herit. Geran. t. 31. Jacq. Ic. Rar. t. 542. (Geranium ſcabrum; Linn. Sp. Pl. 946. Burm. Geran. 34. n. 39. t. 1. Cavan. Diſſ. 247. t. 108. f. 1.)—Umbels of few flowers. Leaves wedge-ſhaped, deeply three-cleft, acute, coarſely ſerrated, rough. Nectary the length of the calyx. Meſſrs. Kennedy and Lee are ſaid to have introduced this from the Cape in 1775. Its ſhrubby, much branched *ſtem*, as well as the *leaves*, are extremely harſh to the touch, eſpecially in wild ſpecimens, whence Burmann choſe the name. The ſegments of the *foliage* vary in breadth. The ſcent is not remarkable. The *flowers* are roſe-coloured and variegated, but few, ſmall, and inconſpicuous, nor is the plant entitled to ſuch general favour as many others.

P. *criſpum*. Curled-leaved Lemon Stork's-bill. Willd. n. 99. L'Herit. Geran. t. 32 and 33. (Geranium criſpum; Linn. Mant. 257. Cavan. Diſſ. 252. t. 109. f. 2. G. hermanniæfolium; Linn. Suppl. 305. Herb. Linn.)—Stalks one or two-flowered. Leaves ſtalked, two-ranked, roundiſh-heart-ſhaped, three-lobed, wavy, plaited, toothed, rough. Stipulas heart-ſhaped. Nectary the length of the calyx.—A pretty ſpecies, ſent from the Cape by Mr. Maſſon, in 1774, and valued more particularly for its lemon-ſcent, reſembling that of *Verbena triphylla*. There are two varieties, one with *leaves* about half an inch in diameter, the other above an inch; in both they are three-lobed, more than half way towards the baſe, and ſtand on *footſtalks* about their own length, occaſionally more or leſs. *Flowers* large in proportion, roſe-coloured, with a purple-eye-like ſpot on each of the broad upper *petals*, ſtanding, uſually ſolitary, on long ſlender, axillary *ſtalks*, about the upper part of the branches. The ribs of the *leaves*, eſpecially in wild ſpecimens, are extremely rough, with minute hooked briſtles. The larger-leaved variety has more generally two, or even three, *flowers* on a ſtalk.

P. *hermannifolium*. Hermannia-leaved Stork's-bill. Willd. n. 100. Jacq. Ic. Rar. t. 545. (Geranium hermannifolium; Linn. Mant. 569. Cavan. Diſſ. 240.)—Stalks two-flowered. Leaves ſeſſile, two-ranked, wedge-ſhaped, ſlightly lobed, wavy, plaited, toothed, rough. Stipulas heart-ſhaped. Nectary rather longer than the calyx.—The Linnæan herbarium has no ſpecimen of this ſpecies, nor do we know it but from the books quoted. It ſeems to differ from the laſt chiefly in the want of *footſtalks*.

P. *adulterinum*, Willd. n. 101. L'Herit. Geran. t. 34, a ſoft-leaved plant, is acknowledged to be a hybrid production, and we are diſpoſed to doubt whether *ſemitrilobum*, Jacq. Hort. Schonbr. v. 2. 3. t. 130, notwithſtanding Willdenow's opinion, be more than a variety of ſome of the laſt deſcribed ſpecies, but we have not examined ſpecimens of either.

P. *fulgidum*. Celandine-leaved Stork's-bill. Willd. n. 104. (Geranium fulgidum; Linn. Sp. Pl. 945. Cavan. Diſſ. 253. t. 116. f. 2. G. africanum folio alceæ, flore coccineo fulgidiſſimo; Dill. Elth. 156. t. 130.)—Umbels in pairs, many-flowered. Leaves downy, in three deep ſegments; the middle one largeſt; all pinnatifid and cut. Calyx oblique. Nectary pouched at the baſe.—An old, but rather tender, and not very common, ſpecies in our greenhouſes or ſtoves, diſtinguiſhed from all others by the intenſe brilliant ſcarlet of its *petals*, to which we know nothing comparable in the vegetable kingdom. The *flowers* however are inelegant in form, far from abundant, and the whole plant rather unſightly, like ſomething ſtarved or abortive. The *nectary* is not quite ſo long as its flower-ſtalk; its baſe inflated and almoſt globoſe; its top funnel-ſhaped; hence the ſegments of the *calyx* are turned to one ſide, or rather vertically.

P. *gibboſum*. Gouty Stork's-bill. Willd. n. 105. (Geranium gibboſum; Linn. Sp. Pl. 946. Cavan. Diſſ. 265. t. 109. f. 1. G. africanum, foliis aquilegiæ; Riv. Pentap. Irr. t. 100.)—Umbels many-flowered. Leaves ternate, ſmooth; leaflets obtuſe, notched; the middle one largeſt, three-cleft. Nectary cylindrical. Stem with knotty joints.—This alſo was very early brought from the Cape into the gardens of Europe. Yet its ſucculent *ſtem* renders it not one of the eaſieſt to cultivate. The glaucous ſmooth *leaves* are well compared by Rivinus, whoſe plate is excellent, to thoſe of the Columbine. The *calyx*, and partial *flower-ſtalks*, are finely downy, and rather hairy. *Nectary* nearly as long as the *ſtalk*, its termination not defined, except by the increaſing downineſs below it. *Flowers* of a dull yellowiſh or tawny green, exquiſitely fragrant at night, like thoſe of *triſte*, &c.

P. *exſtipulatum*. Soft-leaved Trifid Stork's-bill. Willd. n. 106. L'Herit. Geran. t. 35. (Geranium exſtipulatum; Cavan. Diſſ. 253. 271. t. 123. f. 1.)—Umbels of few flowers. Leaves heart-ſhaped, hoary, in three deep, lobed, toothed ſegments. Stipulas ſcarcely any.—Sent from the Cape of Good Hope in 1779, by Lieut. Col. William Paterſon, at that time engaged there in a botanical expedition. This ſpecies bears a conſiderable reſemblance to *criſpum*, *adulterinum*, &c. in general habit. The *leaves* are ſmall, fragrant, on longiſh ſtalks. *Stipulas* hardly to be ſeen but on the youngeſt moſt luxuriant *branches*, where they are awl-ſhaped and minute. *Flowers* from three to five on each ſtalk, roſe-coloured, with ſpots on the two upper *petals*, rather ſmall. *Nectary* twice the length of the *calyx*.

P. *ternatum*. Ternate Stork's-bill. Willd. n. 107. Curt. Mag. t. 413. Jacq. Ic. Rar. t. 544. (Geranium ternatum; Linn. Suppl. 306. Cavan. Diſſ. 255. t. 107. f. 2.)—Stalks with few flowers. Leaves ternate, rough, rigid; leaflets linear-wedge-ſhaped, three-cleft, toothed. Stem rough. Anthers five.—Of the ſame tribe with the laſt, but the herbage is rough and harſh to the touch; *flowers* larger and handſomer; *ſtipulas* ovate, pointed. It came to England in 1790.

P. *fragile*. Brittle-ſtalked Yellow Stork's-bill. Willd. n. 109. (Geranium fragile; Andr. Repoſ. t. 37.)—Umbels many-flowered. Leaves ternate, ſmooth, fleſhy; leaflets wedge-ſhaped, cut; the middle one largeſt and three-cleft. Nectary as long as the flower-ſtalk.—Procured from the Cape by Meſſrs. Lee and Kennedy in 1792. A tender, ſucculent ſpecies, with buff or yellowiſh *petals*, ſtriped with crimſon. In theſe particulars it differs from the reſt of thoſe which cloſe this ſection in Willdenow, though it agrees with them in the form and diviſion of their *leaves*.

Section 7. *Stem ſhrubby. Leaves either pinnatifid or pinnate.* Four ſpecies.

P. *carnoſum*. Fleſhy-ſtalked White Stork's-bill. Willd. n. 111. (Geranium carnoſum; Linn. Sp. Pl. 946. Cavan. Diſſ. 266. t. 99. f. 1. G. africanum carnoſum, petalis anguſtis albicantibus; Dill. Elth. 153. t. 127.)—Umbels many-flowered. Leaves ſinuated, pinnatifid; ſegments oblong, obtuſe, cut and toothed at the extremity. Petals linear. Stem thick and fleſhy.—This appears to have been cultivated in Chelſea garden, ſo early as 1724. It is now not frequently to be met with. The *ſtem* is tall, erect, thick and juicy below; much branched and finely hoary above, terminating in numerous ſmall *umbels*, of inconſpicuous white *flowers*. The *nectary* is almoſt twice the length of the *calyx*, and above half as long as the *flower-ſtalk*, its baſe tumid, ſomewhat like that of *fulgidum*. The *ſtyle* is much elongated beyond the hairy rudiment of the beak.

P. *ferulaceum*, Willd. n. 112. Burm. Afr. t. 36. f. 1, we have not ſeen, but it has the appearance of a narrow-leaved variety of the laſt. With *P. alternans*, Willd. n. 113, we are alſo unacquainted. It occurs in the Hortus Cantabrigienſis of the late Mr. Donn.

P. *ceratophyllum*. Horn-leaved White Stork's-bill. Willd. n. 114. L'Herit. Geran. t. 13. Curt. Mag. t. 315.—Umbels many-flowered. Leaves diſtantly pinnatifid, fleſhy, rather cylindrical; ſegments channelled, three-cleft or pinnatifid.—Native of the ſouth-weſt coaſt of Africa, from whence it was ſent to Kew in 1786, by Mr. A. Hove. Like all the fleſhy kinds, it is beſt preſerved in a ſtove. Its habit and *flowers* much reſemble the *carnoſum*, but the *nectary* is only as long as the *calyx*. The *leaves* are ſmooth, glaucous, peculiarly thick and fleſhy, with almoſt cylindrical ſegments, that are generally ſimple, and but ſlightly toothed towards their extremities; but we have a ſpecimen in which they are deeply pinnatifid, ſo that this ſpecies connects the preſent ſection with the following, being indeed nearly akin to *crithmifolium*.

Section 8. *Stem ſhrubby. Leaves twice or thrice compounded.* Six ſpecies.

P. *crithmifolium*. Samphire-leaved White Stork's-bill. Willd. n. 115. Smith Ic. Pict. t. 13. (P. paniculatum; Jacq. Hort. Schonbr. v. 2. 6. t. 137.)—Umbels many-flowered, panicled. Leaves doubly pinnate, fleſhy; ſegments dilated and cut. Petals obtuſe; the upper ones criſped at the baſe.—Seeds of this noble ſpecies were brought from the Cape of Good Hope by the celebrated captain Riou of the Guardian, and being raiſed in the ſtove of the marchioneſs of Rockingham, the plants flowered in April 1792. It greatly exceeds the laſt in ſize, and has more compound and dilated *leaves*. The *ſtem* is very fleſhy, reſembling a cabbage-ſtalk, leafy below, crowned at the ſummit with an ample *panicle*, compoſed of numerous *umbels* of white *flowers*, which reſemble thoſe of *carnoſum* and *ceratophyllum*; but the *petals*, inſtead of being oblong and acute, are obovate and obtuſe, the two uppermoſt bluſh-coloured, and remarkably criſped on each ſide at the baſe. We have therefore no doubt of the ſpecies being perfectly diſtinct.

P. *abrotanifolium*. Southernwood-leaved Stork's-bill. Willd. n. 117. Jacq. Hort. Schonbr. v. 2. 6. t. 136. (Geranium abrotanifolium; Linn. Suppl. 304. Cavan. Diſſ. 256. t. 117. f. 1.)—Umbels of few flowers. Leaves in many cylindrical, channelled, compound, hoary ſegments. Nectary as long as the flower-ſtalk. Calyx very hairy.—Gathered by Thunberg at the Cape. We have not heard of it amongſt our collectors. The *ſtem* is woody, buſhy, much branched, not fleſhy. *Leaves* like thoſe of *Artemiſia Abrotanum*, numerous, crowded, ſomewhat aromatic, even when they have been many years dried. *Umbels* on longiſh ſtalks, each of about three light-purple, ſtriped, ſmalliſh *flowers*, whoſe *calyx* is clothed with long horizontal hairs.

P. *fruticoſum*. Willd. n. 118. (Geranium fruticoſum; Cavan. Diſſ. 263. t. 122. f. 2.) appears to be a ſmooth-leaved variety of the foregoing. The name is not one of the moſt diſcriminative.

P. *tenuifolium*. Fine-leaved Pink Stork's-bill. Willd. n. 120. L'Herit. Geran. t. 12. (P. hirtum; Jacq. Ic. Rar. t. 536. Willd. n. 119. Geranium hirtum; Burm. Geran. 48. n. 64. t. 1, excluding the reference to Linnæus. Cavan. Diſſ. 258. t. 117. f. 2.)—Umbels many-flowered. Leaves oblong, pinnate, thrice compound, hairy, with linear ſegments. Stem fleſhy. Nectary the length of the calyx.—Native of the Cape. Introduced into England by Mr. W. Malcolm, in 1768. We do not heſitate to unite, in this place, two ſuppoſed ſpecies of Willdenow; and it is fortunate that his and Burmann's name of *hirtum* here becomes ſuperfluous, that very ſame appellation having been inadvertently applied by Willdenow to his own ninth ſpecies, the *piloſum* of Cavan. Diſſ. 273. t. 199. While we thus, as in other inſtances, attempt to correct the imperfections of our laborious predeceſſor, we cannot withhold our teſtimony to the merit of his performance, concerning the preſent genus. His arrangement of the ſpecies is the beſt we have met with, and he appears to have practically ſtudied and underſtood moſt of them; having been miſled now and then, chiefly by a deference to other writers. We hope to find this beautiful and favourite family of plants ſtill further illuſtrated and enriched, in the fourth volume of the ſecond edition of Mr. Aiton's Hortus Kewenſis, of which Willdenow's labours will, in this inſtance, with advantage, lay the foundation. S.

Pelargonium, in *Gardening*, contains plants of the fine-ſhrubby, under-ſhrubby, evergreen, and herbaceous perennial kinds, for the green-houſe, of which the ſpecies cultivated are; the lady's-mantle-leaved crane's-bill (P. alchemilloides); the ſweet-ſcented crane's bill (P. odoratiſſimum); the gooſeberry-leaved crane's-bill (P. groſſularioides); the coriander-leaved crane's-bill (P. coriandrifolium); the fleſhy-ſtalked crane's-bill (P. carnoſum); the horn-leaved crane's-bill (P. ceratophyllum); the gouty crane's-bill (P. gibboſum); the multifid-leaved crane's-bill (P. radula); the butterfly crane's-bill (P. papilionaceum); the ſcarlet-flowered crane's-bill (P. inquinans); the common horſe-ſhoe crane's-bill (P. zonale); the two-coloured crane's-bill (P. bicolor); the balm-ſcented crane's bill (P. vitifolium); the roſe-ſcented crane's-bill (P. capitatum); the clammy crane's-bill (P. glutinoſum); the hooded crane's-bill (P. cucullatum); the heart-leaved crane's-bill (P. cordatum); the prickly-ſtalked crane's-bill (P. echinatum); the ſquare-ſtalked crane's-bill (P. tetragonum); the birch-leaved crane's-bill (P. betulinum); the ſpear-leaved crane's-bill (P. glaucum); the ſorrel crane's-bill (P. acetoſum); the rough-leaved crane's-bill (P. ſcabrum); the ternate crane's-bill (P. ternatum); and the three-coloured crane's-bill (P. tricolor).

The firſt has a variety with a dark circle in the middle of the leaves.

In the eighth ſort there are two varieties, a larger and a ſmaller; and as it is readily raiſed from ſeeds, it affords many ſeminal varieties.

The eleventh ſort contains a variety with fine variegated leaves, and the flowers vary much in colour from purple, through the different ſhades of red to high ſcarlet.

In the fifteenth, ſeveral varieties have been produced from ſeed.

In the ſeventeenth there are ſeveral varieties.

The eighteenth alſo varies with petals of a rich purple colour, in which the ſpots are ſimilar, but not ſo conſpicuous.

In the nineteenth there is a variety with beautifully coloured leaves.

And in the twentieth there is a variety with ſcarlet flowers raiſed from ſeed.

Method of Culture.—All the ſorts may be increaſed by ſeeds, which ſhould be ſown in the early ſpring in pots filled with kitchen-garden mould, plunging them in a moderate hot-bed. The plants ſoon appear; when they ſhould have freſh air as much as poſſible, to prevent their being drawn up weak. When the plants have attained ſome growth, they ſhould be removed into ſeparate ſmall pots filled with the ſame ſort of earth, replunging them in the hot-bed till freſh rooted, and giving proper ſhade. They ſhould afterwards be gradually inured to the open air, in order to be placed out in it, in the ſummer ſeaſon, in a ſheltered ſituation.

They may alſo be raiſed in the open ground without the hot-bed, but not ſo well.

But they are more commonly increaſed, eſpecially the ſhrubby ſorts, by cuttings of the young branches, which ſhould be planted in a ſhady border in the ſummer, or in pots, and plunged in any hot-bed; which is the better method. When well rooted they may be taken up, and planted into ſeparate pots, placing them in the ſhade till they have taken new root; after which they may be removed into a ſheltered ſituation, and be treated in the ſame manner as the ſeedling plants. The fifth, ſeventh, and fifteenth ſorts have more ſucculent ſtalks than the others; the cuttings ſhould therefore be planted in pots filled with the ſame ſort of earth, and plunged into a very moderate hot bed, where they may be ſhaded from the ſun in the heat of the day; and have but little water; for theſe are very apt to rot with much moiſture. When theſe are well rooted, they may be removed, and planted in ſeparate pots filled with the ſame ſort of earth, and placed in the ſhade till they have taken new root; then they may be removed into a ſheltered ſituation, where they may remain till autumn. Theſe ſorts ſhould be ſparingly watered, eſpecially in the winter ſeaſon, as they are apt to take a mouldineſs with moiſture, or in a damp air. They thrive much better in an airy glaſs-caſe than in a green-houſe, as in the former they have more ſun and air than in the latter. But all the other ſhrubby ſorts are proper for the green-houſe, where they only require protection from froſt, but ſhould have a large ſhare of free air when the weather is mild. They require water every week, in mild weather once or twice; but it ſhould not be given them in too great plenty, eſpecially in froſty weather. Theſe plants ſhould be hardened in the ſpring gradually, and towards the middle or end of May be taken out of the green-houſe, and at firſt placed under the ſhelter of trees, where they may remain a fortnight or three weeks to harden; and then be removed into a ſituation where they may be defended from ſtrong winds, and enjoy the morning ſun till eleven o'clock, where they will thrive better than in a warmer ſituation. And as theſe ſorts grow pretty faſt, they ſoon fill the pots with their roots; and when they ſtand long unremoved in ſummer, they frequently put out their roots through the holes at the bottom of the pots into the ground, when the plants grow vigorouſly; but if ſuffered to continue long in this manner, it is difficult to remove them; as if their roots be torn off, all the younger branches decay, and the plants are frequently killed. The pots ſhould therefore be moved once in a fortnight or three weeks, in the ſummer months, and the roots which may then be puſhing through the holes cut off, to prevent their ſtriking into the ground.

They require alſo to be new potted at leaſt twice in the ſummer; the firſt time after they have been three weeks or a month out of the green-houſe; the ſecond towards the end of Auguſt, or beginning of September, that the plants may have time to eſtabliſh their new roots before they are removed into the green-houſe. When this is performed, all the roots on the outſide of the balls of earth ſhould be carefully

fully pared off, and as much of the old earth drawn away from the roots, as can be done with ſafety to the plants; then, where they require it, they ſhould be put into pots a ſize larger than thoſe out of which they were taken, putting a quantity of freſh earth into the bottom of each pot, placing the plants upon it, being careful that the ball about the roots of the plant be not ſo high as the rim of the pot, that ſome room may be left to contain the water which may be given to them. Then the cavity all round the ball ſhould be filled up with freſh earth, be gently preſſed down, and the bottom of the pot beaten upon the ground, to ſettle the earth; the plant being then well watered, and the ſtem faſtened ſo as to prevent the wind from diſplacing the roots before they are fixed in the new earth.

Where ſuch mould as has been mentioned cannot be procured, freſh hazel loam from a paſture, mixed with a fourth or a fifth part of rotten dung; or, where the earth is inclinable to bind, a mixture of rotten tan; and, where light and warm, a mixture of neat's-dung may be employed. This compoſt ſhould be mixed three or four months before it is uſed, and be turned over three or four times, that the parts may be well incorporated.

The ſhrubby ſorts require to be looked over frequently during the winter, while they are in the green-houſe, to pick off all decayed leaves from them, which if left on will not only render the plants unſightly, but by their falling off make a litter among the other plants; and if they are ſuffered to rot in the houſe, they occaſion a foul, naſty, damp air, which is very prejudicial to all the plants.

The firſt ſort, from having herbaceous ſtalks, is beſt increaſed by ſeeds, though cuttings of it will take root.

And the ſecond ſort may not only be propagated by ſeeds, but alſo from heads ſlipped off from the ſhort fleſhy ſtalk; which ſhould have their lower leaves ſtripped off, and be then planted ſingle in a ſmall pot; or where the heads are ſmall, two or three may be put into one pot; plunging them into a very moderate hot-bed, ſhading and refreſhing them gently with water. They take root in a month or five weeks; when they ſhould be hardened gradually to the open air, where they may remain till autumn, when they muſt be removed into ſhelter, as in the other kinds.

The ſixth kind is capable of being increaſed both by ſeeds and cuttings, but it is found to be more tender than many other ſorts, and more liable to be injured by damps. The eighth ſpecies is readily increaſed by cuttings; but the twelfth is more difficultly to be raiſed in this way. The fifteenth is eaſily raiſed by cuttings, and ſometimes by ſeeds; and the ſeventeenth readily ſtrikes from cuttings; the eighteenth produces ſeeds, but is more uſually increaſed by cuttings; and the nineteenth and twentieth are readily propagated in the ſame way; the twenty-firſt is likewiſe raiſed from cuttings, but they are not very free in ſtriking; the twenty-fourth is raiſed in this manner without difficulty; but in the twenty-fifth, from the branches running out ſpeedily into flowering ſtalks, few are formed proper for cuttings, and theſe are ſtruck with difficulty.

All theſe plants are highly ornamental, and afford conſiderable variety in collections of green-houſe plants.

PELASGIANS, in *Ancient Geography*, the moſt ancient people of Greece, according to Thucydides, Strabo, and Herodotus. The laſt author ſays, that the whole country, which in his time was called "Hellos," was in a former period denominated Pelaſgia. Theſe people, as ſome ſay, were denominated Pelaſgi, becauſe they were an unſettled wandering people, who often changed their habitations. Others, among whom we may reckon Heſiod, take them to have been Autochthones, which was the deſignation given to the natives of the country, or rather to all whoſe original was unknown. If we admit Apollodorus's authority, in which Servius (on the 2d Æneid) acquieſces, the Pelaſgi derived their name from one Pelaſgus, a perſon of great antiquity, and ſeveral perſons of this name are mentioned by ancient writers. The ancient Scholiaſt on Apollodorus Rhodius, makes Pelaſgus to have been the ſon of Inachus, and this is the ſame who, according to Heſiod, was the father of Lycaon, king of Arcadia. According to Pauſanias (in Arcad.) Pelaſgus was the firſt man who appeared in the country, and ſurpaſſed all others in the faculties both of his body and mind. As ſoon as he began to reign, he taught the Arcadians to erect cottages to ſhelter themſelves from the injuries of the weather, and to clothe themſelves with boar's ſkins. Till that time they had lived upon leaves of trees, herbs, and roots; but inſtead of theſe he recommended the uſe of acorns, or rather a kind of fruit which grew upon the beech-tree; and this food became ſo common, that long after Pelaſgus, the Arcadians were repreſented as a people who lived only upon acorns, and who on this account were terrible and invincible in war. See GRÆCIA.

The writers firſt cited in this article ſay, that the Pelaſgians were firſt known in Theſſaly, and that from thence they extended their migrations through all the other countries of Greece. However, Dionyſius of Halicarnaſſus ſays, that they derived their origin from Peloponneſus, and that they ſent from hence colonies into Theſſaly. This author adds, that theſe people left Theſſaly, and ſpread themſelves through Epirus, Italy, Thrace, the iſles of Aſia Minor, under the reign of Deucalion. M. de Gebelin ſays, that the Pelaſgi were the poſſeſſors of the whole country, which extended from the banks of the Danube to the ſea of Peloponneſus; that ſome of them peopled Thrace, Getia, Macedonia, Illyria, Epirus, Theſſaly, the Phocide, the Peloponneſus, and Attica; and that others croſſed the Danube, and bore the appellation of Dacii and Getæ. They are ſaid to have repleniſhed all theſe countries with celebrated cities, and an immenſe population; to have extended cultivation wherever they went, and to have ſent out numerous colonies. On account of theſe emigrations they were reckoned a wandering people, without arts and ſciences.

If we may credit Herodotus, the Pelaſgi, having ſettled in Samothracia, introduced thither the worſhip of the Cabiri and their myſteries, which they afterwards communicated to the Athenians, among whom they fixed their reſidence when they quitted that iſland; but he does not inform us from whom they derived their knowledge of theſe gods and of their myſteries. We learn from Dionyſius Halicarnaſſenſis that ſome of the Pelaſgi, who departed from Theſſaly, were received at Dodona; and that in obedience to an oracle they paſſed into Italy, and ſettled at the mouth of the Po. Thoſe of them that were leaſt able to bear fatigue, were entruſted with the care of their veſſels, and others of them advanced into the country, traverſed the mountains, and deſcended into the country of the Umbrians. Among theſe people, they obtained ſome cities, till they were forced to retire among the aborigines, who were the neighbours of the Arcadians; and in proceſs of time they conciliated the aborigines, and were allowed to ſettle among them. But the country being too ſmall for their accommodation, the Pelaſgi induced the aborigines to join them in making an irruption into Umbria, where they took poſſeſſion of Crotona. Here they founded other cities, which were afterwards occupied by the Tyrrhenians. The Pelaſgi founded the town of Lariſſa, in Campania, of which country they poſſeſſed a part after having expelled from it the Aurunci.

In Italy the Pelaſgi, after the departure of the Siculi, enjoyed a large and beautiful territory, ſo that they became rich and powerful. Thoſe who had been left to guard their veſſels, built a town to which they gave the name of the river, and gradually became maſters of the ſea. They ſent to the temple at Delphos tithes of their marine profits; at length, however, they were attacked by their neighbours and obliged to abandon their city. The Pelaſgi, who were aſſociated with the aborigines, were overpowered by their barbarian neighbours, ſo that only a few remained among the aborigines, the greateſt part having been diſperſed in Greece, and among the Barbarians. According to Dionyſius Halicarnaſſenſis it was about two generations before the war of Troy, that the Pelaſgi experienced theſe misfortunes. All the towns which they inhabited were demoliſhed, excepting Crotona; but it changed its name and its inhabitants, and in the time of this hiſtorian was called Cothornia.

According to the relation of Herodotus, the Pelaſgi, under the reign of Deucalion, were in poſſeſſion of the part of Theſſaly called Phthiotis, where they remained till the reign of Dorus, grandſon of Deucalion. They then migrated to another part of Theſſaly called Eſſiæotis, ſituated at the foot of mount Oſſa and mount Olympus. From thence they were driven by the Cadmæans, and they eſtabliſhed themſelves at the foot of Pindus, and were denominated Macedonians.

Dionyſius of Halicarnaſſus ſays, that about two generations before the war of Troy, ſome of the Pelaſgi, driven from their cities, returned into Greece. Theſe ſettled in Attica, the Athenians aſſigning to them a territory at the foot of mount Hymettus, on condition of their building a wall to encompaſs the citadel. Their ingenuity excited the jealouſy of the Athenians, and they expelled them from Attica. They then diſperſed in different places, and one party ſettled in the iſle of Lemnos. When they were eſtabliſhed in this iſland they determined to avenge themſelves on the Athenians; and for this purpoſe armed their veſſels and made a deſcent on Attica. Here they ſeized a number of females, who were celebrating the feaſt of Diana, and taking them to Lemnos, made them their concubines. The offſpring of theſe females being inſtructed in the language of the Athenians, and in their mode of life, conceived an averſion to the legitimate children of the Pelaſgi; and this occaſioned the murder of the illegitimate children and of their mothers. The Athenians, under the command of Miltiades, drove the Pelaſgi from Lemnos; and they then eſtabliſhed themſelves, according to Herodotus, in the town of Acté, a territory ſeparated from the continent of Thrace by a canal; by degrees they extended themſelves to the continent, and occupied Creſtonia.

Dionyſius informs us, that when ſome of the Pelaſgi, under the reign of Deucalion, paſſed into Italy, the iſle of Crete, and the Cyclades, Bœotia, the Phocide, and Eubœa, others migrated into Aſia. According to Strabo, the Leſbians claim the honour in behalf of their anceſtors of having been in the war of Troy, under the conduct of Pylæus, a chief of the Pelaſgi. All the towns of the maritime coaſt of Ionia had been at one time inhabited by the Pelaſgi; the inhabitants of the iſle of Chios alſo pretend that the Pelaſgi of Theſſaly were their founders; nor indeed is there a country of Greece, Thrace, and Aſia Minor, in which the Pelaſgi have not left traces of their power. Soon after the war of Troy, the name of Pelaſgi began to ſink into oblivion. Thoſe who exiſted till the time of Herodotus, near the Helleſpont, and on the coaſts of Thrace, were ſubject to foreign dominion; and the language which they ſpoke was the only evidence of their ancient origin. Thucydides ſays, that the chief cauſe of the ruin of this nation was the confederation of the Hellenes, who ſprang from the Pelaſgi themſelves. The Hellenes made a league, formed among themſelves a ſeparate body, and made conqueſts. After ſeparation from the Pelaſgi, their parents, they eſtranged themſelves from their manners and habits, and by little and little changed their language, in conſequence of the commercial intercourſe which they had with colonies from the eaſt. Thoſe at length who were originally Pelaſgi joined this league, ſurrendered the name of Pelaſgi, and adopted that of Hellenes. Herodian relates, that the Athenians, though reckoned to be Pelaſgians at the time of the famous emigration of theſe people, were become Hellenes, when the Pelaſgi, driven from Italy, returned to Greece. About the ſame time the Lacedæmonians, the Argians, and the Arcadians, who had been alſo known under the name of Pelaſgians, laid aſide the barbariſm of their progenitors, and aſſumed the name of Hellenes. The Pelaſgi, according to Herodotus, eſtabliſhed at Dodona the moſt ancient and the moſt reſpectable of the oracles of Greece. He adds, that they had no other idols nor temples; that they offered their ſacrifices to the gods, and gave neither name nor ſurname to the deities whom they worſhipped.

Dionyſius Halicarnaſſenſis, in ſpeaking of the antiquity of the Pelaſgians, inhabitants of Falerii and Feſcennia, two ancient cities of Etruria, built in the Grecian form, ſays, "the manner of their religious ceremonies was the ſame as thoſe of Argos. Holy women ſerved in the temple, and a girl unmarried, called canephoros, or baſket-bearer, began the ſacrifice, beſides choruſſes of virgins, who hymned the goddeſs in ſongs of their country." Now as the Romans had an earlier communication with the Etruſcans than with the Greeks, this paſſage renders it very probable that they were obliged to the people of Etruria for their religious ceremonies, and for vocal muſic.

Strabo, (de bello Punico,) ſays in expreſs terms, that the public muſic, eſpecially ſuch as was uſed in ſacrifices, came from Etruria to the Romans. See alſo Livy, lib. xxxix.

PELASGICUS Sinus, a gulf of Theſſaly, on the coaſt of the Phthiotide. This gulf had Magneſia on the eaſt, and the Phthiotide on the weſt; its entrance was a wide ſtrait, between the town of Antron to the ſouth, and the promontory Æantium to the weſt.

PELASGIOTIS, or Pelasgis, a country of Theſſaly, the extent of which is variouſly aſſigned by different authors. The epoch of the arrival of the Pelaſgi in Theſſaly is fixed by ſome writers to the year 1883 B.C. It is probable, that they eſtabliſhed themſelves in the centre of the country, to the S. and N. of the Alpheus; but ſome ſay that this province had for its boundaries to the N. Aliacmon and the Peneus to the S. But if the Pelaſgiotide be conſidered as comprehending three parts, *viz.* Perrhœbia, Pelaſgiotide proper, and the delightful valley of Tempe, the country muſt have extended to the S. of the Alpheus. From W. to E. its extent was limited by the mountains.

PELATÆ, Πελαται, in *Antiquity*, a particular kind of ſervants among the Athenians.

The pelatæ were free-born citizens, who by reaſon of their indigence, were forced to ſerve for wages. They had no ſuffrage in public affairs, as not being maſters of an eſtate proper to qualify them for giving their votes; but this reſtriction was not perpetual. They were otherwiſe called *thetes*, and continued in the condition of ſervants only during their own pleaſure and neceſſities; for they had power either to change their maſters, or (if they became able to ſubſiſt themſelves) wholly to releaſe themſelves from ſervitude.

PELCHILLEN, in *Geography*, a town of Pruſſia, in Natangen; 25 miles S.S.E. of Konigſberg.

PELECANUS, *the Pelican*, in *Ornithology*, a genus of birds of the order Anſeres. The generic character is, bill ſtraight, hooked at the point, and furniſhed with a nail; the noſtrils have an obliterated ſlit; the face is rather naked; the legs balance the body equally; the four toes are connected by a membrane.

The birds of this genus are gregarious, fond of fiſh, and in general remarkable for their extreme voracity. For the moſt part they keep out at ſea, but ſome of them are found in the interior parts of continents. They have a long bill, in a lateral furrow of which lie the noſtrils. Several of the tribe are rendered uſeful to mankind, by being taught to fiſh for them. There are thirty-one ſpecies, divided into ſections according to the ſtructure of the bill.

A. *Bill without Teeth.*

Species.

Onocrotalus, or White Pelican. The birds of this ſpecies are, as the name imports, white; the gullet is pouched; the bill is red, and from fifteen to ſixteen inches long; the upper mandible is depreſſed and broad, the lower forked; bag at the throat flaccid, membranaceous, capable of great diſtenſion; the irides hazel-coloured; the gape of the mouth wide; the head is naked at the ſides, covered with a fleſh-coloured ſkin; the hind head is ſomewhat creſted; the body is faintly tinged with fleſh-colour; the ſpurious wings and firſt quill-feathers are black; the legs are of a lead colour. It is larger than a ſwan, and about five feet long. It inhabits Aſia, Africa, and South America. In fiſhing, this bird does not immediately ſwallow its prey, but fills its bag, and returns to the ſhore to devour at its leiſure the fruits of its induſtry. As it has a very quick digeſtion, it has generally to fiſh more than once in a day. At night it retires to reſt, a little way on the ſhore, with its head reſting on its breaſt. In this ſtate it remains almoſt motionleſs, till hunger calls it to break its repoſe. It then flies from its reſting-place, and raiſing itſelf 30 or 40 feet above the ſurface of the ſea, turns its head with one eye downwards, and continues to fly in that poſture till it ſees a fiſh ſufficiently near the ſurface, when it darts down with aſtoniſhing ſwiftneſs, ſeizes it with unerring certainty, and ſtores it up in its pouch. It then riſes again, and continues the ſame manœuvres, till it has procured a competent ſtock. The female feeds her young with fiſh, macerated a long time in her bag. The pelican is ſuſceptible of domeſtication, and may be trained to fiſh for its maſter. The pelican generally builds in marſhy and uncultivated places, particularly in iſlands and lakes, making its neſt, which is deep, a foot and a half in diameter, of carices, and lining it with graſs of a ſofter texture. It lays two or more white eggs, which, when haraſſed, it ſometimes hides in the water. When it builds in dry and deſert places, it brings water to its young. It walks ſlowly, flies in flocks, and lives in ſociety with other birds.

Roseus; Roſe-coloured Pelican. This ſpecies is of a roſy colour; the gullet is pouched; the bill and legs are black; the area of the eyes is naked; the pouch yellow. It is about the ſize of a gooſe, and inhabits Manilla.

Fuscus; Brown Pelican. This, as its name imports, is cinereous brown; the gullet is pouched. It inhabits America, and is four feet long.

Manillensis; Manilla Pelican. Entirely brown; gullet pouched. It inhabits, as its name ſhews, Manilla, and is very like the roſeus.

Philippensis; Philippine Pelican. White; creſt varied with white and brown; the gullet is pouched. It is about four feet and a half long, and is found in the Philippine iſlands.

Rufescens; Red-backed Pelican. Reddiſh; creſted head and neck reddiſh-white; tail duſky; the gullet is pouched. It is four feet long, and inhabits Africa.

Carolinensis; Charleſtown Pelican. Duſky above, beneath white; gullet pouched. There are two other varieties: 1. One is reddiſh-white beneath; the upper mandible is rounded at the baſe. 2. The other is on the lower part of the back ſtriate and duſky-white. It inhabits America; is above three feet long; the pouch is very large.

Erythrorhynchos; Rough-billed Pelican. Creſted; white; gullet pouched, and ſtreaked with black. It inhabits North America, and is four feet and a half long.

Aquilus, or Frigate Pelican. The tail is forked; body ferruginous, and orbits black; the bill is red; belly of the female white. It is three feet long; the extent of the wings is full fourteen feet. It inhabits within the tropics. It is mentioned by Dampier, and other navigators, as the frigate bird. From its great expanſe of wing it is capable of flying very ſmoothly, and ſo high as to be ſcarcely viſible, ſeldom coming to land. It feeds on fiſhes, particularly flying fiſh, on which it darts with the greateſt velocity. It builds on trees or on rocks, and lays one or two eggs of a fleſh-colour, and ſpotted with red.

Minor; Leſſer Frigate Pelican. The tail is forked; body ferruginous; bill and orbits red. It reſembles the laſt, but is leſs, being only about three feet long.

Leucocephalus; White-headed Pelican. The tail of this ſpecies is forked; the body brown; head, neck, breaſt, and belly white; bill duſky.

Palmerstoni; Palmerſton Frigate Pelican. Tail forked; body gloſſy green-brown, beneath white; throat varied with black. It inhabits Palmerſton's iſland in the South Pacific ocean; is about three feet two inches long. The bill is black; the temples feathered; the legs blackiſh.

* Carbo; Corvorant. Tail rounded; body black; head ſomewhat creſted; bill blackiſh; the baſe of the lower mandible covered with a yellowiſh ſkin, extending under the chin, and forming a pouch; irides green; chin white, ſurrounded with a yellowiſh arch; tail long and lax, conſiſting of fourteen feathers; thighs with a white ſpot, dotted with black; legs black. Three feet long; ſize of a gooſe, but more ſlender, and weighs about ſeven pounds. Inhabits Europe, Aſia, and America. Common on many of our ſea-coaſts, building its neſt on the higheſt parts of cliffs that hang over the ſea, and laying three or more pale green eggs, about the ſize of thoſe of a gooſe. In winter theſe birds diſperſe along the ſhores, and viſit the freſh waters, where they commit great depredations among the fiſh. They are remarkably voracious, and have a very quick digeſtion. Though naturally extremely ſhy and wary, they are ſtupid, and eaſily taken when glutted with food. Their ſmell, when alive, is more rank and offenſive than that of any other bird; and their fleſh is ſo diſguſting, that even the Greenlanders will hardly taſte it. It is not uncommon to ſee twenty of theſe birds together, on the rocks of the ſea-coaſt, with extended wings, drying themſelves in the wind. In this attitude they ſometimes remain for nearly an hour, without once cloſing their wings; and as ſoon as the latter are ſufficiently dry to enable the feathers to imbibe the oil, they preſs this liquor from the receptacle on their rumps, and dreſs the feathers with it. It is only in one particular ſtate that the oily matter can be ſpread on them, namely, when they are ſomewhat damp; and the inſtinct of the birds teaches them the proper moment. Corvorants were formerly ſometimes trained in this country, as they ſtill are in China, for the

purpoſe of catching fiſh for the table. With this view they were kept with great care in the houſe, and when taken out for fiſhing, they had a leathern thong tied round their neck, to prevent them from ſwallowing their prey.

GRACULUS; Shag. Tail rounded; body black, brown beneath; tail-feathers twelve; head and neck black, with a green gloſs; back and wing-coverts purple-black, gloſſy at the edges; middle of the belly duſky; legs black. Weighs about four pounds. Length twenty-nine inches. The female weighs about three pounds and a quarter, and is only twenty-ſeven inches long. Inhabits the northern ſeas of Europe. Swims with its head erect, and the body under water. On perceiving the flaſh of a gun, dives inſtantaneouſly, and riſes at a conſiderable diſtance. Has the manners and habits of the preceding, and devours a prodigious quantity of fiſh. There are two other varieties of this ſpecies: in the firſt the chin is yellow, and the tail wedged. It is found in the Cape of Good Hope. The ſecond is blackiſh, but beneath it is brown; the feathers above are edged with black. It inhabits Cayenne, and the Caribbee iſlands, and is about twenty-ſix inches long.

PYGMÆUS; Dwarf Shag. The tail is wedged, the feathers twelve in number; the body is black, with a few ſcattered white ſpots. It inhabits the Caſpian ſea, and is about the ſize of the garganey, a ſpecies of the Anas genus. The female is brown, without ſpots. A variety has its chin of a mouſe colour, and its legs black.

PUNCTATUS; Spotted Shag. Creſted; black; tail rounded; wings dark aſh, ſpotted with black; ſides of the neck with a white line. It inhabits New Zealand, and is nearly two feet long.

* CRISTATUS; Creſted Shag. This is found in many parts of the north of Europe, and in our own country. It is of a ſhining green, beneath it is duſky; bill and legs duſky; head creſted; the bill is blackiſh; irides green; feathers each ſide the head long, forming a creſt; the tail-feathers twelve in number, and of a duſky green; the head often not creſted.

VIOLACEUS; Violet Shag. Creſt erect; body ſhining violet-black. It inhabits Kamtſchatka, and the neighbouring iſlands.

URIEL; Red-faced Shag. Shining green; throat and orbits white; face naked, blueiſh-red; wings and tail duſky; legs black. It inhabits Kamtſchatka, and is about thirty-four inches long.

CARUNCULATUS; Carunculated Shag. Black, beneath white; face naked, carunculate, red; orbits elevated, blue; wings with a white band. It inhabits New Zealand, and is about twenty inches long.

MAGELLANICUS; Magellanic Shag. Black, beneath white; temples and chin naked, reddiſh; head turned, temples with a white line; tail wedged. It inhabits Terra del Fuego and Staten land iſlands, at the extremity of South America. It is about thirty inches long.

VARIUS; Pied Shag. Brown, beneath white; rump, wings, and rounded tail black; eye-brows pale; area of the eyes naked, yellow. It inhabits New Zealand; two feet and a half long; it builds in trees; the eggs are of a pale greeniſh-white.

CIRRATUS; Tufted Shag. Black, beneath white; crown creſted; wings with a white band; tail rounded; bills and legs yellow. It inhabits New Zealand, and is thirty-four inches long. The orbits are naked; the creſt turned back; tail-feathers fourteen; bill and legs yellow.

AFRICANUS; African Shag. Brown-black, beneath varied with white and blackiſh; chin white; wing-coverts blue-grey, edged and tipt with black. It is found in Africa and is about twenty inches in length.

B. *Bill ſerrate.*

Species.

THAGUS; Saw-billed Pelican. Brown; tail rounded; gullet pouched, and covered with ſhort cinereous feathers. It inhabits Chili; is the ſize of a turkey; extends its wings about nine feet. The bill of this ſpecies is about a foot long, each mandible is hooked; the pouch is very long, and the legs black.

* BASSANUS; Gannet or Soland Gooſe. Tail wedged; body white; bill and quill-feathers black; face blue; irides yellowiſh; tail-feathers twelve; eyes ſurrounded with a naked ſkin of fine blue; legs black, and greeniſh on the fore part; the feet long. Weighs ſeven pounds, and inhabits Europe and America. This ſpecies of pelican haunts the Baſs iſland in the frith of Edinburgh, Ailſa on the coaſt of Ayrſhire, the iſland of St. Kilda, and hardly any where elſe in Europe. It arrives at theſe ſpots in March, and continues till September. As it muſt let itſelf fall before it takes wing, it requires a ſteep and precipitous breeding ſtation. It makes a rude neſt of ſticks, graſs, ſea-plants, and lays one egg. While the female is occupied with incubation, the male brings her food, which conſiſts almoſt entirely of herrings and ſprats. In the bag under their bill they are able to fetch four or five herrings at a time, and a great number of ſprats, which the young bird extracts from the mouth of the old one with its bill, as with pincers. The young begin to be taken in Auguſt, and by ſome are reliſhed as an exquiſite morſel; but the old ones are tough and rancid. The fowler, who ſeizes the young, is let down by a rope from the top of a cliff, and is ſometimes ſtationed on the ſlippery projection of a rock, with the perpendicular precipice of four hundred feet or more beneath him. The young are of a dark grey colour, and continue ſo for a year or more, when they gradually become white, except the tips of their wings, which are always black. In September and October the old birds leave their breeding places, and migrate ſouthward, following, as is alleged, the ſhoals of herrings. In December they are often ſeen off Liſbon, plunging for ſardiniæ; but after that period, it is not well known what becomes of them till March. They are common on the coaſts of Norway and Iceland, and are ſaid to be met with in great numbers about New Holland and New Zealand. They alſo breed on the coaſt of Newfoundland, and migrate ſouthward along the American ſhores, as far as South Carolina. Of this ſpecies there are two varieties: the firſt is brown, ſpotted with white, and white beneath, with naked and blackiſh. The ſecond is brown, with triangular white ſpots, whitiſh, and ſpotted with brown beneath; the bill, wings, tail, and legs brown.

PISCATOR, or Leſſer Gannet. Tail wedged; body whitiſh; all the quill-feathers black; face red. It inhabits the Chineſe, Indian, and American ſeas; and is about thirty inches long.

SULA; Booby. Tail wedged; body whitiſh; primary quill-feathers tipt with blackiſh; face red. It inhabits South America, and the neighbouring iſles, and is about thirty inches long.

FIBER; Brown Booby. Tail wedged; body browniſh; all the quill-feathers blackiſh; face red. It inhabits America and Africa, and is rather more than two feet in length.

SINENSIS; Fiſhing Corvorant. Tail rounded; body brown, whitiſh, and ſpotted with brown beneath; throat white; bill yellow; irides blue. It inhabits China, where it is tamed for the purpoſe of catching fiſh. The bill of this bird is yellow, and the irides blue.

PARVUS; Leſſer Booby. This ſpecies is black, beneath it is white; the face downy. It inhabits Cayenne, and is about eighteen inches long.

PELECANUS, a name given by ſome authors to the *platea*, or ſpoon-bill; a bird very different from the pelican, being of the ſtork or heron kind. See PLATALEA.

PELECHUCO, in *Geography*, a town of Peru, in the dioceſe of Cuſco; 36 miles N.N.W. of Caravaya.

PELECINUS, in *Botany*, a kind of vetch, or leguminous plant, mentioned by Pliny, book 21. chap. 12. l. 45, as "growing in corn-fields, and having ſmall ſhrubby ſtalks, with leaves like *Cicer*. It bears its ſeeds in pods (or legumes), which terminate in a hooked point, and grow three or four together, &c." This deſcription accords well with the Linnæan *Coronilla Securidaca*, which is certainly the 'ηδυσαρον of Dioſcorides; and Geſner, as well as Bauhin, rightly ſo underſtood it. Pliny ſays "the ſeeds are bitter, and good for the ſtomach." It is remarkable that the modern Greeks, at this day, know the plant by the name of πικρολουβι, or *bitter-pod*. The ſeeds of a very ſimilar plant, *Trigonella Fænumgræcum*, always enter into the compoſition of curry-powders in Hindooſtan, and are ſuppoſed to poſſeſs a ſtomachic quality. Such a near coincidence is frequent between the medical opinions of the moſt ancient nations.

This being the true *Pelecinus*, we cannot account for Tournefort's having adopted the word as the name of the Linnæan BISERRULA, ſee that article; to which it is certainly miſapplied, nor does he give any reaſon or explanation concerning it. This, however, led Linnæus, as it ſeems, to retain it for the ſpecific name of that curious plant.

PELECOID ANGLE, in *Geometry*. See ANGLE.

PELECOIDES, from πελεκυς, *hatchet*, and ειδος, *form*, a figure in form of a hatchet.

Such is the figure B C D A, (*Plate* X. *Geometry*, *fig.* 16.) contained under the inverted quadrantal arcs A B and A D, and the ſemicircle B C D.

The area of the pelecoides is demonſtrated to be equal to the ſquare A C; and that, again, to the rectangle E B. It is equal to the ſquare A C, becauſe it wants of the ſquare on the left hand, the two ſegments A B and A D, which are equal to the two ſegments B C and C D, by which it exceeds on the right hand.

PELEE, in *Geography*, a ſmall iſland in the Engliſh channel, near the coaſt of France; three miles N.E. of Cherburg. N. lat. 49 41′. W. long. 1° 28′.

PELEGRINI, VALERIO, in *Biography*, an eminent ſinger, was in the ſervice of Spain in 1700.

PELEGRINI, PIETRO, a native of Breſcia, and ſome time organiſt of the Jeſuits' church in that city. He was a very neat player on the harpſichord, and a lively compoſer for that inſtrument. Bremner publiſhed a book of leſſons of his compoſition, and ſeveral books were publiſhed at Paris, where, in 1742, he ſet a drama to muſic, tranſlated from Stampiglia, called *Cirene*.

We heard him perform at Calais in 1766, at a concert for his own benefit. He was then in years, and in the laſt ſtage of a conſumption; but the Duc de Monpenſier, then governor of Calais, coming into the room during the performance, the poor man was obliged to riſe and finiſh his concerto ſtanding. We ſaw with uneaſineſs the difficulty with which he ſupported himſelf, and executed difficult paſſages: but no performer was to ſit in the preſence of the ducal governor, any more than in that of any of the royal family.

PELEGRINI, FERDINANDO, a Neapolitan compoſer and performer on the harpſichord. According to M. Gerber, the continuator of Walter's Muſical Lexicon, he publiſhed a Paris and in London ſeveral works for the harpſichord. There is ſome miſtake in the chriſtian names of theſe two harpſichord-compoſers, and the works of one are indiſcriminately aſcribed to the other; nor are we certain of there having been two compoſers of the ſame time of the ſame name, and in the ſame places, of ſimilar profeſſional abilities.

PELEGRINO, in *Geography*, an iſland in the Pacific ocean, diſcovered by Quiros in 1606. S. lat. 14°. W. long. 162°.—Alſo, a mountain on the N. coaſt of the iſland of Sicily, near Palermo, in which is a celebrated ſanctuary dedicated to St. Roſalia.

PELENGON, or GELENGON, a town of Perſia, in the province of Lariſtan; 66 miles N.E. of Lar.

PELES, a town of Sweden, in the province of Savolax; 48 miles E. of Nyſlot.

PELEW ISLANDS, or PALAOS, a group of iſlands in the weſtern part of the Pacific ocean, or in that extenſive diviſion of the globe, called *Polyneſia*, ſituated between the Philippine iſlands and the Caroline iſlands. The firſt diſcovery of theſe iſlands has been attributed to ſome Jeſuits of the Philippines, *viz.* the fathers Duberon and Cortil, who left the Philippines for this purpoſe on the 14th of November, 1710. Before this time, it was only known, that the largeſt iſland, which is the moſt northerly, was called Panlog, and that the royal reſidence was in Falu or Pelew. After a voyage of fifteen days theſe fathers diſcovered land towards the north-eaſt, and the two iſles that were ſeen were called thoſe of St. Andrew, as having been diſcovered on the day of that apoſtle. From ſome Pelewans, whom they accoſted, they received information that the true name of theſe iſles was Sonſorol: that Panlog was to the N.N.E. and Pulo to the S.S.E. Panlog was afterwards diſcovered about fifty leagues from Sonſorol, in lat. 7° 14′. This ſeems to be the iſland now called Babelthouap, and the largeſt of the group, the S. extremity of which in Arrowſmith's maps is about lat. 7° 25′. Father Cantova's letter, dated 1722, and contained in the collection, entitled "Lettres Edifiantes," gives a brief account of the Pelews, and very unjuſtly repreſents the natives as cannibals. By his account, the group called the Palaos, or Pelews, conſiſted of ſeven principal iſles, ſituated from N. to S. Their names were Pelilieu, Coaengal, Tagaleteu, Cogeal, Yalap, Mogulibee, and Nagarrol: the king was called Yaray, and reſided in Yalap. The natives were deſcribed by the Jeſuits as naked cannibals, who were regarded with horror by the people of the Carolines. It was not till the year 1783, that we were able to obtain a juſt account of theſe iſlands, and of their inhabitants. When captain Wilſon, commander of the Antelope packet, in the ſervice of the Eaſt India Company, was wrecked on Oroolong, one of theſe iſlands, he derived that information which was communicated on his return to Mr. Keate; and this ingenious writer, indulging perhaps in ſome degree the glow of his feelings and imagination, drew up that very pleaſing and intereſting account, which, from its firſt publication, has paſſed through ſeveral editions. The whole group is ſaid to contain eighteen iſlands; but thoſe which Mr. Keate mentions are Oroolong, Artingall, Pelelew, Emilligue, Emunga, Aramalorgoo, Arraguy, Caragaba, and Pethoull: but the names of all were not diſcovered: and it was but lately known that Pelew was only the name of the capital of the iſland called Cooroora; and the reſidence of the king. From Mr. Keate we learn that the natives of theſe iſlands, ſo far from being ſavage cannibals, were remarkably mild, hoſpitable, and humane. Theſe iſlands are in general of a moderate height, and covered with wood; and encircled on the W. ſide by a reef of coral, from two to ſix leagues from the ſhore, and of great length. Cooroora, the capital of which is Pelew, bears the marks of induſtry and good cultivation. All the iſlands which the Engliſh ſaw were covered with trees of various kinds, and ſome of them of large ſize, which appeared from their canoes, made of their trunks, and capable of carrying twenty-eight or thirty men. Among the trees in the foreſt, they obſerved the ebony, and alſo a tree which, when pierced with a gimblet, yielded a juice of the conſiſtence of cream; a ſpecies of the machineel tree; a tree in ſize and its branches reſembling the cherry-tree, and in its leaves the myrtle, and having, inſtead of bark, an outward coat of the thickneſs of a card, darker than the inſide, though equally cloſe in texture: the colour of the interior part being nearly that of mahogany, and ſo extremely hard, that few of the tools which the Engliſh had could work it without breaking their edges. Here were alſo the cabbage tree, and a tree whoſe fruit reſembled an almond: the carambola, and the wild bread-fruit, called by the natives "riaſnall." Yams and cocoa-nuts being the chief means of ſubſiſtence, are objects of particular attention. Of the beetle-nut, which abounds, the natives make great uſe: and their iſlands alſo afford plantains and bananas, Seville oranges, and lemons. They furniſh ſome ſugar canes, great abundance of the bamboo, and likewiſe the turmeric, uſed as a dye, and employed by the women for ſtaining their ſkins. None of the iſlands which the Engliſh viſited afforded any kind of grain, nor any ſort of quadruped, except ſome rats which were found in the woods, and three or four meagre cats, found in the houſe, and which were probably drifted aſhore from ſome wreck. Of birds, pigeons were the moſt numerous; and they had plenty of cocks and hens, undomeſticated and running wild in the woods, of which they had made no uſe as articles of food till they were inſtructed by the Engliſh to eat them. Several birds of beautiful plumage were obſerved to fly about, and ſome of a ſmall ſize, whoſe notes were very melodious, and particularly one, which uſed to ſing every morning and evening, with a pipe as ſweet as a flageolet. Of fiſh they had great variety.

Theſe iſlands, when ſeen from the ſea, exhibit high rugged land, covered with wood; the interior parts were in many places mountainous, but the vallies were extenſive and beautiful, and preſented many agreeable proſpects. The ſoil was in general rich; the graſs, as no cattle ate it down, grew high, and was burnt up with the heat of the ſun. The Engliſh ſaw no river in theſe iſlands; their ſupplies of freſh water were derived from ſmall ſtreams and ponds, of which there were many. They had no ſalt, or any kind of ſeaſoning with their food, which conſiſted chiefly of fiſh, and they had alſo a kind of ſweet-meats, which they prepared from the ſugar-cane, which ſeemed to be indigenous. The milk of the cocoa-nut was their uſual beverage. As ſoon as they riſe, which is commonly at day-light, they immediately go to bathe in freſh water. They had no method of meaſuring time, but by the height of the ſun; and they divided their ſeaſons, like the inhabitants of other tropical countries, into wet and dry. They appeared to have ſome knowledge of the ſtars, to ſeveral of which they gave names. Thoſe iſlands that were viſited by the Engliſh appeared to be populous, but the account of their population was not aſcertained. Their houſes were placed upon large ſtones, and raiſed about three feet from the ground; being conſtructed of planks and bamboos, and having the fire-place in the middle, ſecured with hard rubbiſh. For public meetings they had large manſions. Their fiſhing-hooks were of tortoiſe-ſhell: their twine, cord, and fiſhing-nets, were well manufactured from the huſks of the cocoa-nuts. The mats on which they ſlept, and which they threw over them at reſt, were formed of plaintain-leaf. At their meals they uſed a plaintain-leaf inſtead of a plate, and the ſhell of a cocoa-nut ſerved them as a cup, which they ſometimes finely poliſhed. Their beſt knives were of mother-of-pearl, and others of a large muſcle-ſhell, or ſplit bamboo. They had alſo veſſels of an oval ſhape and reddiſh-brown colour, which were a kind of earthen ware, and which they uſed for heating their water, and for boiling their fiſh, yams, &c. The principal weapons uſed in their battles were ſpears, about twelve feet long, formed of the bamboo, having its pointed end of very hard wood: theſe were barbed tranſverſely, nor could they be drawn from the body without lacerating the fleſh. Another weapon was the dart and ſling; the ſling was a piece of wood about two feet long, with a notch made in it, wherein the head of the dart was fixed. The dart was of bamboo, pointed with extremely hard wood. Their canoes were formed of the trunks of trees, and neatly ornamented. The natives of theſe iſlands are a ſtout, well-made people, rather above the middling ſtature; their complexions are of a far deeper colour than what is underſtood by the Indian copper, but not black. They are mild, affable, and induſtrious, and, like the inhabitants of Otaheite, they form an exception to the general rule of ſavage exiſtence. Their hair is long and flowing, rather diſpoſed to curl, which they moſtly form into one large looſe curl round their heads: ſome of the women, who wore remarkably long hair, let it hang looſe down their backs. The men were entirely naked: the women wore only two little aprons, or rather thick fringes, one before and one behind, about ten inches deep and ſeven wide: theſe were made of the huſks of the cocoa-nut ſtripped into narrow ſlips, which they dyed with different ſhades of yellow: this, which was their only dreſs, they tied round their waiſts, commonly with a piece of line, though ſuch as were of higher rank uſed a ſtring of ſome kind of beads. Both men and women were tattooed, or as they called it "melgothed;" an operation which is ſuppoſed to have taken place at a certain period of youth, children of either ſex not being marked by it. The men had their left ear bored, and the women both; a few of the firſt wore beads in the perforated ear; the latter put either ſome leaf through, or an ear-ring of tortoiſe-ſhell inlaid. The cartilage between the noſtrils was alſo bored in both ſexes, through which they frequently put a little ſprig or bloſſom of ſome plant or ſhrub that accidentally caught their fancy. When the men and women grew up, their teeth were blacked, which was done by means of ſome dye; and the operation was tedious and painful. For this purpoſe they uſed groundſel, with four other herbs, bruiſed together, and mixed with a little chinam into a paſte, which was applied to the teeth every morning, in order to dye them black: the patients lying with their heads upon the floor, and letting the ſaliva run out of their mouths. At night the paſte was taken away, and they were permitted to eat a little. The ſame proceſs was repeated the day following, and five days were neceſſary to complete the operation. This occaſioned great trouble, and made them extremely ſick.

Perſons of both ſexes were very expert at ſwimming, and appeared to be as perfectly at eaſe in the water as on land. The men were admirable divers. Their marriages were probably no more than a civil contract, but at the ſame time the contract was regarded as inviolable. They allowed a plurality of wives, but in general had not more than two: the king had five, though not living together. They did not appear to be in any degree jealous of them, permitting them to partake of all their diverſions. When a woman was pregnant, ſhe always ſeparated from her huſband at night; and it was obſerved that the utmoſt attention was paid to women in that ſituation. Their children are named ſoon after they are born; and probably without any ceremony. Some peculiar circumſtances attended their funerals. At the place of interment, an elderly woman was obſerved to get out of the new made grave, who was ſuppoſed by thoſe who attended to be the mother, or ſome near relation, who had been drawn by affection to the melancholy ſcene, in order to be ſatisfied that every thing was duly prepared. When the corpſe was laid in the earth, the lamentation of the women that attended was very great. Theſe laſt ſad offices ſeemed to be wholly left to the tenderneſs of the weaker ſex: the men only aſſembled round the body, before it was carried to the grave, where they preſerved a ſolemn ſilence. They had places appropriated to ſepulture. Their graves were made like ours in country church-yards; having the mould raiſed up in a ridge, over the place where the body was depoſited, ſome flat ſtones raiſed above them, with a flat one laid horizontally over, and ſurrounded by a kind of hurdle-work, to prevent any one from treading over them. There ſeemed to be no religion of any kind among theſe iſlanders, though they have an idea that the ſoul ſurvives the body. The government is in the hands of a king, under whom there are "rupaks," or chiefs, who alſo conſtitute a kind of nobles. The property of all the land is ſuppoſed to be veſted in the ſovereign, while that of the people is only perſonal, as a canoe, weapons, or rude articles of furniture. The king of Pelew entertained ſo great an eſteem for captain Wilſon, that he entruſted his ſecond ſon, prince Lee Boo, to his care, to accompany him to England. This young man was of a moſt amiable diſpoſition, deſirous of information, and poſſeſſed a capacity for receiving it; he died of the ſmall-pox at captain Wilſon's houſe in London in the year 1784, at about twenty years of age. N. lat. between 6° 54′ and 8° 12′. E. long. between 134° 5′ and 134° 40′.

Pelham, a townſhip of America, in Hampſhire county, Maſſachuſetts; 12 miles N.E. of Northampton; incorporated in 1742, and containing 1144 inhabitants.—Alſo, a poſt-town of Rockingham county, in New Hampſhire, on the S. ſtate line, which ſeparates it from Dracut, in Maſſachuſetts; 30 miles S.W. of Exeter; incorporated in 1746, and containing 918 inhabitants.—Alſo, a townſhip in Weſt Cheſter county, New York, bounded S. and E. by the Sound, N. including New City, Hart, and Appleby's iſlands; containing 943 inhabitants.—Alſo, a townſhip of Lincoln county, Upper Canada, S. of Louth, watered by the Chippewa or Welland.

PELHESTRE, Peter, in *Biography*, a conſiderable French writer, who flouriſhed in the 17th and early part of the 18th centuries, was a native of Rouen, where he was born about the year 1645. At an early age he was inſpired with the love of learning, and from thenceforward he devoted his life to ſtudious purſuits. At the age of ſeventeen or eighteen he came to Paris, when the archbiſhop of that ſee ſent for him, and ſaid, "I am informed, ſir, that you read the works of heretics; are you ſufficiently learned to venture on ſuch a dangerous practice?" To which the young man replied, "Your queſtion, my lord, embarraſſes me: for were I to anſwer in the affirmative, you might charge me with preſumptuous vanity; and ſhould I ſay that I have not ſufficient learning, you would prohibit me from reading ſuch books." Pleaſed with the ingenuouſneſs of the anſwer, the prelate laid him under no reſtriction. For ſome time M. Pelheſtre officiated in the clerical character, and was zealous as a miſſionary for the converſion of Proteſtants to Catholiciſm: he afterwards reſumed the habit of a layman, which he did not change upon his appointment to the place of ſub-librarian in the great convent of the Cordeliers at Paris. His motive for accepting of this poſt, was the unreſtrained acceſs which it gave him to a valuable library. He became intimately acquainted with father Mabillon, and ſeveral other of the moſt learned perſons of his time. He viſited moſt of the religious ſolitudes in France, and ſaid, if he were to ſeclude himſelf from the world, he ſhould make choice of one of the principal monaſteries on mount Athos, for the advantage of conſulting the numerous Greek MSS. which they poſſeſs. When he had any particular object in view, it was uſual for him to ſhut himſelf up in a room from which day-light was excluded, where he applied himſelf night and day, excepting when nature called for refreſhment. Father Le Long was told that he had been ſeen frequently in this ſituation. He died ſuddenly in 1710, when he was ſixty-five years of age. He was a man of prodigious reading, and particularly converſant in theological controverſy, and the knowledge of eccleſiaſtical authors. He wrote a ſevere criticiſm on various paſſages in M. Dupin's "Bibliotheque des Auteurs Eccleſiaſtiques," and filled all the margins of Cave's "Hiſtoria Literaria" with notes. The manuſcripts of theſe performances are ſaid to have fallen into the hands of the Benedictines, to whom they would prove uſeful in their critical reſearches. He was the author of the numerous additions and valuable notes to the ſecond impreſſion of father Bonaventure's "Treatiſe on the beſt Method of reading the Fathers of the Church," in 1697. Moreri.

PELIALA, in *Ancient Geography*, a town of Aſia, in Meſopotamia, between Rhæſana and Alvanis. Ptolemy.

PELIAS, an iſland on the coaſt of Sicily, in the vicinity of the promontory of Drepanum.

Pelias, in *Zoology*, a ſpecies of *Coluber;* which ſee.

PELICAN, in *Chemiſtry*. See Pellican.

Pelican, in *Ornithology*. See Pelecanus.

Pelican *Iſland*, in *Geography*, a ſmall iſland near the S. coaſt of Weſt Florida. N. lat. 30° 14′. W. long. 33° 6′.—Alſo, a ſmall iſland near the N.E. coaſt of Antigua. N. lat. 17° 14′. W. long. 61° 24′.—Alſo, a ſmall iſland near the S.W. coaſt of Antigua. N. lat. 17° 10′. W. long. 61° 35′.

Pelican *Iſlands*, a cluſter of ſmall iſlands near the coaſt of Weſt Florida. N. lat. 29° 48′. W. long. 88° 55′.

Pelican *Key, Great*, a ſmall iſland near the S. coaſt of Jamaica. N. lat. 17° 49′. W. long. 76° 48′.

Pelican *Key, Little*, a ſmall iſland near the S. coaſt of Jamaica, a little N. of the former iſland.

Pelican *Rocks*, rocks on the N.W. coaſt of Antigua, lying under water, and dangerous.

Pelican *Shoals*, ſand-banks about half a mile from the ſhore, on the S.W. coaſt of the iſland of Barbadoes.

PELICARE, a town of Cochin; 50 miles E. of Cochin.

PELICARO, a town of Naples, in the Baſilicata, at the mouth of a river that runs into the Adriatic; 10 miles E.N.E. of Tarſi.

PELICONDA, a town of Hindooſtan, in the circar of Cicacole; 25 miles N.W. of Cicacole.

PELIGNI, in *Ancient Geography*, a people of Italy, between the Marmeni and the Marſi; ſometimes comprehended under the name of Marſi. They were immediately deſcended from the Samnites, but owed their firſt origin to the Sabines. They are mentioned by Ovid, Faſt. l. iii. v. 95. As they inhabited the high mountains which formed a part of the Apennines, it is probable that they derived their name from the primitive *pal*, elevated. They are ſaid to have conſtructed a temple to Jupiter Palenus. Their chief town was Corſinium; Salmo alſo was within their dominion.

PELIJARVI, in *Geography*, a town of Sweden, in the government of Kuopio; 100 miles S.E. of Kuopio.

PELIKANI, a town of Lithuania, in the palatinate of Wilna; 16 miles S.S.W. of Breſlaw.

PELIM, a town of Ruſſia, in the government of Tobolſk, on a lake of the ſame name; 72 miles N. of Turinſk. The lake is about 56 miles in circumference. N. lat. 59° 10′. E. long. 63° 56′. This lake receives a river, called alſo Pelim.

PELING, an iſland near the coaſt of Corea, in the Hoang-Hai, or Yellow ſea; ten miles long, and four broad. N. lat. 38° 24′. E. long. 124° 28′.—Alſo, a ſmall iſland in the Eaſt Indian ſea, near the E. coaſt of Celebes; 50 miles long, and 14 broad. S. lat. 1° 45′. E. long. 123° 20′.

PELION, MOUNT, in *Ancient Geography*, a portion of that long chain of mountains which lay on the eaſtern coaſt of Theſſaly, and which extended from the peninſula, incloſing towards the ſouth the greateſt part of the country called Magneſia, as far as the mountains that ſeparated it from Macedonia. The portion which bore the name of Pelion commenced at the ſummit of Rhiſus, and reached almoſt from the ſea in advancing towards the N.W. In a kind of angle which this mountain formed in its return towards the E. at the bottom of the mountain flowed the ſmall river Amyrus. The coaſt, in the direction of the mountain, formed in this place a ſmall gulf, in which was Melibœa. From Melibœa, to the right bank of the mouth of the Peneus, the chain of mountains, which approached very near to the ſea, was called Oſſa. On the other ſide of the Peneus, in aſcending towards the north, it formed two chains of mountains, one of which took the courſe of the ſea very exactly, and the other inclined a little from the S.E. to the N.W. Theſe two mountains were connected with the mountains which ſeparated Theſſaly from Macedonia. They were theſe two chains of mountains which the ancients comprehended under the name of Olympus. When the giants are ſaid to have piled Oſſa upon Pelion, the meaning ſeems to be, that they had fortified theſe two mountains, whither they retired after their excurſions, and kept Jupiter's garriſon upon mount Olympus in awe.

PELIOSANTHES, in *Botany*, from πελιος, *livid* or *lurid*, and ανθος, *a flower*, a recently eſtabliſhed Eaſt Indian genus, ſo named by the late Mr. George Jackſon, in Andrews's Repoſitory, in alluſion to the pale lead-colour, for which the flowers are remarkable. Andr. Repoſ. v. 9. 605. Ker in Curt. Mag. v. 32. 1302.—Claſs and order, *Hexandria Monogynia*. Nat. Ord. *Sarmentaceæ*, Linn. *Aſparagi*, Juſſ.

Gen. Ch. *Cal.* none, unleſs the corolla be taken for ſuch. *Cor.* inferior, of one petal, permanent; tube cylindrical; limb wheel-ſhaped, in ſix equal, obovate ſegments. Nectary of one leaf, globular, contracted at the mouth, one-third the length of the petal. *Stam.* Filaments very ſhort, equal, inſerted into the inſide of the nectary; anthers oblong, of two lobes and two cells, projecting juſt beyond the nectary. *Piſt.* Germen ſuperior, enveloped in the nectary, globoſe; ſtyle ſcarcely any; ſtigma of three obtuſe furrowed lobes. *Peric.* Berry ovate, of three cells. *Seeds* two in each cell, ſome of them frequently abortive.

Eſſ. Ch. Corolla tubular; limb wheel-ſhaped, in ſix ſegments. Stamens inſerted into the globular nectary. Berry with three cells, and ſix ſeeds.

1. P. *Teta.* Grey-flowered Teta. Andr. Repoſ. t. 605. Curt. Mag. t. 1302.—Flower-ſtalks taller than the leaves. Corolla obtuſe.—Gathered by Dr. Roxburgh in Bengal. Living plants were ſent by him to the late Lady Amelia Hume, in whoſe ſtove they flowered in the following ſpring, for the firſt time in England. *Root* fibrous, perennial. *Stem* none. *Leaves* ſeveral, radical, erect, a foot or more in height, on channelled ſtalks, elliptical, pointed at each end, entire, rather rigid, evergreen, ſmooth, plaited, with many longitudinal ribs, and fine tranſverſe veins. *Flower-ſtalks* ſeveral, taller than the leaves, erect, round, ſimple, ſmooth, ſomewhat glaucous, each bearing an upright cluſter of numerous inodorous ſmall *flowers*, ſcattered or in tufts, of a livid purpliſh lead-colour, intermixed with dull green. *Bracteas* ſcattered, ovate, pointed, concave, membranous, pale. The *flowers* fall off even before they wither, without producing any *fruit* in this country. The natives of Bengal know this plant by the name of *Teta*, but we find nothing recorded of its qualities or virtues.

2. P. *humilis.* Dwarf Teta. Andr. Repoſ. t. 634. Curt. Mag. t. 1532.—Flower-ſtalks ſhorter than the leaves. Cluſter ſimple. Corolla acute.—Introduced from Prince of Wales's iſland, about the year 1808, by Mr. Evans of Stepney, in whoſe hot-houſe it bloſſomed in November. This differs from the former in its much humbler ſtature, the *leaves* being not more than three inches high, and the *flower-ſtalk* hardly two inches, bearing an ovate, denſe, ſimple *cluſter* of *flowers*, whoſe ſegments are acute, green with a white edge.

Mr. Jackſon has recorded, in Andr. Repoſ. v. 9. 605, that he had ſeen two ſpecies in Mr. Evans's collection juſt imported from Prince of Wales's iſland, one of which had the *leaves* nearly of a blue colour. The other probably was our *humilis*. Mr. Evans's collector declared that he had found five or ſix diſtinct ſpecies of this genus, growing wild in the iſland juſt named, though he did not ſucceed in his attempt to bring them alive to England.

PELL, JOHN, in *Biography*, a divine of the church of England, was born at Southwick, in Suſſex, in the year 1610. He was educated in grammar-learning at the free-ſchool of Steyning, in the ſame county, and made ſo rapid a proficiency in the Latin and Greek languages, that at the early age of thirteen he was fully qualified for entering upon academic ſtudies, and was ſent to Trinity college, Cambridge. Here he exhibited a wonderful facility in acquiring languages, and at the ſame time ſhewed a peculiar turn for mathematical learning; ſo that, in 1629, when he was only eighteen years of age, he drew up "A Deſcription and Uſe of the Quadrant, in Two Books." In the ſame year, he held a correſpondence with the celebrated Mr. Henry Briggs upon the ſubject of logarithms, and in the following year he wrote "Modus ſupputandi Ephemerides Aſtronomicas (quantum ad motum Solis attinet), paradigmate ad ann. 1630, accommodato;" and "A Key to unlock the Meaning of Johannes Trithemius, in his Diſcourſe of Steganography," which he communicated to Mr. Samuel Hartlib and others. He had been admitted to the degree of B. A. at the uſual period, and in the preſent year he proceeded M. A. During this year he wrote "A Letter to Mr. Edmund Wingate, on the Subject of Logarithms." In 1633-4, he finiſhed his "Aſtronomical Hiſtory of Obſervations of Heavenly Motions and Appearances," and ſoon after his "Ecliptica Prognoſtica, teaching how, by Calculation, to foreknow and foretell all Sorts of Eclipſes of the Heavenly Lights." By theſe and other works, which it is not neceſſary to enumerate, Mr. Pell's reputation for mathematical knowledge was ſo well eſtabliſhed, that he was conſidered to be deſerving of a profeſſor's chair in that ſcience. When, therefore, a vacancy took place in one at Amſterdam in 1639, intereſt was made to procure Mr. Pell the appointment. The vacancy was not, however, filled up before the latter end of the year 1643, when Mr. Pell was choſen to it. Of the eſtimation in which he was held in Holland, a good opinion may be formed from what was ſaid of him by his colleague, Gerard John Voſſius, who ſtyles him a perſon of various erudition, and a moſt acute mathematician, and he greatly applauds his lectures upon Diophantus.

In 1644, Mr. Pell publiſhed at Amſterdam, in two pages, a refutation of Longomontanus's pretended quadrature of the circle, which obtained for him a high degree of credit among the moſt learned mathematicians in Europe. Two years afterwards, Mr. Pell was called to the diſplay of his talents on a new ſcene; for the prince of Orange, having founded a *Schola illuſtris* at Breda, invited him to be profeſſor of philoſophy and mathematics in the new inſtitution, with an annual ſalary of a thouſand guilders. This offer he accepted, and he filled the mathematical chair at Breda with the ſame reputation and ſucceſs which attended him at Amſterdam, having, among his pupils, ſeveral who were afterwards diſtinguiſhed as eminent algebraiſts.

In 1652 he returned to England, and in 1654 Cromwell appointed him agent to the Proteſtant cantons in Switzerland, which character he retained till the death of the protector. After the reſtoration, he was encouraged to enter into holy orders; and, having been ordained deacon and prieſt in 1661, he was immediately inſtituted to the rectory of Fobbing, in Eſſex, with the chapel of Battleſden annexed, on the preſentation of the king.

In 1663 he was preſented by Dr. Sheldon, then biſhop of London, to the rectory of Laingdon, in Eſſex, and about the ſame time he was created doctor of divinity. Scarcely had he been honoured with this degree, before his patron was tranſlated to the ſee of Canterbury, and Dr. Pell became one of his domeſtic chaplains. Such an appointment is generally conſidered to be a ſtep to higher preferment, but Dr. Pell was ſo intent on his ſtudies as to neglect his own intereſt, and it is ſaid he was ſo imprudent, with reſpect to the management of his worldly affairs, that he would have diſgraced the ſtation of a dignitary. Anthony Wood ſays, "that he was a ſhiftleſs man, and his tenants and relations dealt ſo unkindly with him, that they cozened him of the profits of his parſonages, and kept him ſo indigent, that he wanted neceſſaries, and even paper and ink to his dying day."

In the mean time he diſtinguiſhed himſelf as a fellow of the Royal Society, to which he had been elected in the year 1663. He publiſhed ſeveral other works in mathematical ſcience, and was the inventor of ſome algebraical ſigns, of which a few have obtained a general reception, *viz.* ÷ for diviſion; ⊚ for involution, and :· for ergo, or therefore In the midſt of his inceſſant application to his ſtudies, owing to the neglect of his pecuniary affairs, his embarraſſments increaſed, and he contracted debts which occaſioned him more than once to be thrown into the king's bench priſon. He died in 1685, in the 74th year of his age. Beſides the various labours already noticed of this gentleman, he wrote a demonſtration of the ſecond and tenth books of Euclid, and alſo of Archimedes' Arenarius, and the greateſt part of Diophantus' Arithmetic. He left behind him a great number of manuſcripts, which were, after a conſiderable time, obtained for the Royal Society: the collection contains not only Dr. Pell's mathematical papers, letters to him, and copies of thoſe ſent by him; but alſo ſeveral manuſcripts of Mr. Walter Warner, an eminent philoſopher and mathematician in the reigns of James I. and Charles I.

PELLA, in *Ancient Geography*, a town of Macedonia, near the ſea, on the confines of Emathia. This city became the capital of the kingdom when Edeſſa was annihilated according to Ptolemy, and owed its grandeur to Philip, who had been educated there, and to his ſon Alexander, who was born in this place. Livy deſcribes it as ſituated on an eminence ſurrounded by marſhes, in the midſt of which was a fortreſs, appearing like an iſland, and at a diſtance ſeeming to be joined to the city; it was, however, ſeparated from it by a river, which ran between their walls, and over which there was a bridge of communication. This river was called Ludias, Loedias, and Lydius. Pella became a Roman colony. Alexander derives from this city the appellation of Pellæus.—Alſo, a town of Greece, in Theſſaly.—Alſo, a town of Judea, in the half tribe of Manaſſeh, on the other ſide of Jordan; ſituated on the torrent of Hieromaces, and forming one of the boundaries of Peræa. This town is placed in Cœleſyria by Steph. Byz. and in the Decapolis by Pliny.—Alſo, a town of Greece, in Achaia.—Alſo, a town, and a mountain of Ethiopia.

PELLA, in *Geography*, a town of Ruſſia, at the junction of the Toſna and Neva; 20 miles S.E. of Peterſburg.

PELLA, in *Ornithology*, a ſpecies of *Trochilus;* which ſee.

PELLACK, in *Zoology*, the name of a young ſpout whale, often found in Zetland; where they run into creeks, and ſo entangle themſelves among the rocks, that they are caſt on ſhore, or eaſily taken. Phil. Tranſ. N° 473, ſect. 8.

PELLACONTA, in *Ancient Geography*, a river of Aſia, in Meſopotamia. Pliny.

PELLACOPAS, a river of Aſia, in Meſopotamia. Arrian de Exped. Alex.

PELLAEUSPAGUS, a name which Alexander gave to the diſtrict in which was ſituated the town of Alexandria, which he built at the mouth of the Tigris.

PELLAGE, in our *Old Writers*, a cuſtom or duty paid for ſkins or leather.

PELLAGRA, in *Medicine*, probably from *pellis, the ſkin*, and *agria, ſcabies fera*, a ſort of cutaneous diſeaſe, which was firſt deſcribed about the year 1771 by ſome Italian phyſicians, as occurring in many perſons in the neighbourhood of Milan and Venice.

The diſeaſe appears to have been a ſpecies of *lepra* or *pſoriaſis;* ſince, in common with theſe diſeaſes, it commenced about the head and on the extremities with ſmall red patches, upon which ſcales were afterwards formed, and ſometimes chaps and fiſſures ſucceeded. This eruption is ſaid to appear firſt in the ſpring or ſummer, and to diſappear with the return of cold weather; but it recurs with renewed violence in the following ſpring. Subſequently, it is affirmed, though the cutaneous affection ceaſes to be very troubleſome, the nervous ſyſtem becomes greatly deranged; languor, ſyncope, depreſſion of ſpirits, and ultimately melancholy, and actual inſanity, in which the patients have a particular tendency to drown themſelves, enſue, and they ſink under a failure both of the mental and corporeal powers.

There is ſomething bordering upon the marvellous in this hiſtory of the pellagra; and as we have heard nothing of the diſeaſe in later times, when credulity is diminiſhed and obſervation improved, it may perhaps be concluded, that the diſeaſe, to which this new name has been given, is nothing more than the common *lepra* or the *pſoriaſis*, and that the nervous affections, ſaid to be connected with it, were in reality accidental and independent of it. A full account of the diſeaſe may be found in Frapolli, "Animadverſiones in Morbum, vulgo Pellagram dictum," Milan 1771, (the firſt writer who noticed it); and in an eſſay by W. X. Janſen, "De Pellagra, Morbo in Mediolanenſi Ducatu endemio," Leyden 1787. (This eſſay was reprinted in Dr. Frank's "Delectus Opuſculorum Medicorum," vol. ix. art. 9.) See alſo a long liſt of references to Italian writers on the ſubject, under the article *Pellagra*, in Dr. Parr's London Medical Dictionary. See Leprosy and Psoriasis.

PELLANA or Pellane, in *Ancient Geography*, a town of Laconia, S.E. of Belemina. It was waſhed by the Eurotas; and is thought to have been very ancient. In the time of Pauſanias it had a temple of Eſculapius and a fountain called "Pellanide."—Alſo, a town of the Peloponneſus, in Arcadia.

PELLEGRIN, Simon Joseph, in *Biography*, a French poet and eccleſiaſtic, was born at Marſeilles. He obtained, in 1704, the prize of the academy for his "Epiſtle to the King on the Succeſs of his Arms." He entered into the religious order of the Servites, but afterwards he obtained leave to remove into that of Cluny. He wrote ſeveral pieces for the theatres, and dramatized the hiſtory of the Old and New Teſtament, the Pſalms of David, &c. He is alſo known as the tranſlator of the works of Horace into the French language. He died in 1745.

PELLEGRINI, Camillo, a learned hiſtorian and antiquarian, was born in 1598 at Capua. He was educated at the Jeſuits' ſchool at Naples, where, beſides the uſual ſtudies, he acquired an accurate knowledge of civil and eccleſiaſtical law and theology. He entered into the clerical order, and having been ſent to Rome, he diligently conſulted the archives and libraries of that capital, and formed the deſign of collecting all the ancient documents relating to his native place, and to the whole kingdom of Naples. For this purpoſe he made many journies, and was at great expence in procuring copies of records and manuſcripts, and in forming a collection of antiquities. The firſt fruit of his labours was "L'Apparato alle Antichita di Capua," printed in 1651, in which he minutely deſcribes all the parts of Campagna Felice, and relates its hiſtory and ſeveral revolutions. He afterwards publiſhed a work entitled "Hiſtoria Principum Longobardorum," containing the chronicle of the Anonymus Salernitanus, and ſeveral other hiſtorical pieces which had not yet ſeen the light, illuſtrated with learned annotations and diſſertations. This publication was of great ſervice in elucidating of the hiſtory not only of thoſe provinces of Naples which were under the ſway of the Lombard kings, but of Italy; it was therefore republiſhed in the collections of Burmann and Muratori, and has been re-edited, with various additions, at Naples, 1749; by Sig. Fr. Moria Pratilli. This learned writer publiſhed other works on different ſubjects, and had a great collection of MSS., as well of his own writing as others, which were unfortunately loſt to the world by the following incident. Being in a bad ſtate of health, he had given orders to a female domeſtic, that when he ſhould be near his end, ſhe ſhould burn a large bundle of papers which he pointed out. One day overhearing the phyſicians prognoſticate that he had not many hours to live, ſhe too faithfully executed his commands, to his own great regret, after he was ſomewhat recovered. He died at Naples in 1660, at the age of 65.

PELLEGRUE, in *Geography*, a town of France, in the department of the Gironde, and chief place of a canton, in the diſtrict of Le Réole; 12 miles N.N.E. of Réole. The place contains 1882, and the canton 6487 inhabitants, on a territory of 145 kiliometres, in 17 communes.

PELLEN, a town of Pruſſia, in the circle of Natangen; 16 miles S. of Brandenberg.

PELLENA, in *Ancient Geography*, a town of the Peloponneſus, in the Argolide.

PELLENDORF, in *Geography*, a town of Auſtria; 10 miles W. of Ziſterdorf.—Alſo, a town of Auſtria; 8 miles S.E. of Vienna.

PELLENE', in *Ancient Geography*, a town of the Peloponneſus, in Achaia, S. of Ariſtonautæ. It was built round a mountain, and formed a beautiful amphitheatre. The inhabitants pretended that it took the name from Pallas, one of the Titans; but the Argians with greater probability aſcribe its name to Pellené, the ſon of Phorbas, and grandſon of Triopas, who came from Argos to this place. Water was conveyed to this city by a beautiful aqueduct; and at a ſmall diſtance was a gymnaſium. In this city were the ſtatues of ſome famous athletæ. Charon was one of them, and he, ſeduced by Alexander, aſſumed the ſovereign authority, ſo that his country deteſted him as a tyrant, whilſt they honoured and crowned him as a victorious athleta. Near this town was a temple, on a ſpot conſecrated to Neptune, About two leagues towards the S.E. from Pellené was a famous temple of Ceres the Myſian. In its vicinity feaſts were celebrated for ſeven days, and after the third day no male could be found within the precincts of the temple. During the night the remaining females offered ſacrifices, and performed other ceremonies. The men afterwards returned and aſſociated with high ſatisfaction after this ſeparation. Pellené was defended by a fortreſs called Olurus towards the S.E., and by the valour of its inhabitants long maintained its liberty; at length it became a part of Sicyonia, retaining its liberty to the time when the Romans took poſſeſſion of Greece.

Pellené, in *Mythology*, an epithet of Diana, given to her by the inhabitants of Pellené; and upon this occaſion Plutarch tells us (in the life of Aratus), when her ſtatue was carried in the proceſſions, her aſpect became ſo terrible that no one durſt look upon it.

PELLENINKEN, in *Geography*, a town of Pruſſian Lithuania; 9 miles N.E. of Inſterburg.

PELLERIN, Joseph, in *Biography*, an eminent medaliſt, born at Paris in 1683, was commiſſary-general and firſt clerk of the French marine. Having obtained his diſmiſſion after forty years' ſervice, he devoted the remainder of his life to the ſtudy of antiquity. His collection of medals was the richeſt and moſt valuable that was ever made by a private individual. It was purchaſed by the king in 1776. He contributed to the promotion of the numiſmatic ſcience by a publication in nine volumes 4to. enriched with a great number of plates. It conſiſts of a collection of medals of kings hitherto inedited or little known; a collection of medals of people and towns, inedited or little known; miſcellaneous medals, ſupplements to the above, and letters on medallic ſubjects. It is reckoned a very valuable work, not only on account of the beauty of the engravings, but of the learned and judicious explanations ſubjoined. The author died at Paris in 1782, in the 99th year of his age.

Pellerin, *Le*, in *Geography*, a town of France, in the department of the Lower Loire, and chief place of a canton, in the diſtrict of Paimbœuf; 12 miles S.E. of Paimbœuf. The place contains 1456, and the canton 837 inhabitants, on a territory of 152½ kiliometres, in 7 communes.

PELLETS, in *Heraldry*, a name given to thoſe roundlets which are black, called alſo *ogreſſes* and *gun-ſtones*.

PELLICAN, or Pelican, among the *Chemiſts*, a kind of double veſſel, ordinarily of glaſs: uſed in working on liquors, by circulation.

It has a tubulated capital, from which two oppoſite and crooked beaks paſs out, and enter again at the belly of the cucurbit. Two matraſſes, the mouth of one of which is inſerted into the mouth of the other, anſwer the ſame purpoſe with this veſſel.

Pellican alſo denotes an inſtrument uſed by ſurgeons, &c. to draw teeth.

Pellican, again, is the name of an ancient piece of ordnance, carrying a ball of ſix pounds; by the French made eight feet and a half, and by the Dutch nine feet long. See **Cannon**.

PELLICER, Joſef de Oſſau, Salas y Tobar, in *Biography*, a man of conſiderable eminence in the literary hiſtory of Spain, was born at Saragoſſa April 22, 1602, and inherited a diſpoſition to letters from his father D. Antonio Pellicer de Oſſau, who left in MS. an epitome of Garibay's Great Hiſtory, and a poem, entitled "Batavia Rebelde." He took an honorary degree at Alcala, and from thence removed to Salamanca, and at the age of 22 took up his reſidence at Madrid, and in 1629 he was made chronicler or hiſtoriographer of Caſtile. The ſtates of Arragon named him to the ſame office for their kingdom; but as it was already held by Franciſco Ximinez de Urrec, it was decided that the reverſion could not be granted. Philip IV. made him amends by creating him arch-hiſtoriographer for the kingdoms of the crown of Arragon; the duty attached to this office was to reviſe and correct the works of the chroniclers of the particular kingdoms. As a farther token of reſpect, the habit of the order of Monteſa was given him, and afterwards exchanged for that of Santiago. Theſe honours were far from profitable to the wearer, and Pellicer was all his life poor. He died at the age of 77, worn out, according to the reports of his biographers, by inceſſant literary application. He was author of a great number of works, the titles of which, ſome time previouſly to his death, filled five folio pages. His learning is generally acknowledged, and his learned works are ſtill conſulted by the literati of different countries. Gen. Biog.

PELLICULA, in *Vegetable Phyſiology*, is a fine ſkin, which cloſely adheres to the proper *teſta*, or ſkin, of ſome ſeeds, conſtituting an additional integument, concealing their proper colour and naturally poliſhed ſurface. Gærtner improperly calls it *epidermis*; a name appropriated to the whole cuticle of the vegetable, as well as animal, body. This part is either membranous, and often downy, as in *convolvulus*; or mucilaginous, and not perceptible till the ſeed is moiſtened, as in *Salvia verbenaca*. The latter is a curious inſtance of ſuch a pellicle; and the ſeed is, in conſequence, endowed with the, often very uſeful, property of extracting any ſmall irritating body from the human eye. One ſeed, introduced under the cloſed eyelids, ſoon becomes, by the abſorption of moiſture into the pellicle, enveloped with a maſs of jelly, that uſually entangles and ſheaths the obnoxious ſubſtance. We cannot but conſider the *utriculus* of Gærtner, which covers the ſeed in *Chenopodium* and ſome of its allies, as no other than a *pellicula*.

PELLISSON, Fontanier Paul, in *Biography*, an eminent French writer, born at Beziers in 1624, was deſcended from a family of great reſpectability in the profeſſion of the law. The ſubject of this article loſt his father at an early age, and he was left to the care of his mother, who educated him in the principles of the Proteſtant religion. He ſtudied ſucceſſively at Caſtres, Montauban, and Toulouſe, and acquired an intimate knowledge of the beſt authors in the ancient and modern languages. He applied himſelf profeſſionally to the ſtudy of the law, and had already appeared with diſtinction at the bar, when he was ſeized with the ſmall-pox. This cruel diſeaſe left a permanent weakneſs in his eyes, and ſo disfigured him, that he became a model of uglineſs. He quitted the bar and retired into the country for ſome time; afterwards he came to Paris, and made himſelf known as a man of letters. In 1652 he obtained the place of a king's ſecretary, and applied with diligence to the affairs of the council, with which he became intimately acquainted. In the ſame year he read before the French academy an hiſtory which he had compoſed of that inſtitution, and which was ſo much approved that a reſolution was made to admit him a member on the firſt vacancy, and in the mean time to give him the privilege of being preſent and ſpeaking at the meetings of the academy. His hiſtory was printed in 1653, and many ſucceſſive editions of it were given. It is upon the whole a curious and intereſting performance. M. Pelliſſon was brought into a conſpicuous ſituation in the year 1657, by being appointed firſt clerk to the celebrated intendant Fouquet. The financial buſineſs into which he was now plunged did not impair either the diſintereſtedneſs of his character, or the amenity of his diſpoſition. His ſervices were recompenſed in 1660 by admiſſion into the council of ſtate, but in the following year he was involved in the fall of his patron, and, as having been one of his principal confidents, was committed to the Baſtille. As it was found impoſſible to corrupt his fidelity to his former maſter, attempts were made to worm out his ſecrets by means of a German, a ſuppoſed fellow priſoner, who concealed craft under a groſs and ſimple exterior. Pelliſſon was ſoon aware of his artifices, and treated him with ſo much politeneſs, that he converted him into a friend, and by his means kept up a conſtant correſpondence with mademoiſelle de Scuderi. During his impriſonment, he compoſed three memoirs in favour of Fouquet, which are reckoned among the moſt eloquent and beſt-written pieces of the kind in any language, and have conferred a laſting honour on his memory. They were, however, the immediate cauſe of increaſed rigour in his confinement. He was prohibited the uſe of pen, ink, and paper, and was reduced to write with the lead of his caſement upon the margins of books, or to uſe a kind of ink which he made with burnt cruſt tempered with wine. His whole company was a Baſque, whoſe only talent was playing on the bagpipe. With vaſt pains he trained a ſpider to come out of his hole at the ſound of this inſtrument, and take flies from his hand. Books of controverſy were another employment of his ſolitary hours, and he received in the Baſtille thoſe impreſſions which afterwards produced a change of religious profeſſion. He preſerved many friends in this forlorn ſituation; and Tannegui le Fevre had the courage to dedicate to him, while in his dungeon, his "Lucretion," and his tranſlation of Plutarch's treatiſe on "Superſtition." At length, after a confinement of four years and a half, he obtained his liberty, and thenceforth paſſed his life in laviſhing praiſes upon the ſovereign who had previouſly deprived him of it. He was taken into favour, obtained a royal penſion and a brevet of entrèe, and was made king's hiſtoriographer. His public recantation of the Proteſtant religion is ſuppoſed to have been one of the conditions of this favour. He ſoon after took the order of ſub-deacon, and was preſented to an abbacy and a rich priory. It was with ſome reaſon, therefore, that he annually celebrated his reconciliation with the church of Rome. He gave a more intereſting proof of the excellence of his diſpoſition by commemorating the anniverſary of his liberation from the Baſtille with the annual releaſe of ſome of the priſoners.

In 1671, Pelliſſon delivered at the French academy a "Panegyric on Lewis XIV." which was tranſlated into ſeveral languages, and even into the Arabic, by a patriarch of mount Lebanon. He accompanied his royal maſter in his campaigns, and for ſome time was the only man of letters engaged in writing his hiſtory; but ſome offence which he gave to madame de Monteſpan induced the king to transfer the appointment of hiſtoriographer royal to Boileau and Racine. Although Pelliſſon was thus deprived of his office, he was ordered to proceed in his own hiſtorical labours; and he produced a "Hiſtory of Lewis XIV., from the Death of Cardinal Mazarin in 1661, to the Peace of Nimeguen in 1678," in three vols. 12mo. It is more the work of a courtier than that of a faithful hiſtorian, yet it has been ſpoken of with applauſe by Voltaire and others. He totally diſapproved of the dragooning ſyſtem of proſelyting, and he ſeems to have relied much more on the judicious diſtribution of the third of the ſavings deſtined by the king for rewards to ſuch as ſhould conform to the eſtabliſhed religion. He alſo employed his pen in controverſy, and wrote "Reflexions ſur les Differences de la Religion," and "Traitè de l'Euchariſtie," which were compoſed with much art, and in a laudable tone of moderation.

After this Pelliſſon was made maſter of requeſts, and paſſed all the latter part of his life in great credit and proſperity. He died in February 1693. Beſides the works above-mentioned, he wrote ſeveral pieces in verſe and proſe, among which were an "Abridgment of the Life of Anne of Auſtria;" "Lettres Hiſtoriques," being a journal of the king's journies and encampments; "Recueil des Pieces galantes;" "Poeſies Chretiennes et Morales." Moreri. Bayle.

PELLITORY *of Spain*, in *Botany*. See ANTHEMIS.

PELLITORY, *Baſtard*. See ACHILLEA.

PELLITORY, *Double*. See ACHILLEA, and YARROW.

PELLITORY *of the Wall*. See PARIETARIA.

PELLONIA, in *Mythology*, a goddeſs invoked at Rome, when her votaries wiſhed to be delivered from their enemies, or from any thing that annoyed them.

PELLOUTIER, SIMON, in *Biography*, paſtor of the French Proteſtant church at Berlin, member and librarian of the academy in that capital, and eccleſiaſtical counſellor, was born at Lepſic in the year 1694. He filled with high reputation the poſts confided to him, and obtained a high character for erudition by his work entitled "Hiſtoire des Celtes, et particulièrement des Gaulois et des Germains, depuis les temps fabuleux juſqu'à la Prize de Rome par les Gaulois." Of this work, which is replete with learned and curious reſearch, the beſt edition is that of M. de la Baſtide, in eight vols. 12mo. and two vols. 4to. Pelloutier likewiſe enriched the Memoirs of the Berlin academy with a number of valuable papers. He died in 1757, highly reſpected and beloved for his learning and beneficence.

PELLS, *Clerk of the* PELLS. See CLERK *of the Pells*.

PELLS, *Comptrollers of the*. See COMPTROLLER.

PELLUCID, formed of *pelluceo*, or *perluceo*, *I ſhine through*, a term of the ſame import with diaphanous, or tranſparent.

Pellucid ſtands oppoſed to opaque.

PELLUCIDITY, diaphaneity, or tranſparency, &c.

PELODES, in *Ancient Geography*, a port of Epirus, between the gulf of Buthrotori and the promontory of Thyamis. Ptolemy.—Alſo, a gulf of Aſia, in Suſiana.

PELONTIUM, a town of Spain, in the Tarragonenſis and country of the Lingones. Ptol.

PELOPE, a town of Aſia Minor, in Lydia, on the confines of Phrygia. Steph. Byz.

PELOPIA, πελοπεια, in *Antiquity*, a feſtival celebrated by the Elæans, in honour of Pelops, for whom that nation had more veneration than for any other hero.

PELOPIDAS, in *Biography*, an illuſtrious Theban leader, was the ſon of Hippoclus, of a diſtinguiſhed family in Thebes. Though brought up in affluence, he adopted a frugal and ſimple mode of living, and emulated, in private and public virtue, his noble friend Epaminondas, though he had leſs mental cultivation than that hero. He married and had ſeveral children, but was more intent upon ſerving the ſtate than improving his fortune. He made a campaign with the Theban auxiliaries, who marched to the aid of the Spartans in the Peloponneſian war, and in a battle fought at Mantinea, he received ſeveral wounds, and would have been killed, had he not been protected by Epaminondas. After this period, the citadel of Thebes being betrayed to the Spartans, Pelopidas with many of his friends ſaved their lives by flight. They took refuge in Athens, whence they kept up a correſpondence with thoſe of their friends who remained at Thebes. Pelopidas, animated with the love of liberty and his country, was continually urging his fellow exiles to attempt the recovery of their native city out of the hands of foreign and domeſtic tyrants, and at length a plan was formed to collect the exiles, and to endeavour to effect a revolution. Pelopidas undertook to be the leader of this bold enterprize; and accordingly, with only eleven aſſociates, he left Athens on a certain day in the middle of winter, and proceeded to Thebes. The party were in the habits of peaſants, with dogs and hunting poles, as if they were from the country on an hunting expedition. Thus diſguiſed, they entered Thebes in the midſt of a heavy fall of ſnow, which kept the maſs of the people within doors; here they were immediately joined by about thirty or forty others, who were apprized of their approach. The two Theban rulers were at an entertainment given purpoſely by Phyllidas; and although they received an intimation of the entrance of ſome exiles they paid little or no regard to the fact. A letter diſcloſing the whole conſpiracy was received by Archias, one of the rulers, from an Athenian friend; but although he was told that it contained matter of great importance, he threw it under the bolſter of his couch, exclaiming "Buſineſs to-morrow!" which afterwards became a proverbial ſaying. Whilſt theſe perſons, half intoxicated, were eaſily diſpatched by ſome of the conſpirators, who entered the room in female habits, Pelopidas and his party had the more difficult taſk of breaking into the houſes of two others of the ſupporters of tyranny and overpowering them. When this was effected, they ſallied out into the ſtreets, proclaiming liberty to all the Thebans, and arming all who joined them out of the ſhops of the armourers. On the next morning, they were joined by the body of exiles from Athens, and Epaminondas, who had abſtained from the bloody ſcenes of the night, having collected all the moſt reſpectable citizens, put an end to the confuſion and avowed the common cauſe. Pelopidas, who was univerſally hailed as the deliverer of Thebes, was placed at the head of affairs, and at his inſtigation meaſures were taken to recover the citadel from the Lacedæmonian garriſon. The fortreſs was ſurrounded, and compelled to ſurrender for want of proviſions. The date of this revolution, which was the commencement of the Theban glory, is fixed at the firſt year of the 100dth olympiad, or the year B.C. 380. In the ſubſequent war with Sparta, Pelopidas exerciſed all the talents of a brave and able general. He defeated the enemy at Tanagra, in which he ſlew their general with his own hand. Pelopidas is conſidered as the firſt who inſpired the Thebans with the ambitious deſire of riſing to diſtinction among the ſtates of Greece, and extending their power by conqueſt. His military fame was of an earlier date than that of Epaminondas, though the latter came in time to be ſuperior. It is, however, to the honour of both, that they lived in perfect amity, and concurred in every meaſure for the advancement of their country. Before the battle of Leuctra he ſupported with his voice the advice of Epaminondas for an immediate engagement, and at the head of the ſacred band he greatly contributed to the ſucceſs of the day. He was joint-commander with that chief in the expedition into the Peloponneſus, in which the city of Meſſene was reſtored, and partook with him the danger of a charge made againſt them on their return, for having illegally prolonged their command.

The Theſſalians having requeſted the aid of the Thebans againſt the tyrant Alexander of Pheræ, Pelopidas was ſent with an army into that country, and brought the king to terms. He afterwards marched into Macedonia, as arbitrator of a diſpute in the royal family of that country, and the opinion entertained of his equity was ſuch, that he was entruſted with a number of noble hoſtages for the purpoſe of ſecuring tranquillity, among whom was Philip, father of Alexander the Great. He went a ſecond time into Macedonia, where new tumults had ariſen; and obliged Ptolemy, the uſurper of the throne, to give his own ſon, with fifty others, as hoſtages for performing the conditions enjoined him. Returning through Theſſaly with a ſmall eſcort, he met with Alexander the Pheræan at the head of his army, and with his colleague Iſmenias went to him unarmed, truſting to the ſacredneſs of their character as ambaſſadors. The tyrant, however, ſeized their perſons, and took them with him as priſoners to Pheræ. The ſpirit of Pelopidas ſupported him under this misfortune, and he even ſent meſſages of defiance to Alexander, telling him that he acted very abſurdly in putting to death ſo many of his own innocent ſubjects, and at the ſame time ſparing him, who, he might be ſure, would ſeverely puniſh him for his perfidy, ſhould he ever get out of his hands. Alexander, in return, aſked "Why is Pelopidas in ſuch haſte to die?" "In order," the hero replied, "that by my death thou mayeſt become the ſooner hateful both to gods and men, and thus brought to deſtruction." Soon after this, Epaminondas was placed at the head of an army, with orders to invade Theſſaly, and proceed againſt the tyrant. It was the object neareſt his heart to extricate his friend from the peril that threatened him; therefore he forbore puſhing the Pheræan to extremities, and by alternately acting upon his hopes and fears, brought him to conſent to a truce, with the condition of releaſing Pelopidas and Iſmenias; after this was performed, he marched with them back to Thebes. The Thebans having diſcovered that the Athenians and Lacedæmonians were negociating a treaty againſt them with the king of Perſia, ſent Pelopidas to counteract it. He was received with great honour at the Perſian court, and completely ſucceeded in confirming the former friendſhip between it and the Thebans, and in obtaining a declaration in favour of the liberty and independence of Greece.

Alexander continuing to oppreſs his neighbours, deputies were again ſent to Thebes, requeſting that forces might be ſent to their aid, with Pelopidas to command them. An army was levied for the purpoſe; but as it was about to march, an eclipſe of the ſun ſtruck a ſuperſtitious terror into the minds of the Thebans; and Pelopidas, not chooſing to proceed with a diſheartened army, took with him only 300 volunteer cavalry, and entered Theſſaly, diſregarding the warnings of the ſoothſayers. When he arrived at Pharſalus, he aſſembled all the Theſſalians who were the oppoſers of the tyrant, and marched in queſt of Alexander. The latter, knowing that he had few Thebans with him, did not heſitate to meet him with a very ſuperior force. The battle commenced, and while the event was ſtill dubious, Pelopidas ſaw Alexander at ſome diſtance, ruſhed forwards, and loudly challenged him to ſingle combat. The tyrant, however, thought it more prudent to ſhelter himſelf among the thickeſt of his troops, than to riſk the trial. The noble-minded Theban, hurried away by an inconſiderate thirſt of revenge, followed him almoſt alone, and beat down a number of his oppoſers; at length, covered with darts, and pierced through with ſpears, he fell dead, a victim to unreſtrained ardour. The Thebans lamented him as their father, ſaviour, and inſtructor, and the Theſſalians and allies joined in their expreſſions of ſorrow. They, however, revenged his death by a total and bloody defeat of the enemy. His body was met in proceſſion by the magiſtrates of the towns, the prieſts and young people bearing trophies and garlands; and the Theſſalians made an urgent requeſt to be allowed to give it a funeral in their own country, which was granted, and performed with great ſolemnity and ſplendour. This event took place B.C. 364. Plutarch. Univer. Hiſt.

PELOPIS, in *Ancient Geography*, a name given to ſeven ſmall iſlands, ſituated on the coaſt of the Peloponneſus, over-againſt Methuna, according to Pauſanias.

PELOPONNESUS, a peninſula in the ſouth part of Greece, joined to the continent by an iſthmus, formerly denominated the iſthmus of Corinth, and in later times Examili. The peninſula now bears the name of Morea. The ancients called it by different names, of which the moſt known are Apia, the Argolide, and Pelaſgia. The Peloponneſus was divided into ſeveral parts, which formed ſeparate ſtates; theſe were Laconia, Meſſenia, the Argolide, the Elide, Achaia, Sicyonia, Corinth, and Arcadia in the centre; all the others were waſhed by the ſea. Its form was very irregular; its length from N. to S. was about 125 geographical miles; and its breadth about 150 miles. The ancients compared it to a plantain leaf, and ſome of its inhabitants have repreſented it under this form on their coins. The medals of the Peloponneſus had for their type a tortoiſe. The name of Peloponneſus ſignifies the iſle of Pelops; and accordingly the Greeks aſcribed its origin to a hero named Pelops, who migrating from Aſia took poſſeſſion of this part of Greece, and gave it his name.

The Greeks were divided into two nations, *viz.* the Dorians and Ionians. In the beſt days of Greece, the Dorians had under their dominion the greateſt part of the Peloponneſus, and a column was erected in the midſt of the iſthmus, upon which was engraved, towards the ſide of Athens, "this is not the Peloponneſus, but Ionia," and on the ſide towards Corinth, "this is Peloponneſus, and not Ionia." Notwithſtanding its ſmall extent, the Peloponneſus was, for a long time, the moſt conſiderable portion of Greece. The principal gulfs in its circuit were, the "Sinus Corinthiacus," or gulf of Lepanto; the "Sinus Cypariſſus," or gulf of Arcadia; the "Sinus Meſſeniacus," or bay of Coron; the "Sinus Laconicus," or gulf of Colochina; the "Sinus Argolicus," or gulf of Napoli; and the "Sinus Saronicus," or gulf of Engia. The chief promontories were, the "Promontorium Scyllæum," or cape Skilleo; the "Promontorium Malea," or cape Malio; and the "Promontorium Tænarium," or cape Motapan. See the article GRÆCIA.

PELOPS, in *Ancient Hiſtory*, the ſon of Tantalus, king of Lydia, who is ſaid to have been the laſt foreigner who arrived in Greece before the deſtruction of Troy. This prince, forced to fly from his country on account of the war which Tros had waged with him, to revenge the rape of Ganymede, retired into Greece, where he married Hippodamia, the daughter of Oenamaus, king of Piſa, aſcended the throne, after the death of his father-in-law, and communicated his name to that part of the peninſula, which was from that time called *Peloponneſus*, (which ſee.) But his dominion extended alſo to Ætolia, and by his immenſe wealth he became one of the moſt powerful kings of Greece. The era of Pelops's arrival in Greece muſt have been about the 110th or 120th year before the Trojan war. Among other fatalities of Troy, it is ſaid that it could not be taken by the Greeks, unleſs they had the bones of Pelops; and they therefore ſent for them to Piſa where he had been interred. The veſſel was ſhipwrecked in its return, and ſome time after a peaſant found upon the ſhore the ſhoulder of that prince, and hid it under the ſand. The Elæans having gone to the temple of Delphos to conſult the oracle, in order to be delivered from the plague, the prieſteſs ordered them to go and dig up the bones of Pelops; and perhaps, in memory of this event, they made an ivory ſhoulder, which they conſecrated to Ceres, and the Pelopidæ bore it afterwards upon their enſigns. Some of the ancient fathers contend that the palladium of Troy was made of Pelops's bones. The fable ſays, that the horſes which drew Pelops's chariot had wings, and that they had been given to him by Neptune, the meaning of which is, if we believe Pindar and Palæphatus, that Pelops made uſe of a ſhip with ſails to carry off Hippodamia.

PELORIA, in *Antiquity*, feaſts inſtituted by Pelorus, and celebrated by the Theſſalians. They had a conſiderable affinity with the Saturnalia; for in theſe the maſters ſerved while their ſervants ſat at table, as in the Chronia celebrated at Athens, in honour of Chronos or Saturn. At the feſtival of the Peloria, public entertainments were made for ſtrangers and even for ſlaves, who were ſerved by their maſters; and it is ſaid, that the practice, as well as the feaſt, originated from this circumſtance, that Pelorus was the perſon who firſt gave intimation to Pelaſgus, that by means of an opening in the valley of Tempé the waters of Deucalion's deluge were removed, which intelligence gave that prince ſo much joy, that he regaled Pelorus in a magnificent manner, and inſiſted upon ſerving him at table.

Peloria, in *Botany*, ſo named by Linnæus, from πελορ, *a monſter*, is a remarkable variety of the common Yellow Toadflax, *Antirrhinum Linaria*, in which the flowers, naturally ringent, with two long and two ſhort ſtamens, and one ſimple nectariferous ſpur, become regularly five-cleft, with five ſpurs, and five equal ſtamens. Linnæus publiſhed a diſſertation on the ſubject, reprinted in Am. Acad. v. 1. 55, with a plate. He gives an intereſting hiſtory of the firſt diſcovery of this flower, by a young ſtudent of botany little aware of its curioſity, who gave it to Olaus Celſius; and by the latter it was ſhewn to Linnæus, who at firſt thought a trick had been played, by affixing flowers of ſome other plant to the Toadflax. But when theſe flowers themſelves could not be referred to any thing, his curioſity was ſtrongly awakened. This monſter, in ſhort, overthrew not only his own ſyſtem, but that of every other teacher, if we except the ſober *fructiſts*; who, no doubt, had they ſeen ſuch a prodigy, would thence have deduced no ſmall matter of triumph over their adverſaries, who contended for the importance of the flower in claſſification, above other parts; for the piſtil and fruit are not affected by the above metamorphoſis. How might Linnæus in his turn have exulted, in exhibiting the latter parts changed to a real leaf, in the double-bloſſomed cherry!—Exultation, however, does not juſtly belong to thoſe who attempt to meaſure their own powers with the wiſdom of Nature. A little further enquiry diſcovered other ſpecies of *Antirrhinum* ſubject to the ſame change; nor are ſimilar inſtances wanting in different genera of the *Didynamia Angioſpermia*, which by this means are transferred to the *Pentandria Monogynia*. Both ſorts of flowers are often found on the ſame plant of *Bignonia radicans*, and have likewiſe been obſerved, for many ſucceſſive ſeaſons, by the writer of this, on the *Antirrhinum* in queſtion, an approach towards which is drawn from the life, in Engl. Bot. v. 10. t. 658. The ſeeds from ſuch altered flowers, nevertheleſs, do not appear more diſpoſed to produce the *Peloria* than others. Indeed if all their progeny be not carefully rooted out, the garden will ſoon be overrun with genuine *A. Linaria*, to the excluſion of the leſs vigorous plants that bear monſtrous flowers, though the latter, if kept clean from weeds, continue in general true to their firſt metamorphoſis, and increaſe conſiderably by root.

PELORIDES, in *Natural Hiſtory*, a name given by ſome to a peculiar ſpecies of chama. Bellonius, who firſt uſed the word, never gives it alone as the name of the ſhell, but only uſes it as an epithet derived from *Peloro*, the name of the place where a particular ſpecies of chama was very frequent.

PELORUM, in *Ancient Geography*, a river of Aſia, in Iberia. Dion Caſſius.—Alſo, a promontory in the N.W. of Sicily, near the cape of Faro.

PELOS, in *Geography*, a town of Italy, in the Cadorin; ſeven miles N.E. of Cadora.

PELOW, a town of Ava, on the left branch of the river Ava; 15 miles from Prome.

PELT-Rot, in *Agriculture*, a diſeaſe in ſheep, which is often very deſtructive. See Rot.

Pelt-*wool*, wool ſtripped of the ſkin or pelt of a dead ſheep.

PELTA, ϖελτη, in *Antiquity*, a kind of buckler, uſed among the ancients.

The pelta was ſmall, light, and more manageable than the parma.

It appears from Virgil, and other authors, that the pelta was the buckler uſed by the Amazons: and Xenophon obſerves, that the pelta of the Amazons was ſhaped like a leaf of ivy. Pliny, ſpeaking of the Indian fig-tree, ſays its leaves are of the width of the Amazonian pelta. Servius on the Æneid ſays, the pelta reſembled the moon in her firſt quarter.

Pelta, in *Botany*, a name happily adopted by Dillenius from the Latin language, (in which it means a ſhort, ſomewhat creſcent-like, ſhield or buckler,) for the peculiar ſhields of one tribe of Lichens, firſt ſeparated as a genus by Hoffmann, under the appellation of *Peltigera*, and now retained by that of *Peltidea*; ſee that article, and Lichenes.

Peltæ, or targets, are almoſt always ſituated towards the margin or extremity of the frond, either on the upper or under ſide, being cloſely attached to its ſurface, and each conſiſting of a flattiſh, or ſlightly convex, brown ſmooth diſk; the border being acceſſory, and hardly diſtinguiſhable, originating from the frond.

PELTÆ, in *Ancient Geography*, a town of Aſia, in Phrygia. This town was well peopled, and ſituated at the diſtance of 10 paraſangs from Celenes. Cyrus ſojourned here three days, and was a ſpectator of the Lupercalia which Xenias of Arcadia celebrated by ſacrifices and games, at which the prizes were currycombs of gold. This town is not mentioned by Xenophon, Strabo, Ptolemy, and Stephanus of Byzantium.

PELTAN, Theodore Anthony, in *Biography*, a learned Jeſuit in the 16th century, was born at Pelts, in the dioceſe of Liege, whence he derived his ſurname. He became a member of the Society of Jeſus in the year 1552, and acquired celebrity by his proficiency in the Latin, Greek, and Hebrew languages, and his knowledge of philoſophy and divinity. When Albert, duke of Bavaria, founded the univerſity of Ingolſtadt in 1556, he was appointed profeſſor of Greek and Hebrew literature in that ſeminary, and diſcharged the duties of his office with uncommon aſſiduity and ſucceſs. He was admitted, at different periods, to the ſeveral degrees, and in 1562 he proceeded doctor. Immediately afterwards he was called to the theological chair, which he filled with great reputation till the year 1574, when he retired to the college belonging to his order at Augſburg, where he ſpent his time in laborious ſtudy and writing till his death, which took place in the year 1584. He was the author of a work entitled "Theologia Naturalis, et Theologia myſtica." He was alſo author of many other works, chiefly on moral and theological ſubjects. Moreri.

PELTARIA, in *Botany*, ſo named by Jacquin, from *pelta*, a ſhield or target, in alluſion to the ſhape of the ſeed-veſſel. Jacq. Enum. Stirp. Vind. 260. Linn. Gen. 336. Schreb. 439. Willd. Sp. Pl. v. 3. 471. Mart. Mill. Dict. v. 3. Gærtn. t. 141. (Clypeolæ ſpecies; Juſſ. 240. Lamarck Illuſtr. t. 560. f. 2.)—Claſs and order, *Tetradynamia Siliculoſa*. Nat. Ord. *Siliquoſæ*, Linn. *Cruciferæ*, Juſſ.

Gen. Ch. *Cal.* Perianth inferior, of four ovate, concave, erect, coloured deciduous leaves. *Cor.* cruciform, of four obovate, entire, flat petals, whoſe claws are ſhorter than the calyx. *Stam.* Filaments ſix, awl-ſhaped, the two oppoſite ones ſhorteſt, and equal to the calyx; anthers ſimple. *Piſt.* Germen roundiſh, compreſſed; ſtyle ſhort; ſtigma ſimple, obtuſe. *Peric.* Pouch roundiſh, compreſſed almoſt flat, entire, of one cell, not burſting. *Seeds* from one to three, roundiſh, compreſſed, emarginate.

Eſſ. Ch. Pouch nearly orbicular, entire, compreſſed, of one cell, not burſting, with from one to three ſeeds.

Obſ. Juſſieu reduces this genus to *Clypeola*, and he is followed by Lamarck; but the only genuine ſpecies of the latter, which is *Ionthlaſpi*, has toothed ſtamens, like *Alyſſum*; and Gærtner obſerves, that the valves of its pouch are really diſtinct and ſeparable, which is not the caſe in *Peltaria*. He therefore retains the latter, for this particular reaſon more eſpecially. In aſſenting to this however we can only inſiſt upon the original ſpecies. *P. Garcini*, Willd. n. 2, appears by Burmann's figure, Fl. Ind. t. 46. f. 1, to be, as Mr. Brown has ſuggeſted to us, probably an *Iſatis*. *P. capenſis*, Linn. Suppl. 296, has, as Willdenow well obſerves, a pouch of two cells, with diſtinct valves and a membranous partition. Its habit is like a *Heliophila*. Whatever it may be, it is no *Peltaria*.

1. P. *alliacea*. Garlick-ſcented Peltaria. Linn. Sp. Pl. 910. Jacq. Auſtr. t. 123. (Bohadſchia; Crantz Stirp. Auſtr. faſc. 1. 2. t. 1. f. 1. Clypeola perennis; Arduin. Spec. 1. 16. t. 6. Thlaſpi montanum primum; Cluſ. Hiſt. v. 2. 130. T. pannonicum Cluſii; Ger. Em. 266.)—Native of ſtony mountainous places in Auſtria, near the lofty Schneeberg. It was introduced into our gardens in the time of Cluſius, as he himſelf mentions, and is ſtill preſerved, for the ſake of curioſity, in Botanical collections, flowering in May, and ripening ſeed a month or ſix weeks later. The *root* is perennial. *Plant* like ſome ſpecies of *Thlaſpi*, as *perfoliatum* and *alpeſtre*, but larger. The *leaves* are ovate, entire, ſmooth, of a light glaucous hue, claſping the ſtem with their arrow-ſhaped baſe. *Flowers* white, rather ſmall, in ſeveral terminal ſlender-ſtalked *corymbs*, which at length become racemoſe. *Pouches* orbicular, but very irregular in their outline, about a quarter of an inch broad, reticulated with prominent veins, the cavity of much leſs diameter than the whole pouch.—The herb when bruiſed has an unpleaſant garlick ſcent, ſomewhat like that of *Eryſimum Alliaria*. The *ſeeds* are bitter and acrid.

PELTASTES, πελταστης, among the *Ancients*, one who uſed the buckler called *pelta*.

PELTATUM FOLIUM, in *Botany*, a peltate leaf, is ſo called from the inſertion of the footſtalk into ſome part of its diſk, whether towards the centre or near the margin, which mode of attachment is compared to a ſhield preſented at arm's length. Such is the leaf of the *Tropæolum*, whoſe inſertion is nearly central, and that of *Pelargonium peltatum*, in which it is nearer the baſe, ſometimes, if we miſtake not, gradually diſappearing, or varying, into the common mode of attachment. See PELARGONIUM.

PELTIDEA, in *Botany*, ſo named by Acharius, from πελτη, *a target*, ſee PELTA, and ειδος, *form or ſhape*; a genus of the natural order of LICHENES, for whoſe characters, with mention of ſome principal ſpecies, we refer the reader to that article, n. 18. The genus is divided, in the *Methodus* of Acharius, into four ſections.

Section 1. EMPROSTEA. *Targets nearly marginal, on the upper ſurface of the frond.*

This ſection conſiſts of ten ſpecies, of which *venoſa*, Engl. Bot. t. 887, and the common *canina*, t. 2299, are examples; and from which is now excluded by its author the *chlorophylla*, n. 7. as being a variety of *Cetraria ſepincola*. To this point we cannot ſpeak; but *collina*, Engl. Bot. t. 1834, is now admitted by Dr. Acharius, as poſſibly diſtinct from *rufeſcens*, t. 2300, ſo that the number of ſpecies in this diviſion remains unaltered.

Section 2. OPISTERIA. *Targets nearly marginal, at the back of the frond.* Two, which Acharius conſidered as certain ſpecies, form this ſection; *polaris*, (Jacq. Miſc. v. 2. t. 10. f. 1.) and *reſupinata*, Engl. Bot. t. 305. To theſe are ſubjoined as doubtful, what we can aver to be no leſs certain and diſtinct than the others, *parilis*, Engl. Bot. t. 2360, and *celluloſa*, a curious ſpecies brought by Mr. Menzies from the ſtraits of Magellan.

Section 3. PLEUROTHEA. *Targets lateral, ſcattered over the upper ſurface of the frond.* The beautiful *crocea*, Engl. Bot. t. 498, is the only example.

Section 4. PEROPHORA. *Targets lateral, ſunk into hollows in the upper ſurface.* The only certain ſpecies is *ſaccata*, ibid. t. 288. Two doubtful ones, unknown to us, are *eſculenta* and *velleiformis*; the former deſcribed in Pallas's Travels, t. 1. f. 4; the latter by Bellardi, in his Appendix to the Flora Pedemontana.—The plants of theſe two ſections are now referred by Acharius to his genus *Arthonia*, a meaſure from which we have already, under the article above referred to, preſumed to expreſs our diſſent.

PELTUINUM, in *Ancient Geography*, a town of Italy, in the territory of Samnium.

PELUA, a town of Illyria, on the route from Sirmium to Salonæ, between Salva and Æquum, according to the Itinerary of Antonine.

PELVIS, in *Anatomy*, is a large irregular bony cavity, open above and below, and forming the inferior end of the trunk. At the upper and back part its parietes ſupport the vertebral column, and they are ſuſtained below and towards the front by the thighs, to which they tranſmit the weight of the body; thus a well-marked ſpace, which meaſures the immediate baſe of ſupport of the trunk, is left between the plane of the limbs and of the ſpine. In a well-formed individual the pelvis divides the body into two equal halves: that is, if a line be drawn acroſs its middle, the upper and lower portions of the body have the ſame length. This rule, however, is ſubject to ſome exceptions: the lower limbs are imperfectly developed in the fœtus; and, in unuſually tall or ſhort adult individuals, the lower extremities or the trunk exceed the juſt proportion.

The pelvis is ſymmetrical, but of a figure not eaſily defined. It forms, by its upper portion, a cavity nearly oval in the tranſverſe direction, expanded at the ſides, and hollowed out in front, communicating by an elliptic opening, called the ſuperior aperture (détroit ſupérieur), with its lower portion, which is much ſmaller in ſize, and ends below by an opening called the inferior aperture (détroit inférieur).

Lines drawn from one ſide of the pelvis to the other are horizontal, becauſe, on account of the ſymmetry, the parts on the two ſides are exactly on the ſame level.

The poſition of the pelvis is oblique, the back part being conſiderably higher than the front: this obliquity is well ſeen in the ſuperior aperture, which ſlants very manifeſtly from above downwards and forwards: the inferior aperture looks downwards and backwards. Sœmmerring ſtates, that in the erect attitude, the laſt bone of the coccyx is an inch higher than the inferior edge of the ſymphyſis pubis; and that the promontory of the ſacrum is higher than the ſame point, by the whole depth of the ſacrum and coccyx. (Oſteologia, § 432.) The ſymphyſis pubis is oblique, from before backwards and downwards; and the upper part of the ſacrum ſlants in the ſame direction. The axis of the upper or broad part of the pelvis (the *greater pelvis*) is nearly perpendicular: that of the lower or ſmaller diviſion (the *leſſer pelvis*) ſlants from above downwards, and from before backwards. It is ſaid to correſpond to a line drawn from the apex of the os coccygis to the umbilicus. This line would cut the level of the pelvis nearly at a right angle: that is, the meeting of the two lines would form an angle of 75 degrees in front, and of 105 behind. The weight of the trunk being obliquely tranſmitted to the thighs, in conſequence of this inclination of the pelvis, it follows, ſays Bichat, that the latter is the ſeat of a decompoſition of motion in this tranſmiſſion, proportioned to the degree of inclination, which is about thirty-five or forty degrees at the upper part, where we can eaſily eſtimate it by the line, which extends from the ſacro-vertebral articulation to the upper edge of the ſymphyſis pubis.

The capacity of the pelvis differs remarkably in man and woman. It is manifeſtly larger in the latter in every direction: thus the two iliac criſtæ, the two anterior, and the two poſterior ſpines, the cotyloid cavities, the tuberoſities of the iſchia, &c. &c. are further apart. Theſe are all tranſverſe meaſurements, and thoſe from before backwards are greater, as we may ſee in meaſuring from the ſacrum to the pubes, from the anterior to the poſterior ſpine, from the ſacro-iliac articulation to the foramen ovale, &c. The oblique meaſurements, from one ſide to the other, are alſo larger in the female. The ſuperior aperture often exhibits deviations from the accuſtomed arrangement, in the diminution of its diameters ſubſequently to birth; and theſe are generally cauſed by rachitis, which exerts its effects more on the antero-poſterior, than on the tranſverſe or oblique diameters, becauſe the weight of the upper parts, tranſmitted by the ſpine, is the principal exciting circumſtance.

The breadth of the pelvis in the female produces ſome difficulties in progreſſion; but the paſſage of the child in parturition is facilitated. It performs an important part in this function, beſides having the ſame offices as in man, *viz.* thoſe of forming the baſis of ſupport to the trunk, and of containing and protecting the viſcera.

The comparative height of the pelvis in the male and female is exactly the inverſe of the breadth. The meaſurement from the criſta of the ilium to the tuberoſity of the iſchium, the depth of the ſymphyſis pubis, and the length of the canal formed by the ſmaller pelvis, are conſiderably greater in men than in women.

There are ſome individual varieties in the dimenſions of the pelvis, but they depend very little on ſtature. Parturition is as eaſy in ſmall as in large women, although the former frequently produce very large children.

The pelvis is formed of few but very broad bones, united in ſuch a manner, as not to admit of motion on each other; it can be moved therefore only altogether, and not partially. Four bones enter into its compoſition; two poſterior, ſymmetrical, and placed on the middle line, are the ſacrum and coccyx; two anterior and irregular, tranſmit to the thigh bones the weight of the trunk, which they have received from the ſacrum; they are the oſſa innominata. The ſacrum and coccyx, placed at the back of the pelvis, form a continuation of the vertebræ, and are conſtructed in a mode ſimilar to that of the vertebræ. In moſt quadrupeds this prolongation of the ſpine is much more extenſive, and forms the tail, which goes conſiderably beyond the anus, while in man, that opening is ſituated a little farther than the end of the coccyx. The ſacrum and coccyx are deſcribed under the article SPINE; the oſſa innominata under EXTREMITIES.

Articulations of the Pelvis.—The relations of the vertebral column to the pelvis are maintained by the articulation of the laſt vertebra to the ſacrum, and to the os innominatum. The coccyx is articulated to the ſacrum. The two oſſa innominata are joined to the ſides of the ſacrum, and to each other in front.

1. *Sacro-vertebral Articulation.*—It is formed by two articular ſurfaces, belonging to the lumbar vertebra and the ſacrum, and reſembling, in every reſpect, thoſe by which the vertebræ correſpond to each other. The uniting media are alſo the ſame with thoſe deſcribed in the account of the vertebral column; *viz.* anterior and poſterior vertebral ligaments, which are prolonged to the ſacrum, a fibro-cartilage between the latter and the body of the vertebra, a yellow ligament between the laminæ of the latter and the back of the orifice of the ſacral canal, an interſpinal ligament uniting the middle ridge of the ſacrum to the ſpinous proceſs of the vertebra; and the ſupra-ſpinal ligament, which ends here upon the ſacrum. The diſpoſition and ſtructure of all theſe, as well as of the ſynovial membranes belonging to the articular proceſſes, are exactly the ſame as thoſe of the correſponding parts in the ſpine. (See SPINE.) This articulation has however one ligament peculiar to itſelf, extending from the lower and anterior part of the tranſverſe proceſs of the vertebra, obliquely outwards and downwards to the ſacrum, decuſſating the anterior fibres of the ſacro-iliac articulation. It is ſhort and ſtrong, covered by the pſoas in front, by cellular tiſſue and ligaments behind.

2. *Sacro-coccygeal Articulation.*—This is analogous to the joints of the ſpine: it is formed by two oval ſurfaces of the ſacrum and coccyx, ſtrengthened by a fibro-cartilage, and by an anterior and poſterior fibrous band.

The fibro-cartilage is analogous to thoſe of the ſpine, but much thinner, and allows much freer motion of the connected parts. The three ſmaller pieces are connected to each other and to the firſt piece by fibro cartilages analogous to this. The little tendency of theſe fibro-cartilages to oſſification explains why the four pieces of the coccyx remain ſo long ſeparate.

The anterior ligament is very thin, and often ſcarcely perceptible. It conſiſts of ſome parallel fibres, varying in length continued from the pelvic ſurface of the ſacrum to that of the coccyx. Sometimes there are two more ſtrongly marked lateral faſciculi.

The poſterior is a much more conſiderable ligament, and, beſides ſtrengthening the articulation, has the office of completing behind the end of the vertebral canal. It is fixed above to the edges of the excavation, which terminates the canal, and deſcends perpendicularly to the ſpinal ſurface of the coccyx, on which it is expanded. It is covered by the ſkin behind, and has a few fibres of the gluteus magnus adhering to it. In front it correſponds, firſt, to the end of the

the ſacral canal, then to the ſurface of the ſacrum within the excavation at the end of the canal, and laſtly to the coccyx.

3. Connection of the laſt lumbar vertebra to the os innominatum : (*vertebro-iliac articulation*).

A ligament, called ilio-lumbar (lig. pelvis anticum ſuperius et inferius) is the medium of connection. It is fixed to the point of the tranſverſe proceſs of the laſt vertebra, and ſometimes of the fourth alſo, goes horizontally outwards, and is fixed to the poſterior and ſuperior ſpine, and to the criſta of the os innominatum.

Its fibres are often divided into ſeveral faſciculi, ſeparated by cellular tiſſue, of which the ſuperior are longer than the inferior ones. It is a ſtrong ligament, covered in front by the pſoas, behind by the vertebral muſcles, correſponding above to the quadratus lumborum, and below to the ſacro-iliac ligaments.

4. *Sacro-iliac articulation*,—ſacro-iliac ſymphyſis, or poſterior ſymphyſis of the pelvis.

The broad and irregular oppoſed ſurfaces of the ſacrum and os innominatum are covered by a cruſt of cartilage, which has been generally repreſented as ſingle, and common to the two bones. Bichat conſiders that each ſurface has its own covering, and that the inveſtment of the ſacrum is rather the thickeſt. When the bones are torn aſunder, the two ſurfaces are rough ; and Bichat deſcribes a ſoft yellowiſh ſubſtance between them, which he regards as analogous to ſynovia. In the child this is white and really fluid, and the cartilaginous ſurfaces are much ſmoother and more diſtinct. The bones are tied together by the following ligaments.

The poſterior or great ſciatic ligament (ligamentum tuberoſo-ſacrum) is thin, flattened, nearly triangular, and ſituated at the lower and back part of the pelvis. It ariſes from the end of the criſta ilii, and from the ſides and back part of the ſacrum and coccyx, being at firſt very broad: it becomes narrower and thicker, and paſſes obliquely outwards and downwards to the tuberoſity of the iſchium ; in which it is inſerted, growing again a little broader. A little prolongation runs beyond the tuberoſity, and is fixed to the edge of the bone in front. This ligament is compoſed of fibres more oblique in their direction in proportion as they are higher, converging from the ſacrum to the os innominatum, and often ſeparated by intervals occupied by a fatty cellular ſubſtance and veſſels. It is covered behind by the gluteus magnus, of which the fibres are inſerted in it. In front it correſponds, on the inſide, to the leſſer ſacro-ſciatic ligament, to which it is united ; on the outſide to a triangular aperture ſeparating it from that ligament, and traverſed by the obturator internus, and the pudic veſſels and nerve.

The anterior or ſmall ſacro-ſciatic ligament (lig. ſpinoſo-ſacrum) is placed in front of the former, and reſembles it in form, but is leſs oblique. Its attachments to the ſides of the ſacrum and of the coccyx are confounded with thoſe of the former. Thence it paſſes outwards and forwards, becoming narrower and thicker, and is fixed to the apex of the ſpinous proceſs of the iſchium. Its fibres are more nearly tranſverſe in proportion as they are higher, ſeparate into diſtinct faſciculi, and leaving cellular and vaſcular intervals between them. It correſponds behind to the former ligament, and to the pudic veſſels and nerve. In front it contributes, as well as the poſterior ligament, to complete the ſides of the pelvis, of which the bony parietes are here interrupted. Its fibres are mixed with thoſe of the coccygeus muſcle.

A very ſtrong flattened perpendicular ligament (ligamentum poſticum longum oſſis coxæ, lig. ſacro-épineux) paſſes from the poſterior and ſuperior ſpine of the os innominatum to the lateral and back part of the ſacrum. The ſuperficial fibres are the longeſt, and they become ſhorter as they are more deeply ſeated. It is a very ſtrong compact ligament, and holds the two bones together nearly motionleſs in the natural ſtate. A faſciculus, ſituated more deeply than the former, (lig. poſticum breve,) goes obliquely from the poſterior inferior ſpine to the ſacrum, and rather decuſſates with the former, to which it is much inferior in length and ſtrength.

The *ſacro-iliac ligament* is a large aſſemblage of denſe, ſhort, and cloſe fibres, occupying the irregular ſpace left between the ſacrum and os innominatum, behind their articular ſurfaces. It paſſes tranſverſely from one bone to the other, and is attached to the rough unequal part behind the point of contact of the two bones. Its form is irregular, like that of the ſpace which it occupies. The poſterior fibres are the longeſt, whiteſt, and moſt diſtinct, and form a particular layer : in front they are ſhorter, in proportion as they are nearer to the articulation. Their reſiſtance is ſo conſiderable, either in conſequence of their number or ſhortneſs, that, when the ſacrum is forcibly detached from the os innominatum, the ligamentous fibres are not torn, but detached from one or the other bone, leaving the ſurface bare.

Beſides the two ligaments juſt deſcribed, ſeveral fibres of different length and direction paſs over the ſacro-iliac ſymphyſis, from one ſide to the other, on its upper and anterior parts. They ſtrengthen the joint, but do not require a particular deſcription.

5. *Symphyſis Pubis*.—Before we deſcribe it, we ſhall notice a ligament, not belonging to it, but requiring, from its ſituation, to be conſidered in this place.

The *obturator* ligament occupies the foramen ovale, which it ſhuts up almoſt entirely. It is a thin plate, fixed to the circumference of the foramen, except at the upper part, where a groove is left, completing the channel through which the obturator veſſels and nerve paſs. Its fibres are interwoven in every direction, and form in many parts prominent faſciculi, which are particularly diſtinct near the groove. It correſponds, by its two ſurfaces, to the two obturator muſcles, which are inſerted in it.

The oſſa innominata are joined in front by two oppoſed oval ſurfaces. Numerous fibres paſs from one to the other : they are tranſverſe, and more denſe and cloſe in the male than in the female. They may be ſeen by tearing the bones apart from behind, when they are ruptured in the middle, and not detached from the ſurfaces, as in the ſacro-iliac ſymphyſis. They form concentric laminæ, which decuſſate, and the moſt ſuperficial of which extend round the joint, while the others occupy only the upper or lower portion. In ſome ſubjects the fibrous laminæ ariſe from the whole breadth of the articular ſurfaces ; but in moſt, particularly in women, thoſe ſurfaces preſent behind two ſmall cartilaginous incruſtations, contiguous to each other, moiſtened by a whitiſh or yellowiſh fluid, but not furniſhed with a diſtinct ſynovial membrane. Sometimes theſe cartilaginous incruſtations occupy nearly the whole breadth of the ſurfaces in women, and then the fibres are in ſmaller quantity. The latter and the cartilaginous incruſtations are in an inverſe ratio to each other, and the proportions are very variable. According to theſe varieties the bones are more or leſs ſtrongly tied together.

This and the ſacro-iliac ſymphyſis form a kind of connection intermediate between the moveable and immoveable articulations.

The following ligaments ſtrengthen this articulation.

A thick and diſtinct faſciculus of triangular ſhape (lig. ſous-pubien) occupies the upper part of the arch of the pubes, which it completes, being fixed to the oblique ramus of each bone at its upper and internal part. Its fibres are long below, and correſpond to the cellular tiſſue about the urethra: they are ſhorter above, and continuous with the interarticular fibres.

The anterior ligament is not ſo diſtinct as the laſt. It is decuſſated and covered in front by the aponeuroſis of the abdominal muſcles, under which it forms ſeveral ſtrata. The moſt ſuperficial conſiſts of oblique fibres, which ariſe at the upper part of the articulation, ſeparate from each other as they deſcend, and form two faſciculi, which are loſt on the front of the two branches of the arch. The others have an oblique or tranſverſe direction, are much ſtronger, and go from one bone to the other, confuſed below with the interarticular laminæ.

The articulation is ſurmounted above by various fibres, which ſtrengthen it: the interarticular laminæ project behind towards the pelvis, and this prominence, which is moſt conſiderable in the female, marks the middle of the junction.

General Deſcription of the Pelvis.—The pelvis, taken altogether, is a cavity of conical form, of which the baſis is turned upwards, and the apex downwards. We have to conſider in it the external and internal ſurfaces, and the ſuperior and inferior circumferences.

The *external ſurface* comprehends four regions: an anterior or pubic, a poſterior or ſacral, and two lateral or iliac.

The anterior is the leaſt extenſive, and exhibits, 1ſt, on the median line, the ſymphyſis pubis, which is longer in men than in women, and covered by ligamentous fibres; 2dly, on each ſide, and from within outwards, the quadrilateral ſurface, to which the adductors are fixed, the foramen ovale, and the cotyloid cavity.

The poſterior region, longer but ſenſibly narrower than the preceding, offers, 1ſt, on the middle line, the ſeries of ſacral ſpinous proceſſes, or the continued ridge, which ſupplies their place; the triangular excavation, which terminates the ſacral canal; a ſuture indicating the union of the ſacrum and coccyx; and the ſpinal ſurface of the latter. 2dly. On each ſide, and from within outwards, the ſacral channels, and their foramina; a deep depreſſion correſponding to the ſacro-iliac ſymphyſis, which is covered by a thick layer of ligamentous fibres; and the poſterior prominent tuberoſity of the os innominatum.

The lateral regions are formed by the broad external ſurfaces of the oſſa innominata, bounded below by the iſchiatic notches.

The *internal ſurface* is manifeſtly divided into two portions: a ſuperior broader one, or the great pelvis; an inferior, which is narrower, and forms a kind of canal, called the ſmaller pelvis, or ſimply the pelvis.

The great pelvis preſents, behind, the ſacro-vertebral articulation; and on the ſides the internal iliac foſſæ. The ſuperior portions of the oſſa innominata are expanded horizontally, and ſuſtain the principal weight of the abdominal contents. This arrangement is connected with the erect attitude of the human ſubject. For a further explanation of the differences between the pelvis of man and animals, ſee the article MAN. The bony parietes are not continued towards the front, where there is a large excavation, filled by the abdominal muſcles.

The ſuperior aperture of the pelvis is the more or leſs prominent line, beginning from the ſides of the ſacrum, extending obliquely downwards and forwards along the middle of the os innominatum, where it is called linea ilio-pectinea, to the upper and front part of the pubes, and forming the communication between the great and the ſmall pelvis. It deſcribes an oval, with the long axis placed laterally, and is much more ſtrongly marked in front than behind.

The ſmall pelvis, much narrower, but longer than the great, forms a kind of canal, wider in the middle than at the ends, and filled by the bladder and rectum in man; and by the ſame parts, with the addition of the uterus and vagina in women. We obſerve, in front of it, two ſurfaces correſponding to the bladder, ſeparated by the ſymphyſis pubis, and bounded by the thyroid foramina; behind, the concavity of the ſacrum, with its foramina, terminated by the lines which mark the ſacro-iliac ſymphyſes; on the ſides, the ſciatic notch completed by the ligaments of the ſame name, and the quadrilateral ſurface, which ſeparates the notch from the foramen ovale.

The *ſuperior circumference* forms a very irregular line, ſlightly inclined forwards, and very much expanded in the female. It preſents, behind, the ſacro-vertebral articulation, bounded on each ſide by a marked depreſſion, in which we obſerve the trace of the ſacro-iliac ſymphyſis; in front, the large excavations already noticed, formed by the anterior portions of the upper edges of the oſſa innominata; on the ſides the two iliac criſtæ.

The *inferior circumference*, called alſo the inferior aperture, is directed downwards and backwards, and is remarkable for three eminences ſeparated by three notches. The two anterior prominences are the tuberoſities of the iſchia: the poſterior and middle one is formed by the coccyx, which does not deſcend ſo far as the tuberoſities; ſo that, in the ſitting attitude, the latter alone ſupport the weight of the body. The notches have an arrangement exactly inverſe of that of the prominences: two are poſterior, and one anterior. The latter is called the arch of the pubes. The oblique and oblong portion, which bounds the foramen ovale in front, contributes on each ſide to its formation. It is terminated above by an angle, nearly acute in man, rounded in women, occupied almoſt entirely by the generative organs and urethra in both ſexes. The poſterior notches lie between the ſacrum and the tuberoſities of the iſchia. The ſacro-ſciatic ligaments divide each into three portions: the ſuperior is a large hole, through which the pyramidalis muſcle, the ſciatic nerve, and the gluteal, ſciatic, and pudendal veſſels paſs. The ſecond is a leſs extenſive hole than the former, giving paſſage to the obturator internus, and the pudendal veſſels. The third is the general opening, placed in front of the coccyx, and between the ſacro-ſciatic ligaments, in which the termination of the rectum is placed, ſurrounded by much cellular tiſſue.

We have ſtated already, in general terms, that there are great differences between the male and female pelvis; that the latter is wider in all its dimenſions, and deeper from before backwards, while the former meaſures the moſt in the perpendicular direction. Hence the cavity of the pelvis is more capacious, and fitted to receive the uterus and vagina, in addition to the parts which it contains in the male, and to give paſſage to the child in parturition. The diſtinctions of the two ſexes, in this reſpect, are to be traced through all parts of the pelvis. The ilia are more horizontally expanded, the ſacrum more convex, the arch of the pubes much wider and more rounded above in the female than in the male. The ſuperior aperture in the latter has a contracted triangular figure, with the baſis turned backwards, and the apex forwards: the inferior aperture is remarkably ſmall, when compared to that of the female. In conſequence of this great width of the pelvis in women, that is the broadeſt part of their trunk, while in man the ſhoulders are the broadeſt, and the pelvis the narroweſt.

The following is a comparative view of the dimenſions of the male and female pelvis, taken from Soemmerring's Oſteology, § 446. The meaſure is probably Rhynland, of which the foot is to the Engliſh as 1033 to 1000.

	In the Male.	In the Female.
The diſtance between the ſuperior ſpines of the oſſa innominata - -	9 in. 0 l.	11 in. 0 l.
The ſuperior aperture between the oſſa innominata -	4 6	5 6
The ſmaller or conjugate diameter of the ſame aperture, that is, from ſacrum to pubes -	4 to 5 in.	4 8
The oblique diameters, from the ſacro-iliac ſymphyſis to the pubes - -	4 in. 2 l.	5 0
Between the tuberoſities of the iſchia - -	3 2	4 0
From the apex of the coccyx to the pubes - -	3 0	4 6
From the tuberoſity of the iſchium to the ſuperior aperture	4 10	3 6
The depth of the ſymphyſis pubis - -	1 10	1 6
From the margin of the ſacrum to the apex of the coccyx -	4 10	5 0
Angle of union of the oſſa pubis	60° to 80°	90°

Progreſſive Developement of the Pelvis.—The fœtus, the adult, and the old ſubject, preſent eſſential differences in this part.

In the fœtus it is ſmall in proportion to the reſt of the body; it follows, in its growth, nearly the ſame laws as the lower limbs. This diſproportion contributes to the marked prominence which the abdomen of the fœtus preſents. The ſmallneſs of the pelvic cavity leaves no room for the inteſtines in that part; even the urinary bladder is in the abdomen, which is moreover dilated in conſequence of the great bulk of the liver. The ſize of the abdomen, which is very conſiderable from the cauſes above-mentioned, becomes more ſtriking in conſequence of the pelvis being ſo very ſmall.

The upper part, or great pelvis, which belongs to the abdomen, is more developed than the lower, which contains the generative organs, and affords the point of ſupport to the lower limbs. The iliac foſſæ are not ſo much expanded horizontally, nor ſo deep. All the dimenſions of the pelvis are very ſmall at this time; but the tranſverſe meaſurements are particularly contracted. The direction of the cavity is more inclined.

The middle of the ſacrum, which is concerned in forming the vertebral canal, is already much advanced, but the lateral portions are more backwards; ſince the foramina are proportionally nearer to the ſacro-iliac ſymphyſes. The poſterior prominences hardly exiſt. The pieces correſponding to the bodies of the vertebræ, like thoſe bodies, are rounded and imperfect in front, more developed behind, where they form the canal. The coccyx is ſmall, and contains only oſſeous rudiments.

The three portions compoſing the oſſa innominata are developed towards their middle; but the circumference, and all the prominences, are cartilaginous. The cotyloid cavities are almoſt entirely in this ſtate, and not capable of affording to the thighs a degree of reſiſtance ſufficient for the purpoſes of ſtanding and walking.

As age advances, the pelvis is more developed to fulfil the important functions, which it has to execute in locomotion and ſtanding, as well as in regard to the generative functions. It becomes leſs inclined in its poſition, and gradually acquires thoſe proportions and dimenſions which we have already indicated in the general deſcription. Its developement is earlier in the female than in the male, ſo that in many individuals the cavity is ſo far formed as to anſwer the purpoſes of parturition at the age of nine or ten years. The pieces which compoſe the ſacrum and os innominatum, are conſolidated about the age of puberty. The cartilage between the rami of the pubes and iſchium diſappears ſooner. The criſtæ, and the tuberoſities of the oſſa innominata, remain to a later period, and the former are the laſt in their completion.

The pelvis experiences very little change in old perſons; its bones are very ſeldom anchyloſed, except the ſacro-coccygeal articulation. Their unions, however, are more denſe and ſolid. The general direction of the cavity is altered, the obliquity being leſſened.

Mechaniſm of the Pelvis.—We muſt conſider it as it is concerned in four principal functions; 1ſt, as the ſupport of the trunk in ſtanding and ſitting; 2dly, as the point on which the thighs are moved; 3dly, as executing itſelf various motions; and 4thly, as forming a large cavity, lodging various important viſcera.

In ſtanding, the pelvis is placed between two oppoſite forces; *viz.* the weight of the body tranſmitted to it by the vertebral column, and the reſiſtance oppoſed by the thighs; hence it would be carried backwards on the thighs, if the powerful muſcles extending from the latter to the front of the vertebral column, did not maintain it in the horizontal poſition. The baſis of ſupport of the trunk then occupies the ſpace included between the line of the ſpine, and of the hips. This ſpace is narrower in the fœtus and child, becauſe the greater obliquity of the pelvis brings the thighs nearer to the line of the ſacrum; hence ſtanding is more difficult, and becomes eaſier in proportion as the elevation of the pubes widens the baſe of ſupport. The figure of the ſacrum, which is received like a wedge between the oſſa innominata, is well calculated for the office which it ſerves, of tranſmitting to the latter the weight of the trunk, and for preventing it from being depreſſed between them.

The pelvis reſts on the tuberoſities of the iſchia in the ſitting attitude; ſo that the baſis of ſupport is rather enlarged towards the front, the line of theſe tuberoſities being rather anterior to that of the cotyloid cavities. The horizontal extenſion of the lower limbs, either in whole or in part, according as we ſit on the ground, or on a more elevated ſeat, is another circumſtance contributing very greatly to extend the baſis of ſupport towards the front, in the ſitting attitude.

In conſidering the pelvis as the point on which the lower limbs are moved, its mechaniſm belongs particularly to progreſſion. The ſeparation of the two cotyloid cavities produces an analogous ſeparation of the thighs, and thus increaſes the extent of their motions. The pubes may be regarded in the lower extremity as having the ſame uſe with the clavicle in the upper; with this difference, that the latter is moveable, and accompanies all the motions of the humerus, while the former is fixed. The interval between the acetabula is more conſiderable in the female, becauſe all the tranſverſe meaſurements of the pelvis are greater. Hence the progreſſion of females has in it ſomething peculiar, ariſing from the greater portion of a circle which the pelvis has to deſcribe at each ſtep. In the child, where the thigh bones are nearer together, the motions are eaſier but leſs ſecure. At this time the thigh-bones are equally approximated in both ſexes. The pelvis of the male and female hardly differ in the fœtus; the diſtinctive characters are produced at a ſubſequent age.

The pelvis may be moved on the ſpine, or on one or both thighs. It cannot be moved on the vertebral column without the whole body being proſtrate; in that attitude it may be bent, extended, or inclined laterally. Theſe motions do not take place entirely in the ſacro-vertebral articulation, but in the whole of the joints of the lumbar vertebræ; as the more extenſive motions of the head are effected by a general movement in the whole neck.

Flexion of the pelvis upon the two thighs is not ſo eaſily performed, as might at firſt be ſuppoſed. For, if the trunk is much inclined forwards, the centre of gravity is no longer ſuſtained, and the body very quickly falls. The trunk has two points of ſupport; the cotyloid cavities above, and the feet below, the firſt of which is on a line poſterior to that of the ſecond. Hence, when the trunk is bent, the pelvis remaining immoveable, the centre of gravity muſt paſs beyond both in ſucceſſion, before a fall can occur. But, if the pelvis is moved with the trunk, the centre of gravity has a ſingle baſe of ſupport, and ſoon goes beyond it; conſequently the pelvis in general partakes but little in theſe motions; yet it is ſometimes concerned, and then the hip-joints are the centres of motion. In the latter caſe, the legs, thighs, and pelvis, are carried backwards, ſo that the lower limbs deſcribe an oblique line, the upper part being thrown much farther back than the lower. This inclination viſibly enlarges the baſis of ſupport, which would have been too narrow, formed by the feet alone.

Extenſion of the pelvis on the thighs is not more marked than flexion; indeed the ligamentous fibres on the front of the joint prevent the thigh-bone from being carried backwards on the pelvis beyond a ſtraight line, and muſt equally prevent the correſponding motion of the pelvis on the thigh. In inclinations of the trunk backwards, the loins are the ſeat of motion, and not the hip-joints; when we extend this motion as far as poſſible, the pelvis and thigh are both inclined. When the trunk is carried in this direction, the knees are bent forwards, ſo as to give the legs an oblique direction, calculated to ſupport the line of gravity of the trunk, becauſe there is no baſis of ſupport behind, analogous to what the feet offer in front. If we incline the trunk backwards in any ſenſible degree, the lower limbs remaining ſtraight, a fall is inevitable.

Lateral inclination on the two thighs can hardly be ſaid to take place; in fact it cannot be depreſſed on one ſide, without being raiſed on the other; and as the two limbs reſt at the ſame time on the ground, this motion cannot take place.

The motions of the pelvis on one limb are quite different from thoſe which it performs on the two. It can be moved with facility in every direction; lateral inclination and rotation are eaſily executed. The latter movement is ſeen in the pirouettes of dancers. It is very partial, the ſtructure of the hip being ſuch that the pelvis can deſcribe only a ſmall portion of a circle on the thigh.

The particular bones of the pelvis have ſcarcely any motion in the natural ſtate, excepting the coccyx, which can be moved forwards and backwards.

The oſſa innominata are entirely incapable of motion at both their articulations; yet, if the ſymphyſis pubis be cut, there is a degree of mobility in the ſacro-iliac joint. At the time of pregnancy, or after ſeveral utero-geſtations, there is a relaxation of theſe connections, allowing a viſible motion between the two oſſa innominata at the pubes. This phenomenon however is not conſtant.

The organs contained in the cavity of the pelvis are excellently protected from all external ſhocks. The kind of arch formed by the oſſa pubis in front, the thick muſcles, the hip-joints, and the trochanter at the ſides, and the muſcular maſſes of the ſpine behind, conſtitute an effectual proviſion for the reſiſtance of injury. The projection of the oſſa innominata beyond the ſacrum behind, protects the latter bone in caſes of blows or falls on this part of the pelvis.

PELVIS *of Birds*. See *Anatomy of* BIRDS.

PELUS, in *Ancient Geography*, the name of an iſland, ſituated in the vicinity of that of Chios.—Alſo, a mountain of Italy, in Etruria.—Alſo, a torrent of Sicily.

PELUS, in *Geography*, a town of Perſia, in the province of Mecran; 54 miles N.N.E. of Kich.

PELUS *Armena*, in the *Materia Medica*, a name given by ſome of the old writers to the drug that we at preſent call bole armoniac. This was the original name, and the term *bolus armena* is not to be found, but in the later writers.

PELUSIUM, in *Ancient Geography*, a town of Egypt, at the eaſtern extremity of the lake Menzalé, near one of the mouths of the Nile, and, according to Strabo, about two miles from the ſea. Its name, which in Greek ſignifies *mud*, proves its ſituation to be in the midſt of lakes and marſhes; as does alſo the Hebrew term *Sin*, by which the prophet Ezekiel denominates it; and alſo the *Thinah* of the Arabians. The period of its foundation, as well as that of the other ancient cities of Egypt, is loſt in the obſcurity of time. It flouriſhed long before Herodotus. As it commanded the entrance of the country on the ſide of Aſia, the Pharaohs rendered it a conſiderable fortreſs: one of them raiſed a rampart 30 leagues in length, from the walls of this town to Heliopolis. This rampart, which covered Peluſium, did not, however, ſtop Cambyſes, who attacked it with a formidable army. Cambyſes, after a bloody battle, in which he ſlaughtered his enemies, entered Peluſium in triumph. Herodotus, who viſited Peluſium ſome years after the conqueſt of Cambyſes, ſays that he ſurveyed the plain where the two armies had fought, and found it covered with human bones collected in heaps; thoſe of the Perſians on one ſide, and thoſe of the Egyptians on the other. Peluſium, after paſſing under the dominion of Perſia, was taken by Alexander. The brave Antony, general of cavalry under Gabinius, took it from his ſucceſſors; and Rome reſtored it to Ptolemy Auletes. Pompey, after the fatal battle of Pharſalia, took refuge at Peluſium; but he had ſcarcely landed on the ſhore, when Theodore, the rhetorician of the iſle of Chio, Septimius the courtier, and Achillus the eunuch, who commanded his troops, wiſhing for a victim to preſent to his conqueror, ſtabbed him with their ſwords. At the ſight of the aſſaſſins, Pompey covered his face with a mantle, and died like a Roman. They cut off his head, and embalmed it, to offer it to Cæſar, and left his body naked on the ſhore.

Peluſium was often taken and pillaged, during the wars of the Romans, the Greeks, and the Arabs; but in ſpite of her diſaſters, ſhe preſerved, to the time of the cruſades, her riches and her commerce. The Chriſtian princes, having taken it by ſtorm, ſacked it. It never again roſe from its ruins, and the inhabitants went to Damietta. Farama, founded by the Arabs, a little to the eaſtward of Peluſium, took place of it. See FARAMA.

Peluſium gave name to the *Peluſian* branch of the Nile, but nothing now remains of it but ruins. This canal has now no communication with lake Menzalé, except that which is merely temporary, on the ſwelling of the Nile; but at other times it is dry.

Pelusium, a port of Theſſaly. Steph. Byz.

PELUSO, in *Geography*, a ſmall iſland in the Mediterranean, near the coaſt of Natolia. N. lat. 36° 45′. E. long. 28° 56′.

PELUSSIN, or Pellusin, a town of France, in the department of the Loire, and chief place of a canton, in the diſtrict of St. Etienne; 12 miles E. of it. The place contains 3290, and the canton 11,716 inhabitants, on a territory of 140 kiliometres, in 13 communes.

PEMAQUID, a bay of America, on the ſea-coaſt of Lincoln county, in the ſtate of Maine. It lies eaſt of Sheepſcot river, and contains a number of iſlands, many of which are under cultivation. N. lat. 43° 45′. W. long. 69° 30′.

Pemaquid *Point*, a cape on the weſt ſide of the above bay, two miles E. of Booth bay, and about four leagues N.W. of Menhagan iſland. N. lat. 44° 5′. W. long. 69°.

PEMAR, a town of Sweden, in the province of Finland; 12 miles E. of Abo.

PEMARO, a town of Etruria; 15 miles E.S.E. of Leghorn.

PEMBA, or Penda, an iſland in the Indian ſea, near the coaſt of Africa, about 100 miles in circuit, and governed by a king, who is tributary to the Portugueſe. S. lat. 5° 55′. E. long. 42°.

Pemba, a province of Congo, bounded on the north by the province of Sundi, on the eaſt by Batta, on the ſouth by Bamba, and on the weſt by Songo. It is divided into the province of St. Salvador, and the marquiſate of Bamba, from its chief towns. It is generally fertile, more eſpecially towards the eaſt.—Alſo, a town of Congo, and capital of a marquiſate; 75 miles S. of St. Salvador. S. lat. 7° 30′. E. long. 12° 52′.—Alſo, a bay of the Indian ſea, on the coaſt of Africa. S. lat. 13°.

PEMBRIDGE Point, a cape on the eaſt coaſt of the Iſle of Wight. N. lat. 50° 42′. W. long. 1° 56′.

PEMBROKE, or Pembroch, a borough and market-town in the hundred of Caſtle-Martyn, and county of Pembroke, South Wales, is ſituated on a ſingular neck of land, dividing the ſmall eſtuary of Down-Pool, which flows from Milford haven. It is the county town, and, next to Caermarthen, is one of the largeſt and richeſt towns in the ſouthern diviſion of the principality. The period of its foundation is unknown, but it is certainly of great antiquity, and is ſuppoſed to have derived its name from the Britiſh word Penfro, ſignifying a cape, or promontory. It was anciently fortified, and protected by a moſt magnificent caſtle, the vaſt ruins of which ſtill give it an appearance of uncommon grandeur; and was likewiſe defended by a ſtrong wall, ſtill nearly entire, on the northern ſide, where it is flanked by numerous baſtions of great thickneſs and ſtrength. Through this wall were formerly three gates, on the eaſt, north, and weſt ſides; beſides a ſmall poſtern on the ſouth ſide, leading to the marſh. Of theſe gates, that facing the north is the only one now ſtanding; the other two having been long ſince deſtroyed. The eaſt gate, which remained in Leland's time, is deſcribed by him as conſiſting of ſolid iron, and as being highly ornamented and fortified.

The corporation of Pembroke is compoſed of a mayor and council, two bailiffs and ſerjeants at mace, and about 1500 burgeſſes. The mayor holds a court every fortnight, for the deciſion of civil cauſes ariſing within his juriſdiction. Here are alſo held the petty ſeſſions for the hundred of Caſtle-Martyn. The markets are on Wedneſday and Saturday; and the fairs on the 14th of May, Trinity Monday, St. Peter's day, old ſtyle, and 25th of September. Pembroke, in conjunction with the neighbouring boroughs of Tenby and Wiſton, ſend one member to the Britiſh parliament: the mayor is the returning officer. The voters are eſtimated at 500 in number, and are chiefly in the intereſt of the Owen family.

According to the population returns of 1811, this town contains 501 houſes, and 2415 inhabitants. The houſes are ranged principally in one long ſtreet, which extends from eaſt to weſt along the ridge of a hill, and is terminated by the caſtle at the weſt end; bearing in general appearance, but on a ſmaller ſcale, a ſtrong reſemblance to the towns of Edinburgh and Stirling, in Scotland. The public buildings are a town-hall, a free grammar-ſchool, and two parochial churches, dedicated to St. Mary and St. Michael. St. Mary's church ſtands near the centre of the town, and conſiſts of a nave, chancel, and north aiſle, with a ſmall chapel to the ſouth. St. Michael's bears evident marks of great antiquity. The architecture is a rude ſpecimen of the Norman ſtyle, the arches being maſſive, and rounded, and entirely deſtitute of ornament. Both theſe churches are conſolidated with that of Monckton in one vicarage, the impropriation and preſentation of which belong to viſcount Hereford, as proprietor of Monckton priory, and its eſtates. Attached to St. Michael's was a chapel, or hoſpitium, dedicated to St. Mary Magdalen, the ruins of which are now known by the name of the Marlan's chapel. St. Mary's had likewiſe its chapel, called St Anne's; but this edifice is now entirely demoliſhed.

The caſtle, as already mentioned, forms the weſtern extremity of the town, occupying a rocky termination of the ridge on which it is placed. It is a noble ruin, and exhibits, in certain points of view, one of the fineſt ſubjects for the pencil which Wales can boaſt of. This fortreſs, according to Caradoc of Llancarvon, was founded in 1092, by Arnulph de Montgomery, ſon to the earl of Shrewſbury, on the ſcite of a more ancient Britiſh work. It ſeems, however, to have received great additions in the reign of Henry I., and Giraldus even refers its foundation to that period; though he acknowledges the exiſtence of another much more ſlender erection of anterior date. During the wars with the Welſh it was frequently beſieged, but owing to its great artificial ſtrength, and almoſt impregnable natural poſition, it ſeems to have reſiſted ſucceſsfully all the efforts of the aſſailants to reduce it. Oliver Cromwell alſo beſieged it in perſon, in the time of the grand rebellion, and compelled its garriſon to ſurrender, after a long and vigorous attack.

From the period of its ſurrender, Pembroke caſtle has been much neglected, and is now ſo ruinous as to be uninhabitable. It is divided into two parts, called the inner and outer wards; the former of which compriſes the keep and the ſtate apartments; and the latter, the buildings formerly appropriated to the garriſon; though over the principal gateway from the town, and within it, there were alſo ſome very handſome apartments. Here, according to Leland, was "the chambre where king Henri VII. was born, in knowlege whereof a chymneny is new made, with the arms and badges of king Henri VII." This honour, however, is traditionally given to a room in a very ſplendid ſuite of apartments built over "the marvellous vault, entitled the Hogan," which is cut out of the ſolid limeſtone rock, and forms one of the moſt extenſive and lofty excavations of its kind in Great Britain. Its figure approaches that of a circle, the diameter from north and ſouth being 76 feet 8 inches, and from eaſt to weſt 57 feet 4 inches. The natural opening, which was of great width, is built up, and contracted into a ſmall door-way, that appears to have been once ſtrongly barricadoed. Above are the marks of four loop-hole windows, and of another door-way, now ſtopped up. Of the uſes to which this vault was applied there is no account upon record, but it was moſt likely a depôt for ſtores of every kind, "the ſtuffura of the garriſon." At its ſouth-eaſt corner is an adit, traditionally ſaid to communicate with Tenby; and under the ſouth-eaſt baſtion of the caſtle is another very curious paſſage, in ſome parts ſpacious, and in others extremely narrow, which has been explored to a conſiderable diſtance, but its termination is not known. This laſt is doubtleſs, however, in a great meaſure a natural duct; apertures of a ſimilar kind frequently appearing in moſt limeſtone rocks. It is ſuppoſed by ſome to penetrate under the keep that rears its proud head in the centre of this magnificent ruin, terminating, as Leland obſerves, "with a roſe of ſtone, almoſt *in conum*, the toppe whereof is keverid with a flat mill-ſtone." This building is 75 feet in height to the dome, "and in girth 163 feet 7 inches at the baſe, the mean thickneſs of the wall being about 14 feet." It is divided into four ſtories.

The vicinity of the town preſents many objects worthy of attention. Cloſe to its ſouth-eaſtern ſide is the village of Monckton, ſo called from its having been the ſcite of an ancient priory, founded by William Marſhall, about the year 1120, as a cell to the Benedictine abbey of St. Martin at Sayes, in Normandy. Part of the priory church is ſtill entire, as is likewiſe the prior's manſion; but the other buildings are in a ſtate of great decay. From the varied ſtyle of the church, it has evidently been erected at different periods. That portion of it which is now appropriated to public worſhip, is completely modernized within, and ſcarcely a veſtige of its former ornaments remains. This ſtructure has long been the burying-place of the Owens of Orielton, and probably alſo of their predeceſſors the Wyrriots, as ſome early monuments of the latter family ſtill appear here.

The village of Caſtle-Martyn is ſituated about three miles to the weſtward of Pembroke. This place was formerly adorned with a magnificent caſtle, erected by ſome Norman chieftain of the name of Martyn, on the ſcite of an extenſive Britiſh earthen-work. Few veſtiges of that pile now remain, but they appear to have been pretty conſiderable in the time of Leland. Between this village and the county town is a furzy moor, called Dry-Burrow, which is covered with tumuli, ſimilar to thoſe on the downs of Wiltſhire. Northwards from the moor ſtands Orielton, the ſeat of the Wyrriot and Owen families; and beyond it is the village of Pwllcrochon, memorable for a ſkirmiſh between the royal and parliamentary forces, in March 1648. In the church are ſeveral ancient monuments, in honour of the Benegers of Bangeſton. In the adjoining pariſh of Rhôſcrowther is Jeſtington, the reſidence of a branch of the royal family of Wales, previous to the conqueſt: it is now the property of the family of Meares. Further to the weſtward is the village of Nangle, which was formerly a place of very conſiderable conſequence, and had a caſtle attached to it, ſome veſtiges of which are ſtill viſible near the extreme point of the curved promontory, which forms the bay of Nangle.

Creſſely, the ſeat of John Allen, eſq., is ſituated about two miles and a half to the weſt of Pembroke. The houſe occupies an elevated ſcite, overlooking the river Creſwell. Beyond this, on the ſame road, ſtands Carew-caſtle, one of the moſt conſpicuous features of this county, and celebrated as the reſidence of characters of great diſtinction at different eras. It was a royal reſidence, and formed part of the dowry of Neſta, daughter of Rhys ap Tewdor, who married Gerald de Windſor, lieutenant to Henry I., after the outlawry of Arnulph de Montgomery. The deſcendants of this lady took the name of Carew, and continued to poſſeſs the caſtle till the reign of Henry VIII., when it reverted to the crown, and was granted to ſir John Perrot In the time of the great rebellion, it was garriſoned for the king, and withſtood a long ſiege; but after the ill ſucceſs of the royaliſts at Tenby, it ſurrendered upon quarter. Subſequent to that period it has been ſuffered to go to decay, and now conſtitutes a moſt magnificent and pictureſque ruin. Its form is that of a quadrangle, with a court in the centre, and an immenſe baſtion at each exterior angle. The architecture of this pile belongs to various ages, but a great part of it is undoubtedly coeval with the original ſtructure. The north front is peculiarly grand and majeſtic, and can boaſt of windows "than which nothing more nobly magnificent is known in the kingdom." On the ſouth-weſt ſide appear a number of old towers, all differing from each other in height, diameter, and form. On three ſides this caſtle is bounded by water, but to the ſouth was formerly a very extenſive deer-park, the outer wall of which is yet apparent in many places, though it is divided into ſeveral diſtinct incloſures, in one of which ſir Rhys ap Thomas held a tilt and tournament, which was the firſt ſhow of the kind recorded to have been exhibited in Wales. Near this ſpot ſtands one of the early croſſes, richly ornamented with true-love knots, &c. and having an inſcription upon it, which, though often copied, and ſubmitted to the examination of the curious, has never yet been accurately decyphered. The church here contains ſeveral ancient monuments, with effigies and inſcriptions in memory of various members of the Carew family.

The other places of note ſituated in this part of the county are Lawrenny, the ſeat of Hugh Barlow, eſq.; Upton, a caſtellated manſion, anciently the reſidence of the Malefants; and Lamphey, or Lanfey-court, a noble ruin, once the favourite palace of the biſhops of St. David's. A chapel, adjoining this palace, exhibits the remains of a very finiſhed piece of maſonry. Stackpool-court, the ſeat of lord Cawdor, alſo deſerves mention. It is built on the ſcite of a former caſtellated ſtructure, and is certainly one of the moſt ſplendid modern manſions in Wales. It has two fronts, and is ſurrounded by very extenſive and well-wooded pleaſure-grounds, which are further adorned by a beautiful lake, and moſt luxuriant gardens. The eſtuary of Stackpool being the only ſafe and commodious landing-place on this coaſt, it was much frequented by the predatory chieftains of ancient times, and particularly by earl Harold, ſome of whoſe ſucceſſes are ſuppoſed to be commemorated by three large upright ſtones, which are fixed here at the diſtance of about a mile from each other. A Hiſtorical Tour through Pembrokeſhire, by Richard Fenton, Eſq., F.S.A., 4to., 1811. The Scenery, Antiquities, and Biography of South Wales, &c. by Benjamin Heath Malkin, Eſq., M.A., F.S.A., 2d edit. 2 vols. 8vo, 1807. The Itinerary of Archbiſhop Baldwin through Wales, A.D. 1187, by Giraldus de Barri, tranſlated, &c. by Sir Richard Colt Hoare, Bart., F.R.S., F.S.A., 2 vols. 4to., 1806.

Pembroke, a townſhip of America, in Plymouth county, Maſſachuſetts; 30 miles S. by E. from Boſton; incorporated in 1752, and containing 1943 inhabitants. Some veſſels have been built here.—Alſo, the *Suncook* of the Indians, a townſhip of Rockingham county, New Hampſhire, on the eaſt ſide of Merrimack river, oppoſite to Concord; incorporated in 1759, and containing 982 inhabitants.

PEMBROKESHIRE, or Pembrochshire, one of the ſouthern counties of Wales, is bounded on the ſouth by the Briſtol channel, on the weſt and north by St. George's channel, and on the north-eaſt and eaſt by the counties of Cardigan and Caermarthen. It is irregular in its form, and deeply interſected throughout its extenſive coaſt by bays and havens. Its extreme length from north to ſouth is about 35 miles, and its greateſt breadth from eaſt to weſt 29. According to the moſt accurate ſurveys, its ſuperficial contents amount to 335,600 acres. According to the population report of 1811, this county is divided into the hundreds of Caſtle-Martyn, Dewiſland, Dungleddy, Kemeſs, Kilgerron, Narberth, and Rooſe; and contains the city of St. David, and three towns, *i. e.* Pembroke, Haverford-weſt, and Tenby: it alſo compriſes 142 pariſhes, and 3 hamlets. The number of houſes is ſtated to be 13,024, inhabited by 60,615 perſons, of whom 27,453 are males, and 33,162 females.

At a very remote period this county formed part of the kingdom of Demetia, or Dyvet, which ſubſiſted as an independent monarchy till conquered by Ethelwolf, king of England. Broghmael, king of Demetia, is mentioned as one of the princes who aſſiſted Caſſibelanus in compelling Julius Cæſar to evacuate Britain. How far this ancient kingdom extended is uncertain; ſome ſuppoſing it to have compriſed the three counties of Cardigan, Caermarthen, and Pembroke; and others, that it was confined to the laſt mentioned county only. In the time of the Daniſh incurſions, this county ſuffered more injury than perhaps any other in the principality. Among the chieftains who commanded in theſe depredations were Hubba and Ivar, or Inguar, both of whom are deſcribed by the old writers as men of the "moſt dreadful ferocity and unheard-of courage."

The name of Pembrokeſhire, or rather Pembrochſhire, was firſt given to this county ſhortly after the Norman conqueſt, and was evidently derived from that of the town which forms the ſubject of a former article. This diſtrict is not unuſually called by the old writers, and even vulgarly at the preſent day, *Little England beyond Wales*, from the circumſtance of the inhabitants in the hundred of Rhos being deſcendants of Flemings and Engliſh, and its courts being formerly ſubject to the king's writs, as appears by ſeveral inſtances of removed pleas, as late as the reign of Henry VI. Concerning the ſettlement of the Anglo-Flemiſh colony here, conſiderable uncertainty prevails in the writings of hiſtorians; ſome aſſerting that the Flemings, who had previouſly ſettled in England, were driven out of that county by Henry I., and ſeized upon Rhos as depredators; but others, with more probability, contend, that they came hither under the ſanction of the Engliſh prince. That they eventually obtained his protection is undoubted, for he placed among them a great number of his own ſubjects, to teach them the Engliſh language, and attach them to Engliſh intereſts. This object he ſeems to have fully ſucceeded in; for we find that the Engliſh inhabitants of Pembrokeſhire were afterwards chief inſtruments in the ſubjugation of the remaining portions of Wales. Many attempts were made by the Welſh to extirpate them from the country, but the moſt determined efforts proved wholly unavailing. At Llandilovaur the deciſive battle was fought between Edward I. and Llewellyn, which enſured the final conqueſt of Wales, and its annexation to the Engliſh crown.

In later times, Milford, a port in this county, is remarkable as having been the landing-place of Henry, earl of Richmond, afterwards king Henry VII., when he came from Brittany to wreſt the throne of England from the uſurper, Richard III. During the era of the civil wars, in the reign of Charles I., ſeveral of its caſtles, particularly thoſe of Pembroke and Roch, were garriſoned for the king, and withſtood long and obſtinate ſieges in the royal cauſe. Some ſkirmiſhes likewiſe appear to have been fought within Pembrokeſhire, at the ſame period, and with various ſucceſs. Even ſo late as the year 1797, Fiſhguard is rendered memorable by the landing of a French force of 1400 men in its immediate vicinity; an event which created conſiderable alarm, but which was attended with trivial injury to the inhabitants. Upon the collection of a conſiderable body of military, the French general propoſed to ſurrender, which he accordingly did the day ſubſequent to his landing.

The aſpect of this county preſents an almoſt continued ſucceſſion of "ſwells, or eaſy ſlopes;" but there are no mountainous ridges, excepting one which runs from the coaſt near Fiſhguard, to the borders of Caermarthenſhire. Theſe hills are locally denominated "the mountains," and the inhabitants diſtinguiſh the country with reference to them; the north ſide being ſaid to be above the mountains, and the ſouth ſide below the mountains. The central portion of this ridge is known by the name of Percelly, and its higheſt ſummit by that of Cwmkerwyn: it commands a view over the whole county. Another high point is called Carn-Englie, as tradition ſays, from a giant who occupied it as his place of habitation. Vrenny-Vawr, or Vryn-Vawr, is alſo of conſiderable altitude and ſize, as its name imports; the words Vryn Vawr ſignifying in Engliſh the Great-hill. The climate of Pembrokeſhire is temperate. Rains are perhaps more frequent here than in any part of England, and are particularly violent during weſterly winds. Froſts are neither intenſe nor of long continuance; nor does ſnow uſually lie upon the ground more than two or three days. Few counties are better watered with rivers, or are more abundantly ſupplied with excellent ſprings. The names of the chief rivers are the Cwch, which divides Pembrokeſhire from Cardiganſhire; the Nevern, which flows by Newport; the Gwain, which falls into the ſea at Fiſhguard; the Taf, which forms the boundary with Caermarthenſhire; and the Eaſt and Weſt Cleddy, or Cleddaw. The two laſt unite near Picton-caſtle, and flow into Milford haven: they are influenced by the tide as high almoſt as the half of their whole courſe.

The mineralogical products of Pembrokeſhire are coal, limeſtone, freeſtone, and that "ſpecies of marble called pudding-ſtone." No metallic ores, except iron, we believe, have yet been diſcovered here; at leaſt none of any conſequence in a commercial eſtimate. Some mineral ſprings, particularly one in the pariſh of Fiſhguard, however, are ſtrongly tinctured with that metal; and on the Trefin are ſeveral works of iron and tin. The ſoil is various, but in general tolerably fertile. The ſtate of agriculture, however, is defective, and, though much improved within the laſt few years, it is ſtill ſuſceptible of great amelioration. The practice of grazing has been introduced, as well as a ſpirit of "farm monopoly." Woods are rather ſcarce in this county, particularly towards the weſtern coaſt, where, being much expoſed to the winds blowing from the ſea, they are ſhorn in a very curious manner. Cattle are reared in conſiderable numbers, and a large quantity of butter is made, both for home conſumption and for exportation.

Pembrokeſhire cannot boaſt of being either a manufacturing or a trading county; though it poſſeſſes manifeſt advantages, for commerce at leaſt, in its numerous natural harbours and great extent of coaſt. Haverford-weſt is the only town within its limits which has a cotton manufactory of any conſequence; and all the attempts hitherto made for the introduction of the linen buſineſs have completely failed. Milford and Fiſhguard alone can juſtly claim the appellation of trading ports, and even in theſe towns the exports and imports are extremely limited; but they are certainly ſuſceptible of great augmentation, with a very little exertion and expence. Indeed we have no doubt, but that if the ſpirit of manufacturing and commercial enterpriſe was once properly excited and foſtered, Pembrokeſhire would, from its natural advantages of ſituation, ſoon become the trading emporium of Wales. At Milford has lately been eſtabliſhed a South ſea whale-fiſhery, which is in a flouriſhing condition; and we are happy to obſerve, that the ſame thing may be affirmed of the herring-fiſhery of Fiſhguard, though it might be improved to an almoſt unlimited extent.

Pembrokeſhire abounds with objects of antiquarian curioſity and intereſt, of almoſt every kind and era. Druidical circles and cromlechs are frequent, of which the principal are thoſe near Caſtle-Hendrev, Drewſon, Trellys, Longhouſe, Lech-y-dribedd, Pentre-Evan, and Caſtle-Martyn. Single ſtone monuments are alſo numerous, particularly along the coaſt, where they are conjectured to have been raiſed as memorials of predatory battles. The great Roman road to Menapia, St. David's, enters the county near Llandewi-Velfry, and proceeds by Haverford-weſt and Roch-Caſtle, almoſt on the ſame line with the preſent turnpike-road from Caermarthen, which it croſſes at different points. Another Roman road led from the great road to the ſtation, called Ad-Viceſimum. But the moſt important antiquities are its caſtles, of which there are nineteen mentioned as belonging to princes and great barons. Some of the churches in this county are likewiſe objects worthy the attention of the antiquary. The cathedral and palace of St. David's are particularly entitled to attention. See *St.* DAVID's; alſo Norris's Architectural Antiquities of Wales, 4to. Fenton's Hiſtorical Tour in Pembrokeſhire, 4to., 1811. Cambrian Regiſter for 1796. Camden's Britannia, vol. ii.

PEMIGEWASSET, a river of America, in New Hampſhire; one branch of it proceeds from Mouſe-hillock mountain, another from the ſouth-weſt extremity of White mountains, and a third from the townſhip of Franconia. Its courſe of about 50 miles is generally ſouth, and it receives on both ſides a number of ſtreams. After the union of the Winipiſcogee river, at the lower end of Sanborn town, it bears the name of Merrimack to the ſea.

PEMNAGUR, a fort of Hindooſtan, in Bahar; 31 miles N.W. of Durbungah. N. lat. 26° 29′. E. long. 85° 45′.

PEMPHIGUS, in *Medicine*, from πεμφιξ, *bulla*, *a bleb* or *blain*, has been variouſly called the *veſicular fever*, *febris veſicularis*, *ampulloſa*, and *bulloſa*, by the continental phyſicians, who have mentioned the diſeaſe.

From the deſcriptions of a few of theſe writers, Sauvages conſtituted this diſeaſe a diſtinct genus, in his ſyſtem of noſology, and gave it the appellation of pemphigus, which has been adopted by ſubſequent authors, with the exception of Linnæus, who deſignated it by the barbarous term *morta*, conceiving it to be a moſt mortal peſtilence. "Febris diaria, maligniſſima, funeſtiſſima." (See his Genera Morbor., claſs i. gen. 1.) Upon the authority of Sauvages, and the authors whom he quotes, the pemphigus has been defined an idiopathic, contagious, and malignant fever, in the courſe of which, phlyctænæ or veſications, of the ſize of a filbert, with an inflamed baſe, appear in ſucceſſion on different parts of the ſurface of the body, and ſometimes in the mouth. See Sauvages, Noſol. Method., claſs iii. gen. 3. Cullen, Noſol. Meth., gen. xxxiv.

Nevertheleſs, it is pretty clear, from an examination of the imperfect hiſtories of the ſubject, that there is no ſuch idiopathic and contagious diſeaſe, terminating in a critical eruption of bullæ, as has been thus defined, under the appellation of pemphigus. Dr. Cullen juſtly expreſſed his doubts of the accuracy of the original writers; and, after giving his definition of the diſeaſe, he ſays, "From the opinion of others, rather than my own, this character is taken; becauſe I have ſeldom ſeen ſuch a diſeaſe, and never have obſerved it epidemical, or purſuing a regular courſe, as is here deſcribed." And in reſpect to the ſpecies, he obſerves again, "Since I have never ſeen a pemphigus, which I could conſider as an exanthematous fever, and have found only very few obſervations in the writings of phyſicians concerning a diſeaſe of this kind, almoſt every thing inſerted in my noſology muſt neceſſarily be taken from Sauvages; therefore, I have followed him, though I would willingly have omitted this malady, ſince almoſt all that has been ſaid about it appears to me doubtful, obſcure, and ambiguous."

Dr. Willan has examined the matter more minutely, and pointed out the fallacious foundation, upon which the notion of ſuch an epidemic contagion has been built. Sauvages has enumerated three ſpecies of pemphigus, not from his own obſervation, but merely from the deſcription of three writers. The firſt ſpecies, pemphigus major, which is taken from a ſingle caſe, related by Scaliger, (Ephem. Acad. Nat. Curioſ. Dec. 1. ann. viii. obſ. 56.) which is worthy of little attention, was perhaps, as Dr. Willan ſuggeſts, a mere eryſipelas, with ſome incidental variation in the appearance of the bullæ. The account of the epidemic at Prague, mentioned by Thierry, (ſee his Medicine Experimentale, p. 134.) which is the prototype of the ſecond ſpecies (pemphigus caſtrenſis) of Sauvages, is not entitled to credit, as Dr. Cullen remarked, in ſeveral of its circumſtances: the bullæ are ſuppoſed by Dr. Willan to have been ſymptomatic of ſevere typhus, or of peſtilential fever, in the ſame manner as they appeared in the plague of 1666 in London, as deſcribed by Dr. Hodges, and as they are occaſionally ſeen, intermixed with petechiæ and vibices, or with patches of erythema, in typhoid fevers. Again, as to the third ſpecies (pemphigus helveticus) of Sauvages, which was borrowed by him from the deſcription of Dr. Langhans, (in the Acta Helvetica, vol. ii. p. 260.) Dr. Cullen was of opinion, that the diſeaſe was in fact cynanche maligna; and Dr. Frank viewed it in the ſame light; for he conſidered it as a variety of ſcarlatina, accompanied with ulceration. Dr. Willan, who points out the unſatisfactory nature of the hiſtory given by Langhans, and the contradictions which it involves, propoſes a query, whether the diſeaſe was not rather *endemic*, than epidemic or contagious, and referrible to dearth, or ſome other local cauſe, like the *ergot*, *mal des ardens*, &c. See his Treatiſe on Cutaneous Diſorders, part iv.; and Bateman's Synopſis of Cutaneous Diſeaſes, p. 135.

In ſhort, it is evident, that the deſcription of an idiopathic contagious fever, terminating in a critical eruption of bullæ, after the manner of the ſmall-pox, and other exanthematous fevers, which Sauvages and the noſologiſts have given us, has been founded in miſconception; and that no ſuch diſeaſe exiſts. Yet many caſes of *bullous* diſeaſe have been recorded, under the appellation of pemphigus, by medical men of conſiderable diſcernment. Thoſe who are curious, and diſpoſed to inveſtigate the matter, will find ſuch caſes deſcribed by Mr. Gaitſkell and Mr. Upton, in the Memoirs of the Medical Society of London, vol. iv. art. 1, and vol. iii. Appendix; by Mr. Chriſtie, in the Lond. Med. Journal, vol. x. p. 385; by Dr. Stewart, in the Edin. Med. Comment., vol. vi. p. 79; by Dr. Hall, in Duncan's Annals of Med., vol. iii. art. ix; by Mr. Ring, in the Lond. Med. Journal, vol. xi. p. 235; by Dr. Dickſon, in the Tranſ. of the Royal Iriſh Acad. for 1787; and in the Lond Med. Journ., vol. ix. p. 309; by Bang, in the Acta Reg. Soc. Med. Hanrienſis, vol. i. p. 8, &c.; by Withers, in his Treatiſe on Aſthma; and by Frank, De Curand. Hom. Morb., lib. iii. p. 263. The reader will find, however, that, in theſe caſes, the eruption of *bullæ* has either been chronic, and altogether unconnected with fever; or it has occurred in connection with common fever, dyſentery, &c. in which it was merely accidental and ſymptomatic, and by no means the reſult of any particular contagion, or indicative of a diſtinct and peculiar ſpecies of fever.

The more common eruptions of theſe water-blebs, or bullæ, is unconnected with any acute fever; and, for the ſake of diſtinguiſhing them from this ſuppoſititious pemphigus, Dr. Willan arranged them under a new genus, POMPHOLYX; which ſee.

PEMPHINGODES, or PEMPHIGODES, from the ſame root with the preceding, was an epithet applied by the ancients to certain fevers, ſaid to be diſtinguiſhed by flatulencies and inflations, in which they ſuppoſed ſome aërial effluvium paſſed through the ſkin of the patient, and was ſenſible to the finger of a perſon applied to it. (Galen, Comment. on 6. Epidem., ſect. 1. app. 17.) It is not eaſy to refer ſuch a deſcription to any known diſeaſe.

Foëſius ſays, the febris pemphingodes was ſuppoſed to be a ſynochus, in which the blood-veſſels were inflated, and conſequently it was called an inflated fever. Both the term and the abſurd hypotheſis have been long obſolete.

PEMPHIS, in *Botany*, ſo named by Forſter, from πεμφὶς, *a globule*, in alluſion to the globular protuberance of the germen above the calyx, or of what, in Linnæan language, is the receptacle of the flower. Forſt. Gen. t. 34. Juſſ. 331. Venten. v. 3. 299. (Lythrum; Lamarck Illuſtr. t. 408. f. 2.)—Claſs and order, *Dodecandria Monogynia*. Nat. Ord. *Calycanthemæ*, Linn. *Salicariæ*, Juſſ.

Gen. Ch. *Cal.* Perianth inferior, of one leaf, turbinate, permanent, ſtriated, regular, with twelve teeth, the intermediate ones ſmalleſt. *Cor.* Petals ſix, obovate, obtuſe, ſpreading, inſerted by their claws into the throat of the calyx, at the baſe of each leſſer ſegment. *Stam.* Filaments twelve, awl-ſhaped, ſhorter than the corolla, inſerted into the middle of the calyx, the ſix alternate ones ſhorteſt; anthers ovate, two-lobed, incumbent. *Piſt.* Germen globoſe; ſtyle ſhort, cylindrical, erect; ſtigma capitate, depreſſed. *Peric.* Capſule turbinate, inveſted with the permanent calyx, of one cell, opening by a hemiſpherical deciduous lid. *Seeds* numerous, wedge-ſhaped, abrupt, compreſſed, with a fungous angular border. *Receptacle* central, ſhort, triangular, muricated.

Eſſ. Ch. Calyx regular, with twelve teeth. Petals ſix, inſerted into the calyx. Capſule of one cell, ſplitting horizontally. Seeds numerous, bordered.

Obſ. This genus is eſſentially different from *Lythrum*, in having a capſule which burſts horizontally, and which conſiſts of one cell inſtead of two. In an early ſtate, we ſuſpect, the germen has three cells. The hemiſpherical lid of the capſule is obſcurely marked with ſix concentric lines, which, it ſeems, Forſter miſtook, in an unripe ſtate perhaps, for ſix valves. We readily aſſent to the maxim of the younger Linnæus, Suppl. 250, that a natural genus ought not to be divided on account of a ſingle peculiarity in any one ſpecies; but where the habit is ſo different, and the technical character ſo important, as in the preſent caſe, beſides both being ſupported by ſeveral ſecondary diſtinctions, there can no longer be room for heſitation, though only a ſolitary ſpecies of *Pemphis* has hitherto been diſcovered.

1. P. *acidula*. Forſt. Gen. 34. (Lythrum Pemphis; Linn. Suppl. 249. Forſt. Prodr. 36. Mangium porcellanicum; Rumph. Amboin. v. 3. 126. t. 84.)—Rumphius mentions this as growing on the muddy ſhores of ſome parts of Amboyna, or its neighbourhood. The late Mr. Chriſtopher Smith ſent us ſpecimens, gathered in April 1797, in flower and fruit, at Nuſalout. Koenig's, in the Linnæan herbarium, were found on the ſea coaſt of Ceylon. Forſter obtained his in the iſland of Teautea.—The *ſtem* is ſhrubby, decumbent, with many hoary, rigid, leafy branches. *Leaves* crowded, oppoſite, on ſhort ſtalks, obovate, entire, about an inch long, coriaceous or fleſhy, ſilky on both ſides, eſpecially when young. Rumphius, whoſe figure repreſents them rather too much pointed, ſays they have an agreeable ſalt flavour, and are eaten raw as a ſauce to ſome kinds of fiſh. The *flowers* are axillary, ſolitary, on ſimple ſtalks rather ſhorter than the leaves, ſilky, as well as the *calyx*, which is the ſize of a pea. The *petals* are wavy, and deſcribed by Koenig as of a pale blueiſh hue. Lamarck, in his t. 408. f. 2, gives a ſufficiently good, and apparently original, repreſentation, of the whole plant in flower. Rumphius exhibits it in fruit only. We have never ſeen a ſpecimen from Forſter, but there ſurely can be no doubt as to the identity of his plant.

PEMPTÆUS, a word uſed by medical writers, as the name of an ague, the fits of which return always on the fifth day.

PEN, according to Camden, originally ſignifies a high mountain, which was thus called among the ancient Britons, and even the Gauls. And hence, that tall range which parts Italy and France is called *Apennines*.

PEN is often uſed for a pound, or head of water, artificially kept up.

PEN is alſo a little inſtrument, uſually formed of a quill, and ſerving to write with.

PENS, *Dutch*, are thoſe made of quills which have been paſſed through hot aſhes, to take off the groſſer fat and moiſture thereof.

PEN, *Fountain.* See FOUNTAIN-*Pen*.

PEN, *Sea*, *pennatula*, in *Natural Hiſtory*, a genus of zoophyte, which, though it ſwims about freely in the ſea, approaches near to the gorgonia. This genus hath a bone along the middle of the inſide, which is its chief ſupport; and this bone receives the ſupply of its oſſeous matter by the ſame polype mouths that furniſh it with nouriſhment. Linnæus reckons ſeven ſpecies. See PENNATULA.

PEN *Stock*, a ſort of ſluice or flood-gate placed in the water of a mill-pond, or a canal, to retain or let it go at pleaſure.

PEN *Unglas*, in *Geography*, a cape of South Wales, on the N. coaſt of the county of Pembroke. N. lat. 51° 57'. W. long. 4° 59'.

PEN *Dinas*, a cape of Wales, on the N. coaſt of St. Bride's bay. N. lat. 51° 48'. W. long. 5° 10'.

PENA. See PEENE.

PENA *Cova*. See PEGNA *Cova*.

PENA, JOHN, in *Biography*, an able French mathematician in the 16th century, was deſcended from a noble family at Aix in Provence, and born at Mouſtiers, in the dioceſe of Riez, about the year 1530. He diſtinguiſhed himſelf in early life by his proficiency in the Latin and Greek languages, and philoſophy; but the bent of his genius particularly

cularly directed him to the ſtudy of the mathematical ſciences. About the year 1556, he was appointed profeſſor of mathematics in the College Royal; and, according to ſome writers, his poſt was profeſſorſhip-extraordinary, created out of compliment to his great merit, and ſuppreſſed after his death. He publiſhed a Latin verſion of the Catoptrics of Euclid, with a curious preface, explaining and illuſtrating the uſes of the cylindrical mirror, the "Optics" of the ſame geometrician; "Euclidis Elementa Muſices; Sectio Regulæ Harmonicæ," in Greek and Latin; and a Latin verſion accompanying the Greek text of "The Spherics of Theodoſius." He compoſed ſome papers on the "Mechanics of Hero," and the "Geometry of Euclid," which have not been publiſhed. This young mathematician was prematurely cut off by a violent fever in 1560, when only thirty years of age. Moreri.

PENAC, in *Geography*, a town of Naples, in Abruzzo Citra; nine miles E.S.E. of Civita Borella.

PENÆA, in *Botany*, received that appellation from Linnæus, in memory of the learned Peter Pena, a native of Jouques, near Aix, in Provence; who afforded great aſſiſtance to Lobel, in the compoſition of his *Adverſaria;* not only by his general botanical learning, but by the communication of many rare plants of the ſouth of France; ſee LOBEL. Plumier had already conſecrated a plant to his honour, which Linnæus reduced to POLYGALA; ſee that article.—Linn. Gen. 56. Schreb. 76. Willd. Sp. Pl. v. 1. 626. Mart. Mill. Dict. v. 3. Thunb. Prodr. 30. Ait. Hort. Kew. ed. 2. v. 1. 248. Juſſ. 419. Lamarck Illuſtr. t. 78.—Claſs and order, *Tetrandria Monogynia*. Nat. Ord. uncertain.

Gen. Ch. *Cal.* Perianth inferior, of two equal, oppoſite, lanceolate, concave, coloured, lax, deciduous leaves, half the length of the corolla. *Cor.* of one petal, bell-ſhaped; limb in four acute ſpreading ſegments, very much ſhorter than the tube. *Stam.* Filaments four, extremely ſhort, erect, naked, inſerted into the corolla between its ſegments; anthers erect, flattiſh, notched at each end. *Piſt.* Germen ſuperior, ovate, quadrangular; ſtyle with four membranous, dilated, longitudinal angles; ſtigma cruciform, obtuſe, permanent. *Peric.* Capſule quadrangular, crowned with the ſtyle, of four cells and four valves. *Seeds* in pairs, rather oblong, obtuſe.

Eſſ. Ch. Calyx of two leaves, inferior. Corolla bell-ſhaped, of one petal. Style quadrangular. Capſule ſquare, of four cells, with eight ſeeds.

The ſpecies of this genus are ſingularly confounded by Linnæus. We ſhall attempt, by the help of his own ſpecimens, to reduce their characters and ſynonyms to order. They are all natives of the Cape of Good Hope, or the adjacent regions of ſouthern Africa. Their *habit* is ſhrubby. *Leaves* crowded, oppoſite, nearly or quite ſeſſile, rather fleſhy, undivided, entire, in almoſt every inſtance perfectly ſmooth. *Flowers* terminal or axillary, ſolitary or aggregate, generally handſome, red, white, or yellow. Nobody has ſettled the natural order of *Penæa*, nor have we a conjecture to offer on the ſubject. Juſſieu merely hints at its poſſible affinity to his *Acanthi*, which we ſee little to countenance. Its habit, but not its characters, bears ſome reſemblance to *Boronia*, Sm. Tracts, one of the *Rutaceæ*.

1. P. *Sarcocolla*. Linn. Sp. Pl. 162. Berg. Cap. 35. (P. fucata; Linn. Mant. 199. Lamarck f. 1. Willd. n. 6. P. n. 48; Linn. Mat. Med. 16, character and ſynonym erroneous. P. mucronata; Berg. Mat. Med. v. 1. 68? Tithymali myrſinites ſpecie, arbuſcula æthiopica, ſubrotundis foliis, e ſtoechadis arabicæ ſquamato capitulo duro lachrymam fundens; Pluk. Mant. 183. t. 446. f. 6.)—Leaves ovate, ſomewhat rhomboid, acute. Bracteas wedge-ſhaped, pointed, coloured. Calyx-leaves linear.—Native of hills at the Cape. A humble, much-branched, buſhy *ſhrub*. *Leaves* about half an inch long, of a pale tawny glaucous hue in the dried plant, their mid-rib rather convex. *Flowers* few together, at the tops of the branches, rather longer than the leaves. *Bracteas* but half the ſize of the leaves, entire, ſmooth, red, as well as the *calyx*. Segments of the *corolla* rounded, obtuſe, ſlightly ſpreading. There is no appearance of gum about the *flowers*, and whether this, or any other ſpecies of *Penæa*, really yields the gum-reſin called, from its reputed healing or conglutinating virtues, *Sarcocolla*, or fleſh-glue, appears to be very doubtful and very unimportant. Modern ſurgery diſclaims ſuch aids, and has long ceaſed to confide in them.—Plukenet's imperfect figure is evidently done from this ſpecies, though his definition rather points at *ſquamoſa* hereafter mentioned.

2. P. *mucronata*. Linn. Sp. Pl. 162. Berg. Cap. 37. Willd. n. 2. Ait. n. 1. Vent. Malmaiſ. t. 87. (Tithymali myrſinites ſpecie, arbuſcula æthiopica, folio parvo e lato baſi in acutiſſimum mucronem ſubitò definente, capitulis origani; Pluk. Mant. 183.)—Leaves heart-ſhaped, pointed, horizontal. Flowers in denſe terminal ſpikes. Bracteas ſomewhat lunate, pointed.—The numerous, ſmall, horizontal *leaves*, croſſing each other in pairs, and the copious denſe *ſpikes* of yellow *flowers*, whoſe *corolla* is not very unlike in ſize and figure to *Arbutus Unedo*, characterize this ſpecies. Plukenet's compariſon of the heads to *Origanum* is ſtrikingly oppoſite, as to the dried plant. Linnæus, in Syſt. Veg. ſays the *flowers* are red, having been miſled perhaps by the dried ſpecimen. This ſpecies was ſent to Kew by Mr. Maſſon in 1787, but has not flowered there.

3. P. *marginata*. Linn. Mant. 199. Willd. n. 3.—Leaves heart-ſhaped, rather concave, thick-edged, ſhining. Flowers lateral, axillary.—Found near rivers at the Cape. The *branches* are ſtraight and wand-like, often ternate. *Leaves* three quarters of an inch long; dark green and ſhining above; paler and yellowiſh beneath, reſembling ſome kind of *Celaſtrus* or *Buxus;* their edges remarkably thickened. *Flowers* not quite ſo long as the leaves, ſeſſile, reddiſh in the dry ſtate, but Linnæus ſays they are white.

4. P. *lateriflora*. Linn. Suppl. 122. Willd. n. 4.—Leaves ovate, flattiſh, opaque. Flowers lateral, axillary. Very diſtinct from the laſt, notwithſtanding the doubt expreſſed by Willdenow. The *leaves* are rather larger, not heart-ſhaped, nor thickened at the edges. *Flowers* alſo larger, extending a little beyond their correſponding leaves.

5. P. *tomentoſa*. Thunb. Prodr. 30. Willd. n. 5.—"Flowers lateral. Leaves ovate, downy."—Of this we have ſeen no ſpecimen, but the downy *leaves* are peculiar to it.

6. P. *ſquamoſa*. Linn. Mant. 331. Willd. n. 7. Linn. Sp. Pl. 162? the obſervation at the end certainly miſapplied. (P. Sarcocolla; Willd. n. 1. Lamarck f. 2. P. tetragona; Berg. Cap. 36.)—Leaves obovate, ſomewhat wedge-ſhaped, fleſhy. Bracteas fringed, glutinous, larger than the leaves. Segments of the corolla reflexed.—Diſtinguiſhed by its large terminal *flowers*, enveloped in dark red, glutinous, broad, denſely fringed *bracteas*. The *leaves* moſt reſemble the firſt ſpecies, but their mid-rib is depreſſed, not prominent, and their colour in a dried ſtate very dark. Linnæus at firſt marked his ſpecimen *Sarcocolla*, then *reſinoſa*, and finally *ſquamoſa*, under which laſt appellation he deſcribed this fine plant. It may, perhaps, yield a gum, as well as the firſt ſpecies. The *corolla* ſeems to be white or yellowiſh; its tube is above an inch long; the ſegments of the limb

evate, obtuſe, reflexed. Lamarck's figure is much diminiſhed as to the parts of fructification.

7. P. *fruticuloſa*. Linn. Suppl. 121. Willd. n. 8.—Leaves obovate, obtuſe. Flowers capitate, terminal. Tube of the corolla ovate; ſegments acute, erect.—Gathered by Sparrmann at the Cape. A dwarf buſhy *ſhrub*, with *leaves* hardly half an inch long. *Flowers* moſt like thoſe of *P. mucronata*, but much fewer together, and their *corolla* has a ſhorter tube, with a longer limb. The *bracteas* are ſaid in the ſpecific character to be orbicular and acute, but in the deſcription to be wanting. The former is moſt near the truth, but they are ovate, acute, and fringed.

8 P. *myrtoides*. Linn. Suppl. 122. Willd. n. 9.—(P. myrtilloides; Thunb. Prodr. 30.)—Leaves ovato-lanceolate, acute, many-ribbed. Flowers terminal. The myrtle-like *leaves*, (not at all like thoſe of *Vaccinium Myrtillus*,) form the characteriſtic mark of this ſpecies. They are very green in the dried ſpecimen, numerous, crowded, erect, not quite an inch long, marked with one prominent central rib, and ſeveral lateral ones. The *flowers* are terminal. Our ſpecimen will not allow us to determine much of their ſtructure, but Linnæus ſays they are "nearly ſolitary, ſurrounded with green acute *bracteas*, under which are two ſmall leaves; the *calyx* acute, green, by no means coloured."—Such is his *Penæa myrtoides*; but its ſilky inner bark, and whole aſpect, indicate a very different family of plants, the *Daphne* tribe, to which we have no doubt this ſpecies belongs. Indeed it comes ſo near to *Gnidea oppoſitifolia*, we are almoſt perſuaded of its being that very plant, with rather more luxuriant foliage than uſual. S.

PENAL Action. See Action.

Penal *Statutes*. See Statutes.

PENALTIES Negative. See Negative.

PENALVA, in *Geography*, a town of Portugal, in the province of Beira; nine miles N. of Coimbra.

PENAMOUSHILY, a town of Hindooſtan, in the circar of Rajamundry; 42 miles E. of Rajamundry.

PENANCE, Pœnitentia, is properly the exerciſe of penitence; and may be defined a puniſhment, either voluntary, or impoſed by legal authority, for the faults a perſon has committed.

The Romaniſts define penitence, a ſacrament wherein a perſon, who has the requiſite diſpoſitions, receives abſolution at the hand of the prieſt, of all ſins committed ſince baptiſm.

To a legitimate penance they require three things, contrition, abſolution, and ſatisfaction.

Their prieſts receive a power of adminiſtering the ſacrament of penance, when they receive the prieſthood; but to exerciſe this power, it is required they have the juriſdiction of an ordinary, *i. e.* that they have a benefice, either original or delegated; with the approbation of the biſhop to hear confeſſions. See Popery.

Penance is particularly uſed in the Romiſh church, for the penalty which a confeſſor impoſes, for the ſatisfaction of the ſins of which a perſon is abſolved.

The ancient diſcipline, Du Pin obſerves, was very ſevere on the head of penance: for great crimes people were excluded the communion of the church, expelled the aſſemblies of the faithful, obliged to faſt, and to mortify themſelves publicly, even at the church-door, cut their hair, go always on foot, &c.

He adds, that thoſe who had done public penance were never admitted into the clergy; and that public penance was never granted more than once. Thoſe, who fell a ſecond time, were never to be reconciled to the church, and were to look for pardon only at the hands of God.

Penance, in our *Common Law*, is an eccleſiaſtical puniſhment, uſed in the diſcipline of the church, and affecting the body of the penitent; by which he is obliged to give a public ſatisfaction to the church, for the ſcandal he hath given by his evil example. In the caſe of inceſt, or incontinency, the offender is uſually enjoined to do a public penance in the cathedral, or pariſh church, or public market, barelegged and bareheaded in a white ſheet, and to make an open confeſſion of his crime in a preſcribed form of words, which is augmented or moderated according to the quality of the fault, and the diſcretion of the judge. So in ſmaller faults and ſcandals, a public ſatisfaction or penance, as the judge ſhall decree, is to be made before the miniſter, churchwardens, or ſome of the pariſhioners, reſpect being had to the quality of the offence, and circumſtances of the fact, as in the caſe of defamation or laying violent hands on a miniſter or the like. And as theſe cenſures may be moderated by the judge's diſcretion, according to the nature of the offence: ſo alſo they may be totally altered by a commutation of penance: and this hath been the ancient privilege of the eccleſiaſtical judge to admit that an oblation of a ſum of money for pious uſes ſhall be accepted in ſatisfaction of public penance. But penance muſt be firſt enjoined, before there can be a commutation; or otherwiſe it is a commutation for nothing. Linwood and other canoniſts mention three ſorts of penance; *viz.* private, enjoined by any prieſt in hearing confeſſion; public, enjoined by the prieſt for any notorious crime, either with or without the biſhop's licence according to the cuſtom of the country; and ſolemn, the particulars of which are preſcribed by the conſtitution of archbiſhop Peckham. By the ſtatute of "Circumſpecte agatis" (13 Edw. I. ſtat 4.) the king to his judges ſendeth greeting: uſe yourſelves circumſpectly concerning the biſhops and their clergy, not puniſhing them if they hold plea in court chriſtian of ſuch things as be mere ſpiritual, that is to acts of penance enjoined by prelates for deadly ſin, as fornication, adultery, and ſuch like; for the which ſometimes corporal penance, and ſometimes pecuniary is enjoined (2 Roll. Rep. 384.); in which caſes the ſpiritual judge ſhall have power to take knowledge, notwithſtanding the king's prohibitions. By the ſtatute of "Articuli cleri," (9 Edw. II. ſtat. 1. c. 2.), if a prelate enjoins a penance pecuniary to a man for his offence, and it be demanded; the king's prohibition ſhall hold place; but if prelates enjoin a penance corporal, and they which be ſo puniſhed will redeem upon their own accord ſuch penance by money; if money be demanded before a ſpiritual judge, the king's prohibition ſhall hold no place. And by the ſame ſtatute (c. 3.), if any lay violent hands on a clerk, the amends for the peace broken ſhall be before the king, and for the excommunication before a prelate, that corporal penance may be enjoined; which if the offender will redeem of his own good will, by giving money to the prelate, or to the party grieved, it ſhall be required before the prelate, and the king's prohibition ſhall not lie.

PENAT, in *Geography*, a town of Hindooſtan; 30 miles S.S.E. of Agra.

PENATES, in the *Ancient Mythology*, a term applied to all the domeſtic gods, whom the ancients adored in their houſes: whence they are ordinarily confounded with the lares. See Lares.

Authors are not all agreed about the origin of the dii penates, who were properly the tutelary gods of the Trojans, and were only adopted by the Romans, who gave them the title of penates.

De Meziriac, in his notes on Dido's Epiſtle to Æneas, relates at large what he has met with in the ancient writers on the ſubject: Dionyſius Halicarnaſſus tells us, that Æneas firſt lodged theſe gods in the city Lavinium; and that his ſon Aſcanius, afterwards, upon building the city Alba, tranſlated them thither; but that they returned twice miraculouſly to Lavinium. The ſame author adds, that in Rome there is ſtill ſeen a dark temple, ſhaded by the adjacent buildings, wherein are the images of the Trojan gods, with the inſcription, DENAS, which ſignifies penates. Theſe were the public penates of the city and empire, and their temple was near the circus Maximus. A light was continually burning before them, and libations and incenſe were offered upon almoſt all occaſions. Lucan obſerves, that in time of peace, the Romans uſed to hang up their arms, in the place belonging to their houſhold gods, as intruſting them to their cuſtody; and that it was eſteemed an abominable ſacrilege to commit murder in the preſence of Veſta, that is, in the entry, and before the perpetual fire of the houſhold gods.

The images above-mentioned repreſent two young men ſitting, each of which holds a lance. I have ſeen, adds Dionyſius, ſeveral other ſtatues of the ſame gods in ancient temples; who all appear like young men dreſſed in habits of war.

Varro fetches theſe penates from Samothrace to Phrygia, to be afterwards tranſported by Æneas into Italy. Macrobius, who relates this from Varro, adds alſo, that they were called penates, from the Latin words *per quos penitus ſpiramus*, which ſeems a mere ſubtilty. But the real etymology muſt be ſought in the Phrygian, not the Latin tongue.

Cicero, in Aulus Gellius, derives the name hence, *quod penes nos nati ſunt*. Yet in his book de Nat. Deor. he ſays, it is formed from *penus, proviſion*: or, perhaps, adds he, *quod penitus inſident*; others ſay, *quia coluntur in penetralibus*.

Roſinus diſtinguiſhes among the penates: he makes an order of penates of the heavens, ſuch as Pallas in the ethereal region, Jupiter in the middle region, and Juno in the loweſt; beſides penates of cities, penates of private families, &c. On which footing the dii penates were the guardians or tutelary gods of every thing.

Nigidius, an ancient author cited by Arnobius (Adv. Gent.) diſtinguiſhes four ſorts of penates: thoſe of the claſs of Jupiter, or choſen from among the celeſtial gods: thoſe of Neptune, from the ſea-gods: thoſe of Pluto's claſs from among the infernal gods: and thoſe taken indifferently from the claſs of all the deified men.

It is a popular queſtion among the learned, who were the penates of Rome? Some ſay, Veſta; others Neptune and Apollo; Vives ſays, Caſtor and Pollux; with whom agrees Voſſius, who adds, that the reaſon of their chooſing Caſtor and Pollux in quality of penates, might be the important ſervice they did the Romans in the war againſt the Latins.

Nor are authors more unanimous on the ſubject of the penates which Æneas brought into Italy. Some ſay they were Neptune and Apollo, who built the walls of Troy; others, Jupiter, Juno, and Minerva; and others Cœlus and Terra.

Dionyſius Halicarnaſſus, lib. i. ſpeaking of the dii penates, tells us, that the hiſtorian Timæus has written, that the figure, ſtatue, or effigy of the denates, or penates, was nothing but a crooked iron, or copper rod, and a Trojan veſſel from potters' ware: and that this was all Æneas brought to Troy. But, for himſelf, he aſſures us, he had ſeen a temple at Rome, near the forum, where thoſe gods were repreſented ſitting, under the form of two young men, having each of them a dart in his hand: he adds, that the inſcription was DENATES, for that the ancients, before the invention of the letter P, uſed a D inſtead of it: But Dionyſius might be miſtaken: for the bottom of the P is frequently ſo very ſmall on medals, that there is no ſenſible difference between a P and a D; which might be the caſe in the inſcription that author mentions; for that the ancient inhabitants of Italy had no P, is a miſtake ſufficiently refuted by many proper names ſtill remaining of the moſt early ages, *e. gr.* Capys, Capetus, Picus, Pallas. Nor were the Trojans without the ſame, witneſs Palinurus, Paris, Priamus, &c.

The penates ſeem to have originated in a vulgar opinion which prevailed very generally amongſt mankind, that the manes of their anceſtors took pleaſure after death to dwell in their houſes, where indeed they were frequently interred, and where their pictures uſed to be preſerved in the places that were moſt reſpected. After having been accuſtomed to conſider them under the character of illuſtrious perſons, they by degrees paid them reſpect and homage, they then implored their aſſiſtance, and laſtly they ſucceeded to the worſhip and religious ceremonies. The penates were therefore the manes of their anceſtors, which St. Auguſtine (de Civ. Dei. l. ix. c. 11.) maintains, on the authority of Apuleius and Photinus; and in proceſs of time they were aſſociated with all the other gods without diſtinction.

The ſtatues of theſe gods were made not only of wax, as ſome authors pretend, but indifferently of all ſorts of materials, even of ſilver itſelf: they were conſecrated in the moſt ſecret places; altars were erected to them, lamps kept burning, and ſymbols added, all of them expreſſive of vigilance. Anciently children were offered to them in ſacrifice, but Brutus, who expelled the Tarquins, diſcontinued this barbarous practice, and from that time nothing was offered to them but wine, incenſe, fruits, and ſometimes bloody victims, lambs, ſheep, &c.: their ſtatues were likewiſe crowned with feſtoons of garlic and poppy. In the public ſacrifices offered to the penates, they ſacrificed to them a ſow. It was in the time of the Saturnalia, that they celebrated the feſtival of the lares and penates, and there was a day beſides in each month ſet apart for the worſhip of theſe domeſtic gods. At the temple conſecrated to theſe gods in Rome, there was ſet apart for them a holiday, which was obſerved with much ſolemnity; and this was the ſecond of the kalends of January, or the laſt day of December. To this were added the games called "Compitales." Indeed, the reſpect paid to the penates was ſo great that no important enterpriſe was undertaken without conſulting them: their figures were even ſometimes carried about in journies, as we learn from Apuleius: "Wherever I go," ſays he, "I always carry with me in my journey the figure of ſome god."

The figure of the gods penates was ſometimes the ſingle repreſentation of ſome god, genius, hero, or demi-god, or laſtly of ſome famous anceſtor: frequently they were pantheons, that is ſuch as were charged with the ſymbols of ſeveral divinities. It is probable that ſome of the penates delivered oracles.

Authors have conjectured, that the idols which Jacob brought from the houſe of Laban his father-in-law, and which the ſcripture denominates "theraphim," were gods penates, whoſe worſhip was propagated afterwards into Phrygia, and tranſmitted from thence into Greece and Italy. This, it is confidently aſſerted, was their true original.

PENATOLEN, in *Geography*, a town of Chili; 20 miles E. of St. Yago de la Nueva Eſtramadura.

PENATOOR, a town of Hindooſtan, in the Carnatic; eight miles W. of Gingee.

PENBRAY, a cape on the S. coaſt of Wales, in the Britiſh channel; 3 miles S. of Kidwelly.

PENBUGHTOE HEAD, a cape of South Wales, on the N. coaſt of the county of Pembroke. N. lat. 51° 56′. W. long. 5° 5′.

PENCARROW, a cape in the Engliſh channel, on the S. coaſt of Cornwall; two miles E. from the river Fowey.

PENCE, PETER-PENCE. See PETER-*pence*.

PENCE, *Pitching*. See PITCHING-*pence*.

PENCIL, from *peniculus*, *penicillus*, or *penicillum*, which ſignify the ſame, formed by diminution of *penis*, an inſtrument uſed by painters for the application of their colours. There are pencils of various kinds, and made of various matters: the moſt uſual are of badgers' and ſquirrels' hair, thoſe of ſwans' down, and thoſe of boars' briſtles; which laſt are bound to a ſtick bigger, or leſs, according to the uſes they are deſtined for; and when large, are called *bruſhes*. The others are incloſed in the barrel of a quill. The ancients, M. Felibien obſerves, had pencils made of little pieces of ſponge; whence, doubtleſs, the ſtory of the painter, who, not able to expreſs the foam of a horſe, ſucceeded by throwing the ſponge at the picture.

PENCIL, *Black-lead*. See *Black*-LEAD.

PENCIL-*Caſe*. See PORT-*craion*.

PENCIL, in *Electricity*. See BRUSH, and ELECTRICITY.

PENCIL *of Rays*, in *Optics*, is a double cone, or pyramid of rays, joined together at the baſe; one of which hath its vertex in ſome part of the object and has the cryſtalline humour, or the glaſs G L S (*Plate* XVII. *Optics*, *fig.* 10.) for its baſe; and the other has its baſe in the ſame glaſs, or cryſtalline, but its vertex in the point of convergence; as at C.

Thus BGSC is a pencil of rays; and the line B L C is called the axis of that pencil.

PENCIL, in *Ancient Armour*, a ſmall ſtreamer fixed to the end of a lance, and adorned with the coat-armour of the eſquire, by whom it was carried, and which ſerved to point him out in the day of battle.

PENCK in *Geography*, a town of Germany, in the principality of Culmbach; 4 miles N.E. of Bayreuth.

PENCKUM, a town of Anterior Pomerania; 13 miles S.W. of Old Stettin. N. lat. 53° 15′. E. long. 14° 20′.

PENDANT, EAR-RING, an ornament of gold, or ſome precious ſtone, worn by the ladies; hung by a hole made for that purpoſe through the ear; and frequently enriched with diamonds, pearls, and other precious ſtones.

The pendants of the European ladies are nothing in compariſon of thoſe worn by the Eaſt Indians, both men and women; among whom it is the faſhion to lengthen out the ears, and to enlarge the hole, by putting in pendants of the ſize of ſaucers, ſet with ſtones.

In the Weſt Indies, Columbus named a certain coaſt Oreja, becauſe he found people with holes in their ears big enough to paſs an egg through.

They make holes too in their lips and noſtrils, and hang pendants at them: which is alſo practiſed by the Mexicans, and other nations.

PENDANT, in *Heraldry*, a term applied to the parts hanging down from the label, to the number of three, four, five, or ſix at moſt. Theſe muſt be ſpecified in blazoning, when there are more than three. They reſemble the drops at the bottom of the triglyphs in the Doric frieze.

PENDANT *Barometer*. See BAROMETER.

PENDANT *Capital*, a maſs of ſculptured ſtone, or other material, in the form of the capital of a column, with ribs and arches ſpringing from it, which ſeems to ſupport the general vaulting, but which, in fact, being deſtitute of a ſupporting column, is inſerted into and hangs from that vaulting. This piece of mechaniſm belongs to the third order of pointed architecture, and may be ſeen to advantage in the chapel of King's college, Cambridge, Henry VIIth's chapel, Weſtminſter, &c. See GOTHIC *Architecture*.

PENDANT *Feathers*, in *Falconry*, are thoſe feathers which grow behind the thighs of a hawk.

PENDANT *Gardens*, in *Antiquity*. See PENSILES *Horti*.

PENDANTS, among *Floriſts*, a kind of globules, growing on ſtamina, or chives. Such are thoſe in the middle of tulips, lilies, &c. See APICES, and STAMINA.

PENDANTS *of a Ship*, are thoſe long colours, or ſtreamers, cut pointing towards the end, and there divided into two parts; hung out at the head of maſts, or at the yard arm ends.

The pendants are chiefly uſed for ſhow, though ſometimes for diſtinction of ſquadrons, and for ſignals.

PENDANTS, (*Rigging*,) large, but ſhort, ropes which go over the maſt-heads with a ſplice, the ends hanging downwards, having an iron thimble, into which are hooked the main and fore-tackles. There are many other pendants, which are generally ſingle or double ropes, with a block, or an iron thimble, ſpliced into their lower ends for tackles, all of which ſerve to tranſmit the effort of their tackles to ſome diſtant object: ſuch are the bill-pendant, brace-pendants, preventer-brace-pendants, burton-pendants, fiſh-pendants, guy-pendants, main-ſtay-tackle-pendant, pendants of tackles, quarter-tackle-pendants, reef-tackle-pendants, rudder-pendants, ſtay-tackle-pendants, top-rope-pendants, truſs-pendants, vang-pendants, winding-tackle-pendants, and yard tackle-pendants.

PENDARRYE, in *Geography*, a town of Hindooſtan, in Oude; 17 miles N.W. of Kairabad.

PENDARTY, a town of Hindooſtan, in the Carnatic; eight miles E. of Ongole.

PENDENNIS CASTLE, a fortreſs of England, in the county of Cornwall, ſituated at the mouth of Falmouth haven, built by Henry VIII., and fortified by queen Elizabeth. N. lat. 50° 9′. W. long. 5 1′.

PENDENTIVE, in *Architecture*, the whole body of a vault, ſuſpended out of the perpendicular of the walls, and bearing againſt the arc boutants.

Daviler defines it, a portion of a vault between the arches of a dome, uſually enriched with ſculpture: Felibien, the plane of the vault contained between the double arches, the forming arches, and the ogives.

The pendentives are uſually of brick, or ſoft ſtone; and care muſt be taken, that the joints of the maſonry be always laid level, and in right lines proceeding from the ſweep whence the riſe is taken.

The joints too muſt be made as ſmall as poſſible, to ſave the neceſſity of filling them up with ſlips of wood, or of uſing much mortar.

PENDILHO, in *Geography*, a town of Portugal, in the province of Beira; 12 miles S.E. of Lamego.

PENDLETON, a townſhip of Lancaſhire; 2 miles W. of Mancheſter.

PENDLETON, a county of Virginia, in America, bounded N.W. by Randolph, and S. by Rockingham, counties; watered by the S. branch of the Patowmack. It contains 3654 free inhabitants, and 124 ſlaves. Its chief town is Frankford.—Alſo, a diſtrict of South Carolina, on the Keowee and Savannah rivers; containing 20,050 inhabitants, of whom 2204 are ſlaves; 52 miles W. of Cambridge.—

Alſo, a county of Kentucky, containing 1573 people, of whom 239 are ſlaves.

PENDOUN, a town of Birmah; 12 miles S. of Raynangong.

PENDULOUS, *Hanging down;* a name which *Botaniſts* give to thoſe heads of flowers which hang downwards; the ſtalk not being able to ſuſtain them upright.

PENDULOUS *Roots,* ſuch as are fixed to the ends of fibres, whence they ſeem to hang.

PENDULUM, in *Dynamics,* is a ſimple ponderous body, ſo ſuſpended by a flexible cord from an axis of ſuſpenſion, that it is at liberty to vibrate by the action of its own gravity alone, when it is once raiſed, by any external force, to the right or left of its quieſcent poſition; and in demonſtrating the theory of its motion, mathematicians are obliged to aſſume, that there is no rigidity in the cord; no friction at the axis of ſuſpenſion; no reſiſtance to motion oppoſed by the air; and no variation in the total length of the cord, ariſing from the variable temperature or moiſture of the atmoſphere; and if theſe aſſumptions were ſtrictly correct, a pendulum, once put into motion, would continue to move *ad infinitum,* without the further acceſſion of any external force; but when the pendulum is applied as the regulator of a clock, for which purpoſe it is admirably adapted, the aſſumptions we have named require an equal number of mechanical corrections, of which the theory, ſimply conſidered, takes no notice. In *Horology,* therefore, the pendulum muſt be conſidered, not ſimply as a ſelf-moving pendulous body, without any tendency to come to a ſtate of reſt, or to have its dimenſions altered by the circumſtances in which it is placed; but as a body, whoſe motion is perpetuated by repeated acceſſions of force, in aid of its own gravity, and whoſe vibrations are rendered iſochronal by a nice adaptation of mechanical contrivances, that prevent or remedy the prejudicial influences of all natural impediments to uniform and uninterrupted motion. It ſeemed neceſſary, in the firſt place, to eſtabliſh the diſtinction that thus exiſts between the free or *detached* and *attached* pendulum; and having done this, which we muſt beg the reader to bear in mind, we propoſe to divide our article into three heads, namely, 1ſt, the hiſtory of the pendulum; 2dly, its theory in its *detached* ſtate; and 3dly, its various conſtructions, when uſed in its *attached* ſtate, as the regulator of an horological machine.

1. We have already given an hiſtorical account, under our article CLOCK, (ſee *Hiſtory of the ſucceſſive Improvements in Clocks,*) of the firſt notice that was taken by Galileo of the vibrations of bodies ſuſpended by long chains, and alſo of the application that was made ſoon after, by various perſons, of the iſochronal property of the detached pendulum, particularly in aſtronomy, as well as of its introduction, in its attached ſtate, into horological machines as a regulator of their motions, after the balance had been applied for the ſame purpoſe: we beg leave, therefore, to refer the reader to the article already named, for the particulars that would have fallen under this head, had not this part of the ſubject been anticipated.

2. The ſecond head of this article which we propoſed to conſider, was the theory of the ſimple pendulum vibrating in its detached ſtate. When Galileo diſcovered that ponderous bodies, whether large or ſmall, ſuſpended by cords of equal length, perform their vibrations apparently in equal times, he was led into the contemplation of the laws of uniformly accelerated motion, produced by the conſtant force of gravity, and ſoon found that the theory of the detached pendulum was derivable from the ſame laws by which bodies, left to deſcend in free ſpace, were found to be accelerated, and that gravity was the ſole cauſe of ſuch acceleration. We have already treated of theſe laws at ſome length, under our articles ACCELERATION, DESCENT, and MOTION, which render unneceſſary a repetition of this part of our ſubject, except ſo far as the vibration of the pendulum is concerned. It was, however, ſoon perceived, that a pendulum, vibrating in long arcs of a circle, requires a ſomewhat longer time for the performance of each of thoſe vibrations, than when it vibrates in ſmall arcs, all other circumſtances remaining the ſame; it thence became a queſtion among mathematicians what the nature of that curve might be, in which, ſubſtituted for the arc of a circle, both long and ſhort vibrations would be performed in the ſame time. Though Galileo is acknowledged to have been the firſt who diſcovered and deſcribed the curve firſt called by him the cycloid, yet it remained for the celebrated Huygens to explain not only the iſochronal property peculiar to this curve, but alſo that the involute of a cycloid is itſelf a cycloid, which latter diſcovery enabled him to make the attached pendulum actually vibrate in a cycloidal curve. Under our article CYCLOID we have given at conſiderable length both the geometrical and mechanical properties of this remarkable curve, which we recommend to the reader's notice, as preparatory to our doctrine of vibrations performed in cycloidal, and alſo in circular curves; for he will there ſee that ſhort arcs of vibration, at each ſide of the loweſt or quieſcent point of the curve, are very nearly ſimilar, both as to coincidence in poſition, and alſo to the conſequent iſochronal property. He will ſee, not only that arcs of all lengths, when cycloidal, are performed in equal times, but that ſmall circular arcs approximate ſo nearly to their correſpondents in the cycloid, that they may be ſubſtituted in practice for each other, the former for the latter, without ſenſible deviation.

Preſuming, now, that our reader has made himſelf acquainted with the laws of uniformily accelerated motion, agreeably to our references, and that he has peruſed with attention alſo the article CYCLOID, we will proceed to lay before him the fluxional method of determining the actual times of a detached vibration both in *cycloidal* and in *circular arcs.* This part of our ſubject has been recently treated ſo ably by profeſſor Bridge of the Eaſt India college, that we beg leave to avail ourſelves of his labours, at the ſame time that we recommend to general notice his "Introduction to the Study of the Mathematical Principles of Natural Philoſophy, 1813."

On the Times of Vibration in Cycloidal Arcs.—In *fig.* 1. of *Plate* XXXIX. of *Horology,* "let A V B be a cycloid, in which a body, P, ſuſpended from the point S, performs its vibrations between the two *ſemi-cycloids* S A, S B, and let it begin its vibrations from the point E; alſo let P *p* be any very ſmall arc, deſcribed in the deſcent from E to the loweſt point V; draw E F, P N, *p n*, parallel to the baſe, A B, of the cycloid, and join C M, C *m*, M V, *m* V. Let C V, the diameter of the generating circle, $= d$, $FV = a$, $NV = x$; then $FN = a - x$, $MV = \sqrt{CV \times NV} = \sqrt{dx}$. Now the cycloidal arc P V being = twice the *chord* $MV = 2\sqrt{dx}$; let $EP = z$, then $EV = z + PV$; and ſince E V is a *conſtant* quantity, $\dot{z} + PV = 0$, ∴ $\dot{z} = -$ the *fluxion* of $PV = -\frac{\sqrt{d}.\dot{x}}{\sqrt{x}}$. The velocity down EP (v) = the velocity down $FN = \sqrt{4m \times FN}$
$= \surd$

$= \sqrt{4m\cdot\overline{a-x}}$; if therefore $t =$ the *time* down E P, we ſhall have $\dot{t} = \frac{\dot{z}}{v} = \frac{\sqrt{d\cdot\dot{x}}}{\sqrt{x}} \times \frac{1}{\sqrt{4m\cdot\overline{a-x}}} = -\sqrt{\frac{d}{4m}} \times \frac{x}{\sqrt{ax-x^2}}$; and $t = -\sqrt{\frac{d}{4m}} \times$ circular arc, rad. $= 1$, ver. ſin. $\frac{x}{\frac{1}{2}a}$ + cor.; but when $t = 0$, $x = a$, $\therefore 0 = -\sqrt{\frac{d}{4m}} \times$ cir. arc, rad. $= 1$, ver. ſin. $= 2$, + cor. $= -\sqrt{\frac{d}{4m}} \times$ ſemicircle, rad. $= 1$, + cor. $=$ (if $\pi = 3.1416$, &c.) $-\sqrt{\frac{d}{4m}} \times \pi + C$, or $C = \sqrt{\frac{d}{4m}} \times \pi$.

The fluent properly correcꝭted therefore is $t = \sqrt{\frac{d}{4m}} \times \overline{\pi - \text{cir. arc, radius } 1\text{, verſed ſine } \frac{x}{\frac{1}{2}a}} =$ (when $x = 0$) $\sqrt{\frac{d}{4m}} \times \pi =$ the time of deſcent through the cycloidal arc E V; conſequently the *whole time of vibration* $= \sqrt{\frac{d}{4m}} \times 2\pi = \sqrt{\frac{d}{m}} \times \pi$. Since the quantity a does not enter into this value of t, it is evident that the times of vibration will be the *ſame*, from whatever point of the cycloid the body P begins to vibrate. Moreover, ſince the time down the axis C V $= \sqrt{\frac{d}{m}}$, we have the *time of a vibration* : the *time down the axis* :: $\sqrt{\frac{d}{m}} \times \pi : \sqrt{\frac{d}{m}} :: \pi : 1$ :: the *circumference* of a circle : its *diameter*;" which concluſion coincides with our former determination under the article Cycloid.

On the Times of Vibration in circular Arcs.—In *fig.* 2. of the ſame plate, "let the ſmall body P, vibrating in the circular arc E V G, begin its vibrations from the point E; let P V $= z$, N V $= x$, F V $= a$, P $p = \dot{z}$, S P or S V $= r$, then $\dot{z} = \frac{r\dot{x}}{\sqrt{2rx-x^2}}$. Let $t =$ the time through E P, $v =$ the velocity in the point P, then $v = \sqrt{4m \times \text{FN}} = \sqrt{4m\cdot\overline{a-x}}$, and $\dot{t} = \frac{-\dot{z}}{v} = \frac{-r\dot{x}}{\sqrt{2rx-x^2}} \times \frac{1}{\sqrt{4m\cdot\overline{a-x}}} = -\frac{r}{\sqrt{4m}} \times \frac{\dot{x}}{\sqrt{ax-x^2}} \times \frac{1}{\sqrt{2r-x}}$ (for $\sqrt{2rx-x^2} = x^{\frac{1}{2}}\sqrt{2r-x}$), hence $\dot{t} = -\frac{r}{\sqrt{4m}} \times \frac{\dot{x}}{\sqrt{ax-x^2}} \times \frac{1}{\sqrt{2r}} \times \overline{1 + \frac{x}{4r} \quad \frac{3x}{32r^2}}$, &c. by expanding $\frac{1}{\sqrt{2r-x}}$ into a ſeries.

Again, let $\frac{\dot{x}}{\sqrt{ax-x^2}} = \dot{A}$; then ſince $\sqrt{\frac{r}{4m}} \times \frac{1}{\sqrt{2r}} = \sqrt{\frac{r}{8m}}$, we have $\dot{t} = -\sqrt{\frac{r}{8m}} \times \dot{A} + \frac{x\dot{A}}{4r} + \frac{3x^2\dot{A}}{32r^2} + \text{\&c.}$ Therefore, $t = -\sqrt{\frac{r}{8m}} \times \overline{A + \frac{aA - 2P}{8r} + \frac{9a^2A - 18aP - 12Q}{256r^2} + \text{\&c.}}$ + cor. (where $P = \sqrt{ax-x^2}$, $Q = x\sqrt{ax-x^2}$, &c. &c.)

Now when $t = 0$, $x = a$, $\therefore$ P $= 0$, Q $= 0$, &c.; and at the ſame time A $\left(= f^t \frac{\dot{x}}{\sqrt{ax-x^2}} = \text{cir. arc, whoſe rad. is } 1\text{, ver. ſin. } \frac{x}{\frac{1}{2}a}\right) =$ a *ſemi-circle* whoſe radius is $1 = \pi$; hence $0 = -\sqrt{\frac{r}{8m}} \times \overline{\pi + \frac{a\pi}{8r} + \frac{9a^2\pi}{256r^2} + \text{\&c.}}$ + cor. The fluent, therefore, when properly correcꝭted, is $t = \sqrt{\frac{r}{8m}} \times \pi \times \overline{1 + \frac{a}{8r} + \frac{9a^2}{256r^2} + \text{\&c.}} - \sqrt{\frac{r}{8m}} \times \overline{A + \frac{aA - 2P}{8r} + \text{\&c.}} = \sqrt{\frac{r}{8m}} \times \pi \times \overline{1 + \frac{a}{8r} + \frac{9a^2}{256r^2} + \text{\&c.}}$ (when $x = 0$, and conſequently, A, P, Q, &c. each $= 0$) for the time of deſcent down the arc E V; $\therefore$ *the whole time of one vibration* $= \sqrt{\frac{r}{8m}} \times 2\pi \times \overline{1 + \frac{a}{8r} + \frac{9a^2}{256r^2} + \text{\&c.}}$

If the arcs be ſo very ſmall, that the verſed ſine, a, may be entirely rejecꝭted with reſpecꝭt to the radius r, then the time of a *vibration* $= \sqrt{\frac{r}{8m}} \times 2\pi =$ (if $r = 2d$) $\sqrt{\frac{d}{4m}} \times 2\pi = \sqrt{\frac{d}{m}} \times \pi =$ the time of a vibration in a *cycloid* whoſe axis is d or $\frac{1}{2}r$. The time of oſcillation, therefore, in a very ſmall circular arc, is the ſame as the time of oſcillation in a cycloid, whoſe axis is equal to half the length of the cord by which the vibrating body is ſuſpended," as was otherwiſe ſhewn to be the caſe under our article Cycloid: for in theſe very ſmall arcs, the time of deſcent down E V $= \sqrt{\frac{r}{8m}} \times \pi$. Now the time down the *chord* $=$ the time down the *diameter* of a circle $= \sqrt{\frac{2r}{m}}$. Hence the time down *a very ſmall circular arc* : the time down the correſponding *chord* :: $\sqrt{8m} \times \pi : \sqrt{\frac{2r}{m}} :: \pi \sqrt{\frac{1}{8}} : \sqrt{2} :: \pi : 4$ :: the circumference of a circle : four of its diameters.

If the length of the arc through which the pendulum vibrates be ſuch, that all the terms of the ſeries except the *two firſt* may be rejected, then the time of a vibration $= \sqrt{\frac{r}{8m}} \times 2\pi \times \overline{1 + \frac{a}{8r}}$; and, conſequently, the time of a vibration in a *circular arc* (whoſe radius is r) : the time of a vibration in a *cycloid* (whoſe axis is $\frac{1}{2} r$) :: $1 + \frac{a}{8r} : 1$. For inſtance, let the arc of ſemi-vibration be 2° at each ſide of the loweſt point, then $a =$ *verſed ſine of* $2° = \frac{6r}{10000}$ nearly; $\therefore \frac{a}{8r} = \frac{1}{13333}$. In arcs which are leſs than 2°, this difference will be ſtill leſs; ſo that if the whole arc through which a pendulum vibrates does not exceed 4°, it may, without any material error, be conſidered as oſcillating in a *cycloid*, and conſequently all its oſcillations will be performed in the *ſame time*, whether it vibrate in a greater or a leſſer arc *within this limit*.

Laſtly, let $A =$ the arc, whoſe verſed ſine is a, then (ſuppoſing the arc to be *very ſmall*) $a = \frac{A^2}{2r}$; and if $n =$ the number of degrees in this arc, then $A : 2\pi r :: n : 360$, or $A = \frac{2\pi r n}{360} \therefore a = \frac{A^2}{2r} = \frac{2\pi^2 r n^2}{\overline{360}|^2} =$ (for $\pi = 3.1416$, &c.) $\frac{r n^2}{6565}$ very nearly; hence $\frac{a}{8r} = \frac{n^2}{52520}$; conſequently the variation for $N - n$ degrees is $\frac{N^2 - n^2}{52520}$; if therefore the pendulum keeps *true time*, when it oſcillates through n degrees, the error ariſing from its vibrating through N degrees will be $\frac{N^2 - n^2}{52520}$ of *the time of one vibration*. For inſtance, if a pendulum which vibrates *ſeconds*, keeps *true time* when it vibrates through an arc of 2°, on each ſide of the vertical line; then if it vibrate through an arc of 3°, it will *loſe* $\frac{3^2 - 2^2}{52520} = \frac{5}{52520} = \frac{1}{10504}$ every ſecond, or $\frac{60 \times 60 \times 24}{10504} = 8''.2$ in a whole day. If the ſame pendulum be made to vibrate through an arc of 2° 10′ on each ſide of the vertical line, then it will loſe only $\frac{\overline{2.16, \&c.}|^2 - 2^2}{52520} = \frac{.665 \; \&c.}{52520}$ in a ſecond, or $\frac{60 \times 60 \times 24 \times .665 \; \&c.}{52520}$, which is very nearly *one ſecond per day*."

Nearly the ſame reſults will be the conſequence of this ſtill more ſimple proceſs; *viz.* "Take $\frac{3}{2}$ of the difference of the ſquares of the arcs for the *ſeconds*, gained or loſt by a decreaſed or increaſed arc;" thus $\overline{3° \times 3°} - \overline{2° \times 2°} \times \frac{3}{2} = 7.''5$ nearly as before.

When two pendulums of different lengths are made to vibrate in a detached ſtate, at the ſame time, the times of their reſpective vibrations will be in the ſubduplicate ratio of their lengths: and the reſpective lengths of different pendulums, vibrating at the ſame time in ſimilar arcs, will be in the duplicate ratio of the times of a vibration directly; or in the reciprocal duplicate ratio of the number of vibrations ſo made in any one and the ſame time. Let the length of a ſecond's pendulum be taken in a given latitude at $39\frac{1}{8}$ inches $= r$, let g be $16\frac{1}{12}$ feet, or the ſpace that a heavy body falls in free ſpace in the firſt ſecond of time, and let $p = 3.1416$, &c. the diameter of a circle, whoſe radius is 1; then t, the time of vibration in a circular arc, being as $p \sqrt{\frac{r}{2g}}$, where p and g are conſtant or given, t will be as $\surd r$, and r as t^2. Hence the length of a half-ſeconds pendulum will be $\frac{1}{4} r$, or $\frac{39\frac{1}{8}}{4} = 9.781$ inches; and the length of a quarter ſeconds pendulum will be $\frac{1}{16} r = \frac{39\frac{1}{8}}{16} = 2.445$ inches: and in this manner a table of ſquare roots may be readily conſtructed of the various lengths of a pendulum, that are required to correſpond to any number of ſeconds, or portions of a ſecond, in each vibration.

The action of gravity, however, is not the ſame in all latitudes; nor yet at all heights above the earth's ſurface in the ſame latitude; for inſtance, the vibrations are ſlower at the equator than at the poles, and increaſe in quickneſs with the latitudes, north or ſouth, as the centrifugal force decreaſes, and *vice verſâ*, the force of gravity being counteracted, in a certain degree, by the centrifugal force, which increaſes with the diſtance from the earth's axis of rotation, and the times of a vibration being reciprocally proportional to $\surd g$.

By an experiment made on the pendulum that vibrated ſeconds at Paris, Richter found that at the iſland Cayenna, 4° from the equator, it required to be ſhortened a line and a quarter, to perform a vibration in a ſecond; and Mr. Campbell, in 1731, by an experiment made in Jamaica in 18° north latitude, determined that if a ſeconds pendulum is 39.126 Engliſh inches long, agreeably to Graham's determination, the length at the equator would be required to be 39.00, and at the pole 39.206 inches. (Phil. Tranſ. N° 432.) Theſe experiments led Mr. Emerſon to compute a table for the length of the pendulum to ſwing ſeconds for every five degrees of latitude, together with the length of a degree of latitude in each of thoſe parallels, in Engliſh miles, which table we ſhall here ſubjoin.

Degrees of Lat.	Length of a Pendulum.	Length of a Degree.
	Inches.	Miles.
0	39.027	68.723
5	39.029	68.730
10	39.032	68.750
15	39.036	68.783
20	39.044	68.830
25	39.057	68.882
30	39.070	68.950
35	38.084	69.020
40	39.097	69.097
45	39.111	69.176
50	39.126	69.256
55	39.142	69.330
60	39.158	69.401
65	39.168	69.467
70	39.177	69.522
75	39.185	69.568
80	39.191	69.601
85	39.195	69.620
90	39.197	69.628

The numbers in this table of courſe ſuppoſe the pendulum vibrating cloſe to the Earth's ſurface in each parallel of latitude.

Profeſſor Bridge has alſo calculated a little table, on a ſuppoſition that the length of a ſeconds pendulum is 39.2 inches in latitude 52°, which is taken as his ſtandard, and he has given the lengths correſponding not only to ſix different latitudes, but to four different heights, ſix at the Earth's ſurface, and at one, two, and three miles of elevation reſpectively. We ſhall take the liberty of giving this table alſo.

Latitude.		Length of Pendulun at the Earth's Surface.	One Mile above the Earth.	Two Miles above the Earth.	Three Miles above the Earth.
At the Equator		39.060	39.036	39.013	38.997
Lat.	30°	39.115	39.091	39.068	39.052
	45	39.170	39.146	39.122	39.107
	52	39.200	39.176	39.152	39.137
	60	39.225	39.201	39.177	39.161
At the Pole		39.281	39.257	39.233	39.218

The greateſt variation in the length of a pendulum vibrating at three miles above the equator, and on the Earth's ſurface at the pole, is only 0.284 of an inch, which affords but a ſmall ſcale for determining either altitudes or the figure of the Earth, to both which purpoſes the obſerved variations in the lengths of the pendulum have been propoſed as a meaſure.

When a pendulum of a given length has been obſerved to gain or loſe a certain quantity daily, it is convenient, in making the adjuſtment for exact time, to have ſome conciſe theorem as a guide to bring it to the point deſired, at one trial in all caſes, which theorem profeſſor Bridge has given in theſe words: "*Multiply* twice the length of the pendulum by the number of ſeconds gained or loſt, and *divide* the reſult by the number of ſeconds in a day; the *quotient* will give the number of inches, or parts of an inch, by which the pendulum is to be lengthened or ſhortened." Suppoſe the *gain* of a ſeconds pendulum to be three minutes, or 180″ in a ſolar day, then $\frac{39.2 \times 2 \times 180''}{86400''} = .163$ parts of an inch, is the quantity, in this caſe, by which the pendulum muſt be *lengthened* to meaſure mean time; but if the three minutes had been *loſs* with a half-ſeconds pendulum, then $\frac{9.8 \times 2 \times 180}{86400} = .041$ of an inch, or the fourth part of the former gain, will be the quantity by which the ſaid pendulum will require to be *ſhortened*. This rule is not only ſhort in its application, but eaſy to be remembered.

Under the title CYCLOID, we have ſhewn that if l be the length of a ſeconds pendulum, and π the periphery of a circle, or 3.1416, &c. the expreſſion $\frac{\pi l}{2}$ will be the meaſure of the velocity of a falling body acquired in one ſecond of time, and alſo that the expreſſion $\frac{\pi^2 l}{2}$ will denote the ſpace fallen through in a vertical line in the ſame time; if we would apply theſe expreſſions to experiments in any given latitude, inſtead of the length of the pendulum determined in our own latitude, we muſt ſubſtitute the length given in one of the preceding tables, agreeably to the latitude propoſed, and then the reſult ariſing from ſuch length, as determined by the ſaid expreſſions, will be correſponding; and the ſcale of acceleration will be accommodated to the increaſed or decreaſed force of gravity in that particular latitude; for inſtance, agreeably to Mr. Bridge's Table, the ſpaces fallen through in one ſecond of time at the equator and at the pole will be reſpectively 192.663 and 193.753, the difference between which is only 1.09 inches; which is the *greateſt difference* that exiſts between the ſpaces fallen through in one ſecond on any two points of the Earth's ſurface.

If it ſhould be required to know what the height of a mountain is, on which a ſeconds pendulum, that meaſured mean time truly at its baſe, loſt a given quantity; let r = radius of the Earth, x = the height of the mountain, T = the number of ſeconds in an hour, or the number of vibrations in an hour at the baſe, and t = the ſeconds loſt on the mountain; then $T - t$ will be the number of vibrations in an hour at the top of the mountain. When the length of the pendulum is given, it is known that the number of vibrations in a given time are directly as the *ſquare roots of the forces*, which act upon the pendulum; hence $T : T - t :: \sqrt{\frac{1}{r^2}} : \sqrt{\frac{1}{\overline{r+x}|^2}} :: \frac{1}{r} : \frac{1}{r+x} :: r + x : r, \therefore t : T - t :: x : r$, or $x = \frac{tr}{T - t}$.

If t be *very ſmall* with reſpect to T, then x may be conſidered as equal to $\frac{tr}{T}$. Let T now be taken equal 3600″, and let t be taken ſucceſſively at 1, 2, 3, &c. ſeconds, then x will be equal to $\frac{r}{3000}, \frac{2r}{3000}, \frac{3r}{3000}$, &c.; and ſuppoſing r to be equal to 4000 miles, the heights of mountains upon which a pendulum, that vibrates ſeconds at their baſes, loſes 1, 2, 3, &c. ſeconds in an hour, will be $1\frac{1}{9}$, $2\frac{2}{9}$, $3\frac{1}{3}$, &c. miles reſpectively. Hence, if the pendulum ſhould gain t ſeconds in an hour before it is carried up the mountain, and it ſhould be required to find that point in the aſcent, where it would keep *true time*, we have $T + t : T :: r + x : r, \therefore t : T :: x : r$, or $x = \frac{tr}{T}$; that is, if we multiply the *gain* by the Earth's radius, and divide the product by the number of vibrations performed in the hour, the quotient will be the height of that part of the mountain, where the pendulum muſt be fixed to keep *true time*.

Hitherto we have conſidered the matter that conſtitutes the whole pendulum as collected into one point, and that the centres of *gravity* and of *oſcillation* coincide in that point, which cannot be ſtrictly the caſe with any ſhape of the bob, however ſlender the cord, wire, or rod of ſuſpenſion. For inſtance, if a ſmall ball of lead, or other ponderous body, were ſuſpended by a ſilken thread; ſuppoſe the ball to be divided into two equal ſemi-balls by a horizontal line, as it is ſuſpended by the vertical thread, then the lower ſemi-ball would move with a greater velocity than the upper one, though vibrating together, in conſequence of its greater radius of motion, conſequently the momentum of the lower ſemi-ball would exceed that of the upper one, and conſidering the two ſemi-balls as again united, it is clear that the common point of *oſcillation* will be ſomewhere in the lower ſemi-ball, though the centre of gravity is in the middle of the line of diviſion, even if the ſilk thread be aſſumed as having no ſenſible weight. As we have given the methods of determining the centres both of *gravity* and of *oſcillation* of bodies of different figures, with much minuteneſs, under our article Center, it is not neceſſary to purſue this part of our ſubject here, but to beg of the reader to recollect that the centre of *gravity* of any ſingle pendulum is always *above* the centre of its *oſcillation*, and that the diſtance from the point of *ſuſpenſion* to the centre of *oſcillation* is always to be taken as the *true length* of the pendulum, however ſuſpended, or whatever may be the ſhape or ſize of the bob or ball. This obſervation is indeed equally true, however complex the conſtruction of the pendulum may be, for we have ſhewn, (ſee Center,) that whatever be the number of particles of matter compoſing a pendulum, the products of the particles lying at one ſide of the centre of oſcillation, when multiplied both by their reſpective diſtances from the point of ſuſpenſion, and alſo from the centre of oſcillation, will make an amount, always equal to the amount of the products obtained from the particles ſo multiplied, lying at the other ſide of the centre of oſcillation, without regard to ſhape or ſize. In a common ſeconds pendulum of 39.2 inches length, with a heavy lenticular bob, and a ſlender verge or rod of ſuſpenſion, the centre of *gravity* is very nearly $\frac{1}{20}$th of an inch above the centre of *oſcillation*; and in all our preceding deductions the length of the pendulum muſt be conſidered as meaſured from the point of ſuſpenſion at the vertex, to the centre of oſcillation.

But we have ſeen a pendulum ſo applied for the regulation of a portable clock, that the point of ſuſpenſion was not at the vertex, but in a point ſomewhere between the vertex and the centre of gravity; by which application, the centres of gravity and of oſcillation were farther removed from each other, than they would have been with the point of ſuſpenſion at the vertex. A pendulum of this deſcription, of a ſhort length, may be made to vibrate in times of different lengths, which will depend on the reſpective diſtances between the centres of gravity and of oſcillation; but the ſcale of adjuſtment for time being very ſhort, and liable to be altered by variable temperature, this conſtruction may be conſidered as an object of curioſity rather than of utility. If it were required, however, to find the diſtance between the centre of oſcillation and point of ſuſpenſion in any pendulum of this ſort, where the *time* of *vibration* is *given*, it may be thus determined: Let T be the time given, L = length of a ſimple or common pendulum that will vibrate in that time, $\pi = 3.1416$, $m = 16\frac{1}{2}$ feet, and F = the force of gravity conſtantly acting; then ſince $T = \sqrt{\frac{\pi^2 L}{2 m F}}$, we ſhall have $L = \frac{2 m F T^2}{\pi^2}$ for the diſtance from the point of ſuſpenſion to the centre of oſcillation. Again, in *fig.* 3, *Plate* XXXIX. of *Horology*, let A *a* be a ſolid uniform rod, and G its centre of gravity; then if A be taken as the point of ſuſpenſion in the vertex, the centre of oſcillation will be at O, at two-thirds of its length from A. But let S be put as the point of ſuſpenſion below A, then $L = SG + \frac{AG \times GO}{SG}$. Let $SG = x$, $AG = D$, $GO = d$; then $L = x + \frac{Dd}{x}$, or $x^2 - Lx + Dd = 0$, from which $x = \frac{L \pm \sqrt{L^2 - 4Dd}}{2}$; ſubſtitute $\frac{2 m F T^2}{\pi^2}$ for L in this equation, and it determines the diſtance of the point of ſuſpenſion to (G) the centre of gravity of the rod; th[illegible] which point (S), if the axis of ſuſpenſion be made to paſs the rod will vibrate in the *given time*. But as x has two values, it ſeems that there are two points at different diſtances from G, the centre of gravity; from which if the rod be ſuſpended, it will oſcillate in the given time. By ſimilar reaſoning it may be proved, that the rod will vibrate in the *leaſt poſſible time*, when S G is a mean proportional between A G and G O; likewiſe, that if *o* be the centre of oſcillation to the point of ſuſpenſion S, the point, G, of the centre of gravity will be in the middle between S and *o*; and, laſtly, that a rod ſo circumſtanced will vibrate in the leaſt time poſſible, when its point of ſuſpenſion, S, is $\frac{21}{100}$ of the whole length of the rod from its vertex A.

3. We come, in the third and laſt place, to treat of the various conſtructions of the attached pendulum, when uſed as the regulator of an horological machine, as we at firſt propoſed. It has been uſual, when treating of the pendulum, to call what we have denominated the free or *detached* pendulum, vibrating by the action of its own gravity alone, the *ſimple* pendulum; and what we call the *attached* pendulum, where external force is introduced in aid of gravity, the *compound* pendulum. But as the attached pendulum is conſtructed ſometimes with a *ſimple* rod or verge, and ſometimes with a *compound* one, we propoſe to apply theſe two terms, *ſimple* and *compound*, excluſively to the different conſtructions of the attached pendulum, agreeably to the ſignifications in which they are uſed by clockmakers.

In writing the article Escapement, which is that portion of a clock that tranſmits the maintaining power, in a modified way, to the pendulum, we found it neceſſary to explain at ſome length, how the natural ſcale of forces, ariſing from gravity alone, is diſturbed by the acceſſion of any external force, ſuch as is derived from the maintaining power; and by a reference to *figs.* 1. and 2. of *Plate* XXXI. of *Eſcapements*, we proved that this ſcale is moſt deranged, when the external force is applied at the extremity of the arc of excurſion; and leaſt, at the loweſt point of the ſaid arc. We alſo ſhewed how to eſtimate, in any point of the arc, both the force applied at that point, and the velocity with which the pendulum is moving there; as well as determined the total arc correſponding to the maximum of velocity, and other particulars of eſſential importance both in the theory and practice of clock-making. We muſt, therefore, requeſt the reader to conſult our introduction to the article Escapement, ſo far as it relates to the *pendulum*, before he proceeds to peruſe the remainder of our preſent article. Indeed, the different parts of a clock are ſo intimately and mutually connected, that the action of one frequently cannot be clearly explained, without at leaſt a partial explanation of the properties of the other: which is the reaſon why we have anticipated ſeveral particulars relating to the motion of the pendulum, before we arrived at our preſent article.

Of the ſimple Pendulum in Horology.—When a pendulum was firſt applied to be the regulator of a clock, the crown-wheel eſcapement was uſed with it by Huygens, and the pendulum was neceſſarily made to vibrate in long arcs; but it was ſoon found that it had at leaſt three defects: 1ſt, the maintaining power acted on the wheel, and conſequently on the pendulum, by means of the fork, almoſt conſtantly, thereby producing an alternate acceleration and retardation of motion beyond what gravity alone would produce; 2dly, the times of vibration in the longeſt arcs were found to be ſlower than in the ſhorteſt arcs, in the proportion of about 34 to 29; and, 3dly, the verge of the pendulum itſelf was found to have its total length increaſed or decreaſed by variations of atmoſpheric temperature. Hence aroſe the neceſſity of new eſcapements, and of different modifications of the pendulum, to make it act as an uniform regulator of mean time under all circumſtances. As we have had occaſion to deſcribe different pendulums, and alſo the parts connected with them, ſuch as the fork that gives it motion, the cock by which it is ſuſpended, the ſpring of ſuſpenſion, the verge, the bob, and ſcrew of adjuſtment, &c. (ſee Clock, and Clock-*Making*,) a repetition of what we have before ſaid would be ſuperfluous. We will, therefore, take it for granted that every one, that has ſeen an ordinary clock with a ſeconds pendulum, which, with Dr. Hooke's anchor eſcapement, is called the *royal pendulum*, knows its parts and conſtruction. The true length between the centre of oſcillation and axis of ſuſpenſion of any pendulum is beſt aſcertained by adjuſtment for rate, firſt, from hour to hour roughly, and then from day to day, either by the going of a good clock already adjuſted, or by a tranſit of one of the heavenly bodies. (See Chronometer, prob. vii, viii, and ix.) But from what we have ſaid under our article Escapement, it will be ſeen that the length of any pendulum will require to be a trifle more or leſs, accordingly as the *external impulſe*, derived from the maintaining power, is great or ſmall, permanent or temporary, gradual or inſtantaneous; or, which is to the ſame effect, accordingly as the eſcapement has a *recoil*, is of the *dead-beat* ſort, is *detached*, or has a *remontoire*. When, therefore, we ſpeak of the acting length of a pendulum, we muſt always have a reference to both the quantity and quality of the auxiliary force that perpetuates its motion. In ordinary caſes, an additional force applied in aid of gravity accelerates the pendulum, and requires a compenſation by adjuſtment, as will be ſeen preſently, for additional length. This adjuſtment was made by Huygens, by a ſmall ball moving along the verge above the bob, but is generally effected by a tapped nut at the inferior end. This method is, however, inconvenient, inaſmuch as that it requires the pendulum to be ſtopped; for which reaſon, in many regulators, or aſtronomical clocks, the adjuſtment for rate is made at the ſuperior end, above the cock. For the ſhape and ſize of the bob of a given pendulum, we muſt refer to our term Bob, in its proper place, where we have entered into a minute detail of the particulars relating to its ſhape and ſize, with a given maintaining power and eſcapement, both which muſt be conſidered at the ſame time; but further experiments are perhaps wanting, in this department of horology, to determine the beſt poſſible combination of all the requiſite agents in a moving pendulum, including the ſuſpenſion. The metal of which the verge is uſually compoſed is iron or ſteel; but their expanſion by heat, and contraction in cold, render them improper ſubſtances for an accurate pendulum: for, in the extremes of temperature, the rate will alter by an iron pendulum more than 20″ in the 24 hours. Straight-grained deal or ſapadillo, well ſeaſoned, is better for the verge than metal; though theſe, and indeed all ſorts of wood, are ſubject to changes, from moiſture, if not from heat, and therefore cannot be entirely depended on, in all ſeaſons of the year, where great accuracy is required.

From what we have here had occaſion to ſtate reſpecting the motion of an attached pendulum, it will be evident to our readers, that our deductions with reſpect to the exact length of the *detached* one, where the *accelerative force* was conſidered conſtant and uniform, will not be ſtrictly accurate when that force is *variable*, which it is more or leſs in its *attached* ſtate: we will therefore conclude our remarks on the *ſimple* attached pendulum, by ſhewing in what degree the length of ſuch pendulum is affected by any accelerative force. Whatever this force (F) may be, the time of a body's falling down half the length of the pendulum, by the laws of acceleration, will be $\left(=\sqrt{\frac{S}{m\,F}}\right)=\sqrt{\frac{L}{2\,m\,F}}$, where $m = 16\frac{1}{2}$ feet, and L = the length of the pendulum, and $\pi = 3.1416$; therefore $T\,.\,\sqrt{\frac{L}{2\,m\,F}} :: \pi : 1$, or $T = \sqrt{\frac{\pi^2 L}{2\,m\,F}}$, which *varies* as $\sqrt{\frac{L}{F}}$. Conſequently, the times of vibration of pendulums of *different lengths*, acted upon by *different accelerative forces*, will vary as the *ſquare roots* of the *lengths* directly, and the *ſquare roots* of the *forces* inverſely. If L be given, then $T \propto \frac{1}{\sqrt{F}}$; that is, the times of vibration of pendulums of the *ſame length* vary inverſely as the *ſquare roots* of the *accelerative forces;* and if T be given, then $L \propto F$; namely, the lengths of pendulums vibrating in the *ſame time* vary as the *forces* which *accelerate* them.

The accelerative force, added to the natural force of gravity in a clock, is uſually called the *maintaining power*, and may be derived either from an appended weight immediately through the eſcapement, or from a ſpring or ſprings wound up by a weight at ſhort intervals; and in either caſe the quantity and mode of its action will be limited by the nature of the eſcapement adopted; and frequently the ſpring of ſuſpenſion is ſo tapered upwards or downwards, as to become a modifier of the maintaining power, in conjunction with the eſcapement, all which circumſtances muſt be taken into the account when the nature and quantity of the extraneous force is eſtimated.

Before we conclude our account of the ſimple pendulum, we will juſt mention that ſuch pendulum vibrating in a given time, in a given ſituation on the Earth's ſurface, has been propoſed as a perpetual ſtandard of linear meaſure. Hatton, we underſtand, firſt propoſed this ſubject for the conſideration of the Society of Arts at the Adelphi buildings, (vol. i.) and Mr. Whitehurſt took up the ſubject after him, and contrived a method of aſcertaining the difference between the lengths of a ſeconds and half-ſeconds pendulum, by means of an apparatus, which afterwards came into the poſſeſſion of Dr. George Fordyce, who improved it, by adding a compenſation to the pendulum, and gave an account of it, with drawings, in the Philoſophical Tranſactions of London, of the year 1794.

We may alſo mention here, that Huygens, in his "Horologium Oſcillatorium," propoſed a *circular* or *circulating pendulum*, to move in the concave ſide of a parabolic conoid, the circuits of which would be performed, he ſays, in equal times, when the mechaniſm is properly adjuſted; but it would lead us beyond our mark in this place, to purſue this part of the ſubject further. See Horol. Oſcil.

Of compound or compenſating Pendulums.—If any ſubſtance, ſufficiently long for a pendulum, could be found in nature, that has not its dimenſions enlarged or diminiſhed by heat or cold, ſuch ſubſtance would be the moſt ſuitable for a ſimple attached pendulum; but all attempts to diſcover ſuch a ſubſtance have hitherto been ineffectual. (See Expansion.) Hence different contrivances have been deviſed by ingenious men, to counteract the effects of variable temperature in the pendulum, and ſome of them have ſucceeded in effecting this deſirable purpoſe. So long ago as the year 1648, the different expanſibilities of various metals was known by Wendelin to exiſt, and in 1715 that ingenious artiſt George Graham made ſeveral experiments with the pyrometer, invented by Muſſchenbroek, to aſcertain the relative quantities of expanſions of different metals, with a view of availing himſelf of the difference of the expanſions of ſome two or more metals, when oppoſed to each other, in the conſtruction of a compenſating pendulum, but the difference which he detected, between iron and braſs, for inſtance, was ſo ſmall, that he relinquiſhed all hope of being able to accompliſh his object in this way, and therefore gave up the project. (Phil. Tranſ. London, 1726.) However, it occurred to the ſame artiſt, that mercury was affected by changes of heat and cold ſufficiently to anſwer the purpoſe of keeping the centre of oſcillation of a pendulum always equi-diſtant from the point of ſuſpenſion, provided the mercury could be made to aſcend while the verge of the pendulum deſcended, or elongated, by any degree of heat; and *vice verſâ*. In 1721 the trial was made in a pendulum, which we ſhall preſently deſcribe, and in which the compenſation, after ſome adjuſtment, was found ſo complete, that its error in the extremes of temperature was reduced to $\frac{1}{8}$th of the quantity obſervable in an ordinary ſimple pendulum. In the mean time, the idea of arranging metallic bars of different expanſibilities in ſuch a manner, as to conſtitute a good compenſating pendulum, being once ſuggeſted by Graham's paper on the ſubject, rouſed the ingenuity of different mechanics, and Harriſon, a carpenter of Barton in Lincolnſhire, in the year 1726, ſucceeded in completing the requiſite arrangement. His rods of metal were placed in ſuch parallel ſituations as to reſemble thoſe of a grid-iron, from which circumſtance the pendulum, ſo conſtructed, has been denominated the *grid-iron pendulum*. Since Harriſon's time, there have been various modifications of the compenſating pendulums, both in England and France, the principal of which we ſhall deſcribe in their order of time, but none of them have been found to excel the prototypes of Graham and Harriſon, which are ſtill uſed, one or other of them, in the principal obſervatories. If any improvement has been made on the original pendulums, it is in the external appearance, and in the eaſier modes of adjuſtment.

Graham's Mercurial Pendulum.—Graham's mercurial pendulum, which may be conſidered as the firſt compenſating pendulum, is repreſented in *fig.* 4, of *Plate* XXXIX. of *Horology*; A B is the verge conſiſting of a rod of ſteel, carrying at its lower extremity a ſtirrup, B C, of the ſame metal, holding the glaſs cylindrical veſſel, E F, on a circular plate, ſurrounded by a rim, to keep the veſſel from falling out; this veſſel was filled with pure mercury up to the letter F, near the top; and above there was ſpace enough to receive more, in caſe the compenſation ſhould not prove on trial to be ſufficient. The ſliding piece of metal, D, was adjuſtable to any part of the verge, for fixing the rate of going, and the compenſation could be made more or leſs by adding to or deducting from the mercury. It does not appear certain, whether the glaſs veſſel was choſen by conjecture, as to its ſize and ſhape, or was calculated previouſly, from a conſideration of the relative expanſibility and abſolute ſpecific gravity of mercury; but we are diſpoſed to think, that it muſt have been from calculation, becauſe it very much reſembles the veſſel calculated by Mr. Lowe of Iſlington, for the mercurial pendulum recently made for the Royal Obſervatory of Greenwich, by Hardy. In this pendulum, as now made by Hardy, and others, the lower end of the verge is tapped, and deſcends through the top of the ſtirrup, where a milled and divided nut ſcrews on, by means of which the adjuſtment for rate is made, without the ſliding piece D, which is now rejected. One peculiarity of this pendulum is, that the mercury which is uſed as the means of compenſation, conſtitutes alſo the weight of the bob. We are not made acquainted with the quantity of mercury uſed by Graham; nor yet with the particulars of Mr. Lowe's calculation; but the veſſel which the latter determined, as the moſt ſuitable, was cylindrical, ſeven inches and a half long within, and two inches in diameter, excluſively of the thickneſs of the glaſs, which was one-eighth of an inch; the capacity propoſed was for twelve pounds, but by eſtimating the ſolid contents of ſuch a veſſel, and trying its bulk of mercury, from a table of ſpecific gravities, we find that it will not hold more than ten pounds of this fluid, if ſo much. The depth to which Hardy's veſſel was propoſed to be filled was 6$\frac{7}{10}$ inches, but on trial at the Royal Obſervatory, it was found neceſſary to add $\frac{1}{10}$th more, and 6$\frac{8}{10}$ inches are now found to compenſate the ſteel verge ſo admirably, that the greateſt deviation in the rate, during winter and ſummer, has never yet exceeded $\frac{4}{10}$ths of a ſecond *per* day. The eſcapement that acts with Hardy's pendulum is of the remontoire ſort, acting almoſt conſtantly on the pedulum, and therefore requiring it to be ſomewhat longer than an exact ſtandard.

Harriſon's Grid-iron Pendulum.—Though we have given a general deſcription of Harriſon's grid-iron pendulum, as made by Reid of Edinburgh, under the article Clock, (ſee *Aſtronomical Clock by Mr. Thos. Reid of Edinburgh*) to which we refer our readers, as well as to *Plate* XXII. of *Horology*, where it is repreſented; yet we feel it due to that ingenious artiſt, to reſume our obſervations on his contrivance in this place. When Harriſon had determined the relative expanſions of ſteel and braſs to be very nearly as 3 to 5, it is probable that he reaſoned on the ſubject in ſome ſuch way as this; let a rod of ſteel be ſuſpended by its upper end on a fixed point, and let it hang freely in a vertical poſition, then to the lower end rivet the lower end of a braſs rod, ſo as to aſcend parallel and contiguous to the iron rod, while it is ſupported by the rivet; if the iron rod be divided into five equal portions, and the braſs rod be made juſt equal to three of thoſe portions, what will be the conſequence? Why the tops of the two rods will always preſerve the ſame diſtance from each other, becauſe the downward expanſion of the longer iron rod will always be equal to the upward expanſion of the ſhorter braſs rod, conſequently, if the vertex of the iron rod be made ſtationary, by being fixed to a wall or otherwiſe, the vertex of the braſs rod will alſo be ſtationary as it reſpects the other. Let now the vertex of the iron rod be aſſumed as the point of a pendulum's ſuſpenſion, and let the vertex of the braſs rod be the place for the centre of oſcillation, then the centre of oſcillation of a ſingle rod, or of any number of ſimilar rods, of uniform metal, is at $\frac{2}{3}$ds of the length from the point of ſuſpenſion; but the common centre of oſcillation will be ſtill lower in a compound pendulum that has another rod, not of the ſame length attached to its lower end; therefore two rods ſo united cannot produce a proper compenſation, and at the ſame time have the immoveable point at the common centre of oſcillation. But the rods may be cut into any number of lengths that the due arrangement may require; we have ſeen that if the long iron rod be cut in two between the ſecond and third portion, we ſhall have three lengths, one of iron $\frac{2}{5}$ths of the long rod, one of braſs $\frac{3}{5}$ths, and another of iron $\frac{3}{5}$ths, or equal to the one of braſs; in every arrangement of the various lengths to form a compound pendulum, the rods of leaſt expanſion muſt neceſſarily expand downwards, and thoſe of greater expanſion muſt expand upwards, becauſe theſe rods will be fewer in number, and the difference of the total expanſions muſt compenſate the laſt rod of the combination, by which the ball is ſuſpended; accordingly the length of the verge muſt be ^{2}ths of the longer rod, and the other two each $\frac{3}{5}$ths; but $\frac{3}{5}$ths is $\frac{1}{3}$d longer than the required pendulum; this arrangement therefore in a ſeconds pendulum is inconvenient, making the pendulum too long: let the iron rod then have three lengths and the braſs rod two, ſo that there may be two pairs of equal length and one to ſpare for the verge, to be compenſated by the ſurplus of expanſion of the braſs over the iron equal pairs of rods; this diviſion in due proportions will make a pendulum of the requiſite length, and will alſo preſerve the centre of oſcillation unchanged as it regards the axis of ſuſpenſion; but there is yet an inconvenience to be ſurmounted; the two pairs of alternate iron and braſs rods are to be united at both their extremities, each to the next contiguous rod, firſt below and then above, till they are all attached to each other, and the ball of the pendulum muſt in this caſe be ſuſpended by the *extreme* rod, which will therefore make the vertical line fall diagonally acroſs the parallel rods, and pull them to a diſtance from each other; but to prevent this evil the ball muſt hang from the *middle rod*, and alſo the rods muſt be braced to prevent their flying out; theſe requiſites may be effected by employing two pairs more of ſimilar iron and braſs rods, at the oppoſite ſide of the fifth or ſpare iron rod, that carries the ball, for theſe additional pairs of bars will not otherwiſe affect the compenſation, than do the ſame thing over again which the others did without them; and they will thus conſtitute a counterpoiſe by their weight, afford the means of a longer horizontal bracing piece, and preſerve the coincidence of the vertical line with the middle rod at the quieſcent poſition. Thus *nine* rods became neceſſary to conſtitute the grid-iron pendulum; and when they are well proportioned and nicely fitted into the holes of the connecting pieces, ſo as not to touch one another, nor to have friction in the holes, the pendulum completely anſwers its purpoſe in all variations of temperature, and may be brought to time, like the ſimple pendulum, by a ſcrew of adjuſtment either at the cock of ſuſpenſion under the ball, or at the point of oſcillation. But the proportions of the alternate rods may not produce the exact compenſation; that is, the pendulum may be either overcompenſated or under-compenſated; the adjuſtment for compenſation, when that is neceſſary, is uſually made by altering the poſition of one of the horizontal connecting pieces of braſs, by taking out the pins and inſerting them again into other holes, drilled in ſome of the bars to anſwer this purpoſe. This adjuſtment, however, is troubleſome, as it cannot be made without detaching the pendulum, and putting it probably out of its rate of going; and this inconvenience conſtitutes one of the principal objections to this conſtruction of the pendulum, for which there appears to be no remedy yet deviſed. For the conſtruction of a grid-iron pendulum rods, drawn into wire, are preferable to ſquare rods, both on account of their having leſs friction, and of their being more expoſed to the air, when not quite in contact. In Harriſon's pamphlet, publiſhed in 1763, it is ſtated that one of his clocks did not deviate from its rate, as meaſured by his grid-iron pendulum, more than one ſecond in a month, for ten years together; and Berthoud has expreſſed his regret that all the particulars of Harriſon's conſtruction of a clock, have not been divulged, that the public may benefit from his contrivances. It ſhould ſeem that notwithſtanding the objections that have been made to the cycloidal cheeks, Harriſon, while unacquainted with Huygens's invention, introduced the uſe of them into at leaſt one of his clocks. But their excellence did not conſiſt of this addition. About the year 1798 the compoſer of this article ſaw, in a back lane at Lincoln, and purchaſed one of Harriſon's clocks, which he recollects had wheels and pinions of hard wood; and that the teeth of the pinions were cylindrical rollers turning looſely on as many pins of ſteel: but he could not examine the eſcapement. The old woman, who was the poſſeſſor, was a lineal deſcendent from Harriſon, and ſome of her wiſe neighbours perſuaded her, that if ſhe parted with Harriſon's clock, his *ghoſt would haunt her*, which ſuggeſtion made ſuch an impreſſion on the good woman's ſpirits, that ſhe begged ſhe might be allowed to retain her clock; which requeſt was accordingly granted.

Regnauld's Pendulum.—In the year 1733, Regnauld, a clock-maker of Chalons in France, contrived a metallic pendulum of braſs and ſteel, the expanſions of which were oppoſed to each other in ſuch a way, that they conſtituted a *partial* compenſation. This pendulum is repreſented by *fig.* 5. of the ſame plate that contains Graham's mercurial pendulum, and probably derived its origin from the experiments mentioned in his paper on the Philoſophical Tranſactions of London of the year 1726. The pendulum in queſtion was made before Harriſon's account was publiſhed; it was compoſed of three parallel rods, two of ſteel and one of braſs; the middle rod was of ſteel, and carried the horizontal croſs-piece E A attached to its lower extremity; one end of this croſs-piece ſupported the braſs rod A B, to the top of which, at B, was rivetted the horizontal pin which paſſes through an oblong hole in the middle rod; the third rod, D E, which was of ſteel, was ſuſpended by the pin B, and carried the bob L, attached to it by a tapped nut of adjuſtment for rate beneath: the whole pendulum muſt have been ſuſpended by the top of the middle rod. The action is thus; while the middle rod elongates downward by increaſed heat, the braſs rod of greater expanſibility, A B, elongates upwards, and carries with it the pin B, by which the third rod D E is ſuſpended; and this rod paſſing through the croſs-piece E A, again elongates as much as its fellow, or rod A B of the ſame metal; therefore the compenſation is effected on a ſuppoſition that one rod of braſs will compenſate two of ſteel, or that braſs expands double the quantity of ſteel with the ſame degree of heat, and alſo contracts in the ſame ratio, neither of which aſſumptions is true. The relative expanſions being in fact as 17 to 10, according to Berthoud, or, according to others, as 113 to 68, or very nearly as 5 to 3.

Deparcieux's Improvement of Regnauld's Pendulum—In the year 1739, Deparcieux, a teacher of mathematics, and a diſtinguiſhed member of the Academy of Sciences at Paris, examined the conſtruction of Regnauld's pendulum, and propoſed an improvement in its conſtruction, which rendered it capable of adjuſtment for compenſation as well as for time. This pendulum is given in *fig.* 6. of the ſame plate, and may be thus deſcribed: A R P and E F are two bars of ſteel paſſing through the perforated piece of metal S T, which forms a clamping-piece to hold them in their places; C D is a bar of braſs reſting with its inferior end on the toe, F, of the bar E F, ſo as to be ſupported by it. Q R is another clamping-piece, faſt either at Q or R to one of the ſteel bars, but ſo adjuſted, that the other two may not be reſtrained from paſſing without friction whenever they elongate. Through the clamping-piece, S T, paſſes a ſlit lever reſting at the end S, as a centre of motion, in a notch, or otherwiſe made moveable round a fixed pin, in the clamping-piece; this lever has a triangular point reſting on the top of the braſs bar C D in ſuch a way, that it is at liberty to aſcend with the bar whenever it elongates; at the other end of the ſaid lever the rod A R is ſuſpended, which therefore has more or leſs motion upwards produced by the expanſion of C D, accordingly as the triangular point on the lever is nearer to S, the centre of motion, or T, the point of the third bar's ſupenſion: for when the rod E F elongates, the rod of braſs C D elongates more in the proportion of 17 to 10, and the ſurplus 7 acts on bar A R, and, by the aid of the lever, compenſates it.

This pendulum was afterwards ſtill further improved by Berthoud, who made the triangular point of bearing in the lever adjuſtable for diſtance from the centre of motion, by a ſcrew that acted on it, and altered its ſituation a little. (See Eſſai ſur l'Horlogerie, tome ii. p. 123.) Berthoud aſcertained the relative expanſions of ſeveral different metals by a pyrometer that indicated the $\frac{1}{360}$th part of a French line, and according to his experiments, made the 17th of March 1760, when he was contriving the alteration in Deparcieux's improved pendulum, the following Table was conſtructed; in which the verge was taken at 3 feet 2 inches and 5 lines French, or 461 lines, in each experiment.

Berthoud's Table of Metallic Expanſions.

A verge of ſoft ſteel	$\frac{69}{360}$	of a line.
——— of ſteel hammered cold	$\frac{74}{360}$	of ditto.
——— of ſpring-tempered ſteel	$\frac{77}{360}$	of ditto.
——— of ſoft iron	$\frac{75}{360}$	of ditto.
——— of hardened iron	$\frac{78}{360}$	of ditto.
——— of copper	$\frac{107}{360}$	of ditto.
——— of braſs	$\frac{121}{360}$	of ditto.
——— of tin	$\frac{160}{360}$	of ditto.
——— of lead	$\frac{193}{360}$	of ditto.
——— of glaſs	$\frac{62}{360}$	of ditto.
——— of ſilver	$\frac{119}{360}$	of ditto.
——— of gold ſoftened	$\frac{82}{360}$	of ditto.
——— of gold in hard wire	$\frac{94}{360}$	of ditto.
——— of mercury	$\frac{1235}{360}$	of ditto.

In this table the whole fraction of each metal gives its abſolute expanſion, and the numerators the relative expanſions, as the denominator is common to all. Theſe experiments were firſt made with ſimple rods, and again with 35 pounds ſuſpended to each, without any variation in the expanſions, though it appeared that the ſubſequent contractions were not exactly correſponding when the weight was ſuſpended and when there was no weight; and it is to be regretted, that the author did not repeat his obſervations on the comparative contractions under different circumſtances, as he has done the comparative expanſions, in order that the reſults might have been aſcertained as they relate to the pendulum's verge ſtretched by a weight; for in all the experiments we have reported under our article EXPANSION, the ſubſequent contractions are conſidered as being exactly proportional to the expanſions in the ſame degrees of oppoſite temperature. In compoſing a pendulum of rods of any two of theſe metals, it is perhaps unneceſſary to remark, that the rods of each metal muſt have their total lengths in an inverſe ratio of their expanſibilities, unleſs indeed ſome mechanical advantage by a lever, or otherwiſe, be given in aid of the difference of the abſolute expanſions, as is done in the inſtance before us.

Deparcieux's Compenſation of a Simple Pendulum.—In the ſame year in which Deparcieux contrived an improvement of Regnauld's pendulum, he invented a compound compenſation frame to be ſubſtituted for the common cock of ſuſpenſion, without altering the ſimple pendulum, which mechaniſm comes next to be deſcribed.

This contrivance is repreſented by *fig.* 7, of our laſt named plate, where A B D F is a ſteel bar bent into the ſhape of a two-pronged fork with the ends pointing upwards, and fixed to a ſolid wall at the points A and F. G E I H is another fork, formed ſmaller, of braſs, and is inverted, or made to ſtand with its ends reſting on the horizontal part, B D, of the outer, or ſteel fork. The horizontal, or upper part, E I, of the braſs fork, conſtitutes the cock of ſuſpenſion, and has a ſquared hole in the middle, which juſt admits the tapped wire K, from which the ſuſpenſion-ſpring depends; in order that the nut of this tapped wire may give the adjuſtment for time. Underneath this croſs-piece of the fork of braſs is a detached cock, not ſhewn, near C, which has a ſlit cut through it in the direction of the vertical line of the ſpring of ſuſpenſion, through which the ſpring paſſes without play, and from the under ſide of which the length of the pendulum is reckoned. This cock of limitation is ſcrewed to the frame of the wheel-work, and therefore remains unmoved. It is eaſy to ſee, in this diſpoſition of the bars of ſteel and copper, that if the expanſions of thoſe two metals be as 10 to 17, the length of the ſteel verge of the pendulum added to the length, A B, of the outer fork, muſt be to E G, the length of the inner fork above, as 17 to 10, to make the compenſation complete; and accordingly the length of the braſs fork was made 54$\frac{5}{7}$ French inches, the ſum of the other two being very nearly 93.

About the ſame time that this pendulum was made, Caſſini propoſed ſome different conſtructions, ſome with three, and ſome with five rods, ſteel and braſs alternately, in the pendulum itſelf, which he gave in a memoir in the Hiſtory of the Academy of Sciences at Paris in the year 1741.

Compenſating Tube and Rod of Julien le Roy, applied to the Simple Pendulum.—According to Thiout, Julien le Roy contrived a mode of compenſating the ſimple pendulum in the ſame year as Deparcieux, above ſtated, and on the ſame principle, though the compenſating mechaniſm of Le Roy was altogether above the pendulum. This contrivance, exhibited in *fig.* 8, of the ſame plate, conſiſts of a vertical braſs tube, 42 French inches long, denoted by the letters *a b c d*, reſting at its lower end on A B, the cock of ſuſpenſion, which is alſo the cock of limitation of the pendulum's length, by having a ſlit made in it juſt large enough to admit the ſpring of ſuſpenſion without play, which ſpring hangs from the lower end of a ſteel rod, attached to the top part or cap, *a b*, of the braſs tube; therefore, in this conſtruction alſo, the ſum of the ſteel rods, *i. e.* of the verge of the pendulum, including its ſpring, and of that included in the tube, ſhould be to the tube alone as 17 to 10. Thiout has given the length of the tube only at 42 inches, but Berthoud has remarked, that it either is, or ought to be, 54$\frac{5}{7}$, like the braſs fork of Deparcieux. A pendulum of Le Roy's conſtruction was ſpoken well of in Caſſini's Memoir of 1741, and was adopted in the obſervatory of Cluny about 1748, after which time the clock, to which it was applied, was ſpoken of with great eulogium.

The principal objections that, we conceive, apply to either of theſe two laſt pendulums, are, that the ſpring of ſuſpenſion is conſtantly altering its length and ſtrength; that the ſlit in the cock of limitation muſt have the effect of lengthening the pendulum in proportion to the play that the ſpring has in it, to the right and left of the vertical line, as the pendulum is vibrating; and that the pendulum rod in motion will cool ſooner than the compenſating parts remaining at reſt.

Ellicott's Compenſating Pendulum.—We have ſtated under our article Expansion, that Ellicott, of London, made very accurate experiments on the relative expanſions of ſeven different metals, which, on a compariſon, we find to differ, more or leſs, from Berthoud's table, as well as from the determinations of Smeaton, Ramſden, Julien le Roy, Borda, and others; ſo that when a compenſation pendulum is conſtructed of any deſcription, it ſeems proper, that the relative expanſions of the metal uſed ſhould not be taken from any table of reſults, but from an examination of the identical materials of which the pendulum is to be conſtructed, and that after tempering, hammering, filing, poliſhing, &c. in order to gain the due proportions in their ſtate as prepared for uſe. Ellicott, we doubt not, uſed this precaution, and his experiments were made, moſt probably, with a view to the conſtruction of the pendulum we are now going to deſcribe. It had been objected to Harriſon's grid-iron pendulum, that the adjuſtment of the rods for temperature was inconvenient, and accompanied by a conſiderable change in the rate, and that the expanſion of the ball ſupported at its lower edge was all in an upward direction, to avoid which objections, as well as the ſuppoſed jerks during the elongation, was probably Ellicott's object, at the time of his contriving a new pendulum: whether or not he had ſeen the application of the lever in Deparcieux's pendulum is not certain, but his contrivance is nearly allied to that, the principal difference being that in Ellicott's pendulum two levers are adopted inſtead of one, and are applied at the bob inſtead of the ſuperior end of the verge. In deſcribing Ellicott's pendulum we ſhall avail ourſelves of the inventor's own account, and then ſubjoin our own remarks. *Fig.* 1, of *Plate* XL. of *Horology*, repreſents the pendulum; in which *a b* is a bar of braſs made quite faſt at the upper end by pins, and held contiguous at ſeveral equal diſtances, by the ſcrews 1, 2, &c. to the rod of the pendulum, which is a bar of iron; and, ſo far as the braſs bar reaches, is filed of the ſame ſize and ſhape, though it does not appear ſo in the figure, but, a little below the end of the braſs, the iron is left broader, as at *d d*, for the conveniency of fixing the work to it, and is made of a ſufficient length to paſs quite through the ball of the pendulum to *c*. The holes 1, 2, &c. in the braſs, through which the ſcrews paſs into the iron rod of the pendulum, are filed, as in the drawing, of a ſufficient length to ſuffer the braſs to contract and dilate freely by heat and cold under the heads of the ſcrews: *e e e e* repreſent the ball of the pendulum; *f, f*, two ſtrong pieces of ſteel, or levers, whoſe inner centres, or pivots, turn in two holes drilled in the broad part of the pendulum rod, and their outer ones in a ſtrong bridge, or cock, ſcrewed upon the ſame part of the rod, but omitted in the figure, to ſhew the mechaniſm: *g, g*, are two ſcrews entering at the edges, and reaching into the cavity near the centre of the ball. The ends of the ſcrews next the centre are turned into the form ſeen in the figure, which, preſſing with the weight of the ball againſt the longer arms of the levers, cauſe the ſhort ends to preſs againſt the braſs bar at *b*. Things being in this ſituation, let us ſuppoſe that the rod of the pendulum, and the braſs annexed to it grow longer by heat, and that the braſs lengthens more than the iron of the ſame length; then the braſs, by the exceſs of its dilation, will preſs the ſhort ends of the levers downwards at *b*, and at the ſame time neceſſarily lift up the ball, which reſts on the long ends of the ſame lever, at *f f*, to any proportion neceſſary for due compenſations. The calculated proportion of the ſhort arms of the levers muſt be to the long ones, as the exceſs in the expanſion of braſs is to that of the whole length of iron; and if this calculation be found on trial not perfectly accurate, the ſide ſcrews *g, g*, will produce the exact compenſation at a few adjuſtments. At *i k*, the inferior end of the iron verge, a ſtrong double ſpring is fixed to bear the major part of the ball's weight, by its preſſure upwards againſt two points of the ball, equidiſtant from the vertical line. This is the deſcription of the firſt pendulum made in this way, and the only alteration that the inventor made afterwards was placing the ſide ſcrews in the body of the ball.

Cumming, after deſcribing this pendulum in his Elements of Clock and Watch-work, propoſes that the braſs bar ſhould elongate between two iron bars, in order to keep it ſtraight, and to prevent the jerks to which he conceives Ellicott's conſtruction is ſtill liable, from friction impeding the free elongation of the braſs bar, and from a conſequent tendency to curvature before each jerk: he has alſo propoſed to alter the ſtructure of the ſhort arms of the levers, by making them turn each on an axis of motion, and to change their places of preſſure mutually, in order that their united action may be applied in the ſame point, at the centre of the braſs bar, in direct oppoſition to the line of downward expanſion; and we entertain no doubt but that the propoſed alterations, once adopted, would be found to be real improvements in Ellicott's pendulum. See Cumming's Elements, page 106, and plate xi.

Rhomboidal Pendulum.—Mr. Hooke propoſed to make a compenſating pendulum of rods of ſteel and braſs arranged into the form of a rhombus, or rhomboid, the four ſides of which were of ſteel and the long diagonal of braſs: this conſtruction, requiring the pendulum to be broader than long, was found to be very inconvenient, and was therefore never applied to a clock. But the principle was afterwards taken up by a clock-maker at Ulverſton in Lancaſhire, named Williamſon, or Williams, who, about the time that Ellicott conſtructed his pendulum, made ſeveral pendulums, not however of one rhombus each, but of five united by joints at the angular points, oppoſed to the diagonals of braſs; ſo that as the braſs elongated more than the ſteel, the angles opened and kept the diagonals always at the ſame diſtance from the ſaid angular points, and from each other. Mr. Edward Troughton alſo, without knowing what had been done by Williamſon in this way, contrived and made a pendulum ſimilar to his in all reſpects, except that ſeven rhombi were adopted inſtead of five, which narrowed the pendulum ſtill more than Williamſon's conſtruction, and which anſwered its intended purpoſe very well. We believe this conſtruction is very little known at the preſent day, and, therefore, we beg leave to give a ſketch of its arrangement in *fig* 2. of *Plate* XL., which will be ſufficiently underſtood from inſpection. We have not calculated the proportions neceſſary for the ſides and common baſes of the triangles which compoſe theſe rhombi, ſo that the compenſation may be complete; but any one competent to conſtruct this pendulum will eaſily aſcertain by calculation the due proportions.

Compenſating Pendulum of F. Berthoud by Frames.—When Berthoud had finiſhed his experiments on the relative expanſions of metals in 1760, which was three years before Harriſon had publiſhed his pamphlet relating to his pendulum, he contrived a compound pendulum, much reſembling Harriſon's grid-iron at the firſt appearance, and which is conſtructed to anſwer the ſame purpoſe. He had previouſly noticed that Deparcieux's improvement of Regnauld's pendulum, and alſo his own, where the lever was introduced, were not calculated to ſupport a heavy pendulum with ſteadineſs; he therefore employed his mind in contriving one, by which any weight might be ſuſpended, that might be found deſirable to move in ſmall arcs. This pendulum, or rather a ſketch of it, is contained in *fig.* 3. of *Plate* XL., in which the oblong frame, ſurrounding the other parts, and denoted by the letters *a, b, c, d,* is of ſteel; the upper end of which carries the knife edge ſuſpenſion at *s*; *e f g h* is a ſecond frame, open at the top, and made of braſs; the horizontal portion, *e f*, reſts on the interior part of the lower end of the ſteel frame above the ball; the upper ends do not reach the whole length of the ſurrounding frame, but allow another frame of ſteel, *i n m n*, to reſt on them, by means of their chin-pieces, at their upper extremities; again, *o* and *p* are two rods of braſs reſting on the inferior part of the horizontal connecting piece, *i n*, of the ſecond ſteel frame, and at their upper ends ſupport a ſingle ſteel rod, with a chin at each ſide, which rod deſcends in the middle of the pendulum, and holds on its lower end the ball, after it has paſſed through holes made in the three frames above deſcribed. In this conſtruction, as in Harriſon's, it is eaſy to ſee, that the difference of the aſcending expanſions of the braſs frame and rods, and of the deſcending expanſions of the ſteel frames and middle rod, conſtitutes the compenſation for the effects of variable temperature; and if the ſum of the lengths of ſteel are to the ſum of the lengths of braſs inverſely as their expanſions, the compenſation will be perfect.

For the particulars relating to the ſuſpenſion, and metallic thermometer of a pendulum, made agreeably to this arrangement, we beg to refer our readers to Berthoud's own account, and to the correſponding engravings. See fig. 1. of plate 28. of Eſſai ſur l'Horlogerie, and fig. 1. of plate 10. Hiſtoire de la Meſure du Temps.

Troughton's Mercurial Pendulum.—When Graham's mercurial pendulum had been many years in uſe, and had performed in the moſt ſatisfactory manner, ſome prejudices were without reaſon raiſed againſt it, originating more in fancy than from experience, and Mr. Edward Troughton, about the year 1790, with a view of doing away the moſt material prejudice, contrived a modification of the mercurial pendulum, which may be conſidered as a diſtinct pendulum, inaſmuch as that the materials are differently arranged both as to quantity, quality, and ſituation. An idea prevailed that the metallic rod of Graham, and the veſſel of mercury, would not be affected by changes of temperature in a contemporaneous manner, but that the mercury being below the rod, and having on that account a quicker motion, would *cool* ſooner than the metallic rod, and be moreover liable to more frequent changes from its greater ſuſceptibility, notwithſtanding the teſtimony of a long trial to the contrary; Mr. E. Troughton therefore ſubſtituted a ſtrong glaſs tube with a bulb at the lower extremity, to be filled to a certain height with mercury, which ſhould riſe and fall preciſely as in a thermometer, which inſtrument, in fact, his tube is; and to make it uſeful as ſuch, it carries a graduated ſcale. The tube in queſtion is about the ſize of a barometer tube, and the bulb large enough to contain 45 ounces of pure mercury, by the aid of one-half the tube. *Fig.* 4. of *Plate* XL. will explain Mr. Troughton's arrangement more clearly than a mere verbal deſcription. A B is the mercurial rod filled with mercury to the *middle point* of the rod; at A the ſuſpenſion is ſimilar to that deſcribed in Meſſrs. Brockbank's aſtronomical clock, (ſee Clock,) where Troughton's tubular pendulum is deſcribed, with a reference to *Plates* XXIII. and XXVII.: C D is the bulb guarded by the ſurrounding lenticular bob of braſs and lead made in the uſual way, except that it is made hollow at the centre; the metallic parts of the pendulum weigh about nine pounds excluſively of the mercury; the rim that ſurrounds the bulb, and by which the weight of the lenticular bob is ſupported, projects into two notches cut in the interior edges of the metallic lens, at each ſide of the cavity, and the nice fitting of the bulb to its rim, renders the glaſs capable of bearing the weight of metal ſupported by it. The compenſation of this pendulum is effected entirely by the aſcent and deſcent, alternately, of the mercury up and down the glaſs tube as the heat varies, and as the expanſion of glaſs is much leſs than that of any of the metals, the ſmall column of mercury contained in the tube is found ſufficient to anſwer its purpoſe completely, after a trial of more than twenty years. Indeed this pendulum has proved itſelf equal, if not ſuperior, to any of its predeceſſors, and the difficulty of the conſtruction is perhaps the only objection why it is not more generally adopted, particularly in ſituations where there is no riſk of carriage. We cannot diſmiſs our account of this pendulum, of which ſort only a ſmall number has been conſtructed, and of which no account has been before publicly given, without mentioning a curious property in it, known only perhaps to the contriver and to the writer of this account, which is, that if the column of mercury be made to reach either above or below the *middle* of the pendulum, at a mean temperature, the pendulum in either caſe will be *under-compenſated;* but when the column reaches to the *middle exactly*, at a mean temperature, the compenſation is *exact;* that is, the compenſation has the greateſt effect when the column reaches to the middle of the pendulum, which the inventor, we underſtand, foreſaw would be the caſe, and calculated his dimenſions accordingly.

Dr. G. Fordyce's Compenſation of the Simble Pendulum, and others of a ſimilar Conſtruction.—The compenſation deſcribed in the Philoſophical Tranſactions of 1794, as the invention of Dr. G. Fordyce, is not attached to the pendulum, but to the cock of ſuſpenſion, in this reſpect like that of Deparcieux, contrived in 1739, from which it probably was borrowed. The original pendulum of Dr. Fordyce, as altered from Whitehurſt's, is now in the poſſeſſion of Gen. Bentham, from which an univerſal ſtandard of linear meaſure was attempted to be taken, and from which, as a model, ſome few others have been made. In *fig.* 5, of our laſt plate, let A B repreſent the back of the clock caſe, to which a tube of braſs may be attached at its lower end, of ſuch length as to compenſate the verge of the pendulum, which is a long ſlender ſpring. Near the top of this tube is a bracing piece, C, in form of a clamping tube, through which it paſſes without play or friction, and by which it is kept faſt to the back of the caſe. The upper end, A, carries the cock of ſuſpenſion and a counterpoiſe to the pendulum, and under it is fixed faſt to the clock frame a ſecond cock of limitation, for the ſpring of ſuſpenſion to be received in, and by which the effective length of the pendulum is limited. (For a minute account of this apparatus, ſee Nicholſon's Journal, 4to. ed. vol. iii. p. 20.) The theory of this pendulum is, that as the fixed tube behind the clock caſe lengthens by expanſion in heat, the ſteel pendulum, though more expanded, will be ſhortened in the ſame proportion by the upward motion of its ſpring and cock of ſuſpenſion above the cock of limitation; and if the wood of the clock caſe were unalterable by heat or moiſture, this theory would be a good one, but as it takes no notice of the material to which the fixed rod is attached at its lower end, the actual compenſation amounts to no more than the difference between the expanſion of metal and wood gives;

or in other words, it does no more ſo circumſtanced than a wooden pendulum would do applied in the common way. But inaccurate as the compenſation we have deſcribed muſt neceſſarily be, where the compenſation tube is reſting on another body not taken into the account; yet Mr. John Croſthwaite of Dublin has deſcribed a pendulum of his invention, in the Tranſactions of the Royal Iriſh Academy, as being a ſuperior pendulum, which differs in no reſpect from Dr. Fordyce's, except that the fixed rod of compenſation is ſolid as well as the verge, and is ſupported by a bracket carried by a large piece of marble, and like Whitehurſt's clock, has cycloidal cheeks near its ſpring of ſuſpenſion. Likewiſe the Rev. J. Pine of Eaſtdown, near Barnſtaple in Devonſhire, has deſcribed in the 3d vol. of the Repertory of Arts, &c. a pendulum ſimilar in all reſpects to Mr. Croſthwaite's, except that the cycloidal cheeks are omitted, and *ſpiral ſprings* applied to raiſe and lower the cock of ſuſpenſion as the rod of compenſation directs, which muſt be leſs ſteady than the original method of Dr. Fordyce.

Berthoud has deſcribed a method of compenſating a ſimple pendulum in his "Hiſtoire de la Meſure du Temps," tome ii. p. 84, fig. 2. plate 11, which is not liable to the ſame objection as the preceding ones; for he has not allowed any ſubſtance to be a part of his mechaniſm, if it is his own that he deſcribes, but what is taken into the account; a frame of three bars, the middle one of ſteel, and the two extreme ones of braſs, all faſtened at the bottom to a croſs piece, and the braſs ones alſo at their tops to another croſs piece, conſtitutes the compenſation in queſtion; the upper croſs piece, or end of the frame, is fixed to the back plate of the frame that holds the wheels, and conſequently the braſs rods elongate downwards, while the ſingle ſteel rod elongates upwards in a ſmaller quantity; it is not however faſt to the croſs piece, but paſſes through it, and carries a pin acting againſt one end of a double lever, that has its centre of motion on the cock of ſuſpenſion, while the other end of the double lever bears the pendulum. The conſequence is, that while the braſs rods lengthen downwards, they take the ſteel rod with them as far as is equal to the difference of their reſpective expanſions, and the contiguous end of the lever, which has a counterpoiſe for the pendulum, falls with it, and lifts the pendulum verge at the remote end of the double lever the requiſite quantity for compenſation of the ſimple rod: and this quantity is determined by an adjuſting ſcrew, altering the centre of motion between the two oppoſite ends of the double lever. This conſtruction ſeems to poſſeſs all the requiſites of a good compenſation, except that the frame is not in motion.

Troughton's Tubular Pendulum of different Metals.—We have already deſcribed two pendulums of Troughton's contrivance, both of which anſwered their purpoſe of being good regulators, and hence it may be matter of ſurpriſe, why the ſame man ſhould contrive a third, very different in its conſtruction from either of the former. But pendulums which may be equally good regulators of a clock, when properly adjuſted, are not equally capable of ready adjuſtment, particularly for variations of temperature, after they are brought to a mean time. All the pendulums which we have hitherto deſcribed required their adjuſtments for temperature to be made from a trial of their going in ſummer and winter, and eight or nine months waiting between each adjuſtment was an interval inconveniently long for an aſtronomer, who was anxious to purſue his obſervations; Mr. Troughton therefore, whoſe numerous contrivances are generally ſo many improvements in the mechanical arts, converted the grid-iron pendulum into a tubular one, which has all the accuracy of the old pendulum, and at the ſame time all the ſimplicity of the external ſhape of the ſimple pendulum. This pendulum has its compenſation examined, and its compenſating mechaniſm adjuſted by means of the inventor's new ſpirit-level pyrometer, without any trial for rate in the oppoſite extremes of temperature, and that as ſoon as it has been roughly adjuſted to mean time. This ſaving of time, and of a repetition of adjuſtments, is a great improvement in the art of clock-making, and when generally known and adopted will enable the maker to ſend home his machine perfectly adjuſted in the ſhort ſpace of a few days, whereas the old method of adjuſting for temperature, from obſervations repeated at diſtant intervals, required as many months, and in ſome caſes even years. Our *Plate* XXVII. of *Horology*, exhibits a variety of figures illuſtrative of the arrangement of the different parts of Troughton's tubular pendulum, and in our deſcription of *An Aſtronomical Clock with Troughton's Pendulum*, under the head Clock, a minute account is given of the conſtruction, to which our readers are deſired to revert. It is aſſerted in the Britiſh Encyclopedia, that Finny of Liverpool, and Chandler of Seven Dials, London, both conſtructed tubular pendulums, very ſimilar to Troughton's, many years before 1804, which is the date of Mr. Troughton's publication of his, in Nicholſon's Journal; but as the arrangement of the two metals is not the ſame as in Troughton's conſtruction, nor was known to him previouſly, this circumſtance, if true, does not detract from his merit, as it regards the invention in queſtion. Indeed we happen to know, that no tubular pendulum is at preſent, nor ever was, at the Richmond obſervatory, formerly ſuperintended by M. de Mainbray, as ſtated in the article above referred to.

Ward's Compenſation Pendulum.—In March of the year 1806, Mr. Henry Ward, of Blandford in Dorſetſhire, communicated to the Society of Arts at the Adelphi, an account of a new compenſation pendulum, accompanied by a model, which gained him the ſilver medal from the ſociety. This pendulum conſiſted of three bars, two of iron and one of zinc, arranged in a manner very ſimilar to Deparcieux's improvement of Regnauld's old French pendulum, but without the lever of adjuſtment. The repreſentation is given in *fig.* 6. of our laſt plate, where *h h* and *i i* are two flat rods of iron or ſteel, about half an inch wide and an eighth of an inch thick each; and *k k* is a rod of zinc, of nearly a quarter of an inch thick, interpoſed; the two extreme or iron rods are cranked, one at the top to receive the ſuſpenſion ſpring, and the other at the bottom to hold the ball in the ſame vertical line with the zinc rod. Theſe three parallel rods are united by four ſcrews, *l, l, l, l,* which paſſing through oblong holes in the bars *h h* and *k k,* ſcrew into the rod *i i,* while the rod, *h h,* is faſtened to the zinc one, *k k,* by the ſingle ſcrew *m,* near its lower extremity, which ſcrew is the ſcrew of adjuſtment for temperature, and requires ſeveral holes to be made in the bar *h h,* and alſo in *k k,* that the length of the zinc bar may be limited to its due proportion for exact compenſation. The iron bar, *i i,* reſts by a chin-piece on the upper end of the zinc bar, and therefore the ball ſupported by its lower tapped end ſtretches all the bars equally. If the zinc bar had reſted on the crank at the bottom of the bar *h h,* inſtead of being held by the ſcrew *m,* the arrangement would have been the ſame as in Deparcieux's, but with zinc ſubſtituted for braſs, which conſequently does not require the aid of a lever to increaſe its effect. The proportional expanſions of zinc and iron were taken for this pendulum from Smeaton's table in the 48th vol. of the Phil. Tranſ. of London, and were made for hammered zinc as 373 : 151; but ſubſequent obſervations on the rate of the clock, to which the pendulum was applied, proved that the expanſion of the hammered zinc was greater than Smeaton's table gives it, though the quantity was within the reach of the adjuſtment.

In Nicholſon's Journal, 8vo edit. (vol. vii. page 300.) there is a notice of a ſimilar pendulum by Benzenberg, where one rod of lead is introduced to compenſate two rods of iron, but no drawing is given. For the original ſee Voigt's Magazine, vol. iv. page 787.

Compenſation Pendulum by Adam Reid.—Another compenſation pendulum, made by Mr. Adam Reid of Woolwich, was preſented to the Society of Arts in April 1809, and the inventor was rewarded with fifteen guineas for his contrivance and model. This pendulum is given in *fig.* 7. of our laſt plate, and has its compenſation of a tube of zinc acting on the ball from the lower end of the ſteel verge thus; A B is the ſteel verge, made a little thicker where it enters the ball C, and alſo of a lozenge ſhape, to prevent the ball's turning, but above and below it is cylindrical; near the centre of the ball is a ſhoulder in the verge, againſt which the upper end of the zinc tube D preſſes the croſs piece of the ball when the nut E is turned up cloſe to its lower extremity, but when the nut is turned back, in adjuſting for rate, the tube deſcends a little, and the ball with it, while it reſts on the upper extremity of the tube. When the compenſation is too much, the tube may be ſhortened till it is found of the exact length, by a trial of the rate in extremes of temperature. In the figure before us the length of the zinc tube does not appear ſufficiently long to compenſate an entire verge of ſteel. The inventor obſerves that platina might be ſubſtituted for ſteel, and ſteel for zinc, for the formation of this kind of pendulum, but that the expenſe would be enhanced by the dearneſs of platina.

Doughty's Compenſation Pendulum.—Mr. Thomas Doughty, of Charles-ſtreet, Somer's-town, favoured us, in January 1811, with a ſketch and ſhort deſcription of a compenſation pendulum invented by him on the principle of flexure, by a compound bar that is applied to draw up the pendulum's ball in hot weather, after the manner of Mr. W. Nicholſon's, which we ſhall notice preſently. *Fig.* 8, of the ſame plate to which we have lately referred, repreſents this pendulum in its reduced ſtate; A is a compound bar of ſteel and braſs ſoldered together, with the ſteel uppermoſt; the length of which is ten inches, the breadth half an inch, and thickneſs four-tenths; the ſteel portion being $\frac{1}{10}$th of the whole; it is curved with the concave face downwards, the point E above the ball being the centre of curvature. Above this bar, and connected with it at the middle, riſes the braſs bar B, ſix inches long, to which the ſpring of ſuſpenſion is faſt, and which receives the impulſe from the crutch at the point 8. C, C, are two ſimilar ſliding heads of braſs, tapped to receive each a ſcrew and ſaddle-piece to fix them in any given part of the compound bar: by means of two clock ſprings theſe heads are attached to the ſide rods D, D, of ſteel, each $\frac{4}{10}$ths of an inch wide, and $\frac{1}{10}$th thick, which rods are again attached to the iron flat piece E by ſimilar ſprings, while the flat piece paſſes through the ball and receives the nut of adjuſtment for rate. The compenſation is effected thus; while the braſs piece B, and the ſteel ſide rods D, D, elongate by heat, the curve of the compound bar, A, becomes more and more approaching towards a ſtraight line, by the ſuperior expanſion of the braſs portion, and this alteration of figure lifts up the ball of the pendulum a correſponding quantity; which quantity is regulated by the diſtance of the heads C, C, from the middle of the compound bar; the greater diſtance being always accompanied by a greater effect of the compenſation, and *vice verſâ*; but in making this adjuſtment care muſt be taken that the clock be not put out of beat, by moving one head more than the other; but if the clock is already out of beat, this adjuſtment may be uſed alſo as an adjuſtment for beat, at the time of adjuſting for temperature. The ſprings are uſed for the purpoſe of preventing friction during the variations of temperature, but we ſuſpect that there will be another conſequence, not ſo favourable to the regular motion of the pendulum as might be wiſhed; which is, that when the impulſe is given from the maintaining power at the point 8 of the braſs bar B, the ſprings, both near C C and E, will *yield*, or bend a little, before the heavy ball will be urged, and thereby require a greater power to keep the pendulum in motion than would be neceſſary without ſuch ſprings; and alſo the ball and the rods will not begin and end their vibrations exactly in a contemporaneous manner, which circumſtance, without very nice equipoiſe of the ſide rods, will produce a vacillation in the ball. Ritchie's pendulum, however, which follows, and which was intended to remedy the faults of this, is liable to the ſame objection, though his ſliding adjuſtment for temperature will not interfere with the adjuſtment for rate, as muſt be the caſe with the pendulum before us; for bringing the upper ends C, C, of Doughty's ſide rods nearer together lengthens the effective length of the pendulum, thereby requiring a new adjuſtment for rate. The inventor heated a ſmall room with ſteam till the adjuſtment for temperature was found complete, which turned out to require eight out of the ten inches of the compound bar to make this adjuſtment perfect.

Ritchie's Compenſation Pendulum, and Nicholſon's.—In March of the year 1812, Mr. David Ritchie, of Clerkenwell, laid before the Adelphi Society, alſo, a model of a compenſation pendulum, for which he received, as a reward, twenty guineas. The compenſation in this pendulum was effected by means of the flexure of two compound horizontal bars interpoſed between the verge and the ball, which, like Doughty's, act on the ſame principle as the compound bars in the ordinary compenſation balances of a chronometer. *Fig.* 9. repreſents the pendulum at preſent before us, in which A is the ſpring of ſuſpenſion, B the ball, and C the ſteel verge as uſual, with the nut of adjuſtment for rate at E, below the ball. The compenſating bars are F and G, the upper part of F and the lower part of G being ſteel, and the other parts braſs; ſo that any additional heat may bring the bars nearer together by the convexity of the braſs faces of the compound bars being contiguous. Theſe compound bars have each a ſliding piece above and below *e* and *f* reſpectively, by the ſliding of which the bars may have their effective lengths altered, in the adjuſtment for temperature; and are connected by the ſlender ſprings *e* and *f*, which bear a portion of the ball's weight; the remainder being borne by the ſprings *l* and *m* attached by ſcrews at *h*, one to the verge piece *d* and the other to the ball piece *b*, while they themſelves are united by ſcrews at *l* and *m*. The compenſation frame, ſo conſtructed, is adjuſted by ſliding the compound bars, before they are fixed, till the centre of the ball falls in the vertical line of the verge, where the ſcrews at *h* fix it for trial. The impreſſion on our mind, from a contemplation of this conſtruction, is, that when the crutch of the clock urges the verge, the ball will not move with it till the ſprings *e* and *f* are bent a little, for when the ball is heavy, as is now cuſtomary in ſeconds pendulums, its weight will place a great ſtreſs on the ſlender ſprings that connect it with the verge, and produce, probably, a vacillation, as in Doughty's, that muſt be very unfavourable to iſochroniſm,

ſochroniſm, even allowing the compenſation to be perfect. It was to avoid this evil, that Mr. Nicholſon placed a ſimilar compenſation bar on the cock of ſuſpenſion above the verge of his pendulum, and alſo above the cock of limitation, as ſeen in *fig.* 10, but without any ſpring, and in this ſituation the varying curvature of the horizontal compound bar, E E, altering the length of the ſuſpenſion ſpring, produced the alternate riſing and falling of the ball, as the verge carried it in an oppoſite direction, ſo that the centre of oſcillation was comparatively ſtationary. (See Phil. Journal, vol. i. 4to. ed. plate 5. fig. 3.) The alteration in the length and ſtrength of the ſpring of ſuſpenſion is, however, an objection to Nicholſon's conſtruction. The ſame author alſo contrived a compenſation pendulum compoſed of four rods of ſteel and one of a compound, or alloy, of zinc and ſilver, which is deſcribed in vol. ii. of his 4to. Phil. Journal. (See page 205, and plate 9.) But as there are eight figures neceſſary to explain the fittings of the different parts, and as the work is in every one's hands, we will ſatisfy ourſelves by referring our readers to the author's own deſcription.

Hardy's Compenſation Pendulum.—Mr. Hardy of Clerkenwell, whoſe ingenuity and good workmanſhip have given him a high rank among chronometer makers, has lately contrived a compenſation pendulum that partakes partly of the grid-iron claſs, and partly of Ellicott's, and that promiſes to be exempted from the jerks that have been imputed to the other conſtructions during the elongations and flexure of the bars. It was our intention to have given a drawing of this pendulum, but our plates of pendulums are full; and as the pendulum before us has not yet been applied to a clock, we will conſider it as a project rather than as an approved pendulum. It is, however, completely finiſhed. It conſiſts of five parallel bars, the three middle ones of ſteel, and the two extreme ones of braſs; there are two croſs pieces at top, and as many at bottom, to connect the longitudinal bars, and the loweſt carries a pair of ſmall levers, on the remote ends of which the braſs bars act as they elongate downwards, but the centres of their motions are ſprings, like thoſe in the inventor's compenſation balance, which balance performs very well; the ball is attached to the interior ends of the ſaid levers by other ſprings, and a ſpiral ſpring acts near the top of the middle ſteel lever to carry a part of the ball's weight, in order to let the ſprings near the ball act without having too much ſtreſs on them. The excellence or defect of this pendulum muſt be proved by future trials.

Recapitulation of the principal Properties of a Pendulum.—As the various properties of, and circumſtances relating to, the pendulum, have been treated of under different heads in this work, we will conclude our preſent account by recapitulating the principal of them in a ſuccinct manner, thereby condenſing the ſubſtance that is neceſſarily diffuſed over our work into regular order and a narrow compaſs.

1. The theory of a pendulum's motion is derived from the uniformly accelerative force of the gravity of its bob, conſidered as having all its weight concentrated into one point.

2. If ſuch bob could be made to deſcend down the chord of its ſemi-arc of vibration, and to aſcend up the chord of the other half, its long and ſhort ſemi-vibrations would be performed in the ſame time, namely, in the time that would be taken up in falling through half the length of the pendulum, and the velocity at the loweſt point would be as the length of the chord.

3. A pendulum cannot be made to move in the chords of a circle, but will neceſſarily move in the arcs when ſuſpended by a cord or rod.

4. The longer arcs of vibration require more time than the ſhorter ones, when thoſe arcs are circular.

5. In that peculiar curve called a *cycloid*, or by the French a *roulette*, a ſemi-vibration is performed in the ſame time, whatever be the length of the arc, namely, in the time that would be taken up in deſcending down the chord of a correſponding arc of the generating circle.

6. The axis of a cycloid is equal to the diameter of the generating circle; the ſtraight line paſſed over in the generation is equal to the circumference; and the whole cycloid equal to twice the circumference of the ſaid circle.

7. The time of a ſemi-vibration in a cycloidal arc is to the time of the bob's deſcent down the axis of the cycloid, as a *quadrant* of a circle is to its *radius;* therefore the time of a whole cycloidal vibration is to the time of the fall down the axis as a *ſemi-circle* is to *radius;* or as the *circumference* of a circle is to its *diameter*.

8. The involute of a cycloid is itſelf a cycloid in every reſpect ſimilar to the cycloid evolved.

9. Any cycloidal arc is equal to *twice* the correſponding chord of the generating circle; and therefore the axis of the generating circle is equal to half the arc of the whole ſemi-cycloid; hence a cord repreſenting the length of a pendulum, evolved from contact with a ſemi-cycloid, till it reſts at the vertex, muſt be *double* the length of the axis of the generating circle, and will move in a ſemi-cycloid.

10. Therefore the time of a pendulum's vibrating in a cycloidal curve is to the time of its bob's deſcent down *one-half* of its length, as the circumference of a circle is to its diameter.

11. Hence Huygens placed two portions of ſeparate ſemi-cycloids, with their curves oppoſed to each other, and with their vertices nearly in contact at the point of ſuſpenſion, that the thread of ſuſpenſion might be evolved, firſt from one, and then from the other alternately, in each ſemi-vibration, in order to make all the vibrations, of whatever length, iſochronal.

12. The theory of this contrivance was admirable; but it ſuppoſed the action of the pendulum's gravity to be ſufficient to maintain the continuance of the vibrations, as well as all the ponderous matter collected into one point; likewiſe the centre of oſcillation to be in the ſame point with all lengths of the cycloidal cord; and alſo the cord itſelf to be invariable in length, as well as perfectly free from rigidity; all which ſuppoſitions, not founded in nature, proved ſo many impediments to the practical adoption of the cycloidal cheeks for an *attached* or going pendulum, where external force is neceſſarily ſuperadded to that of gravity, and where the centre of oſcillation does not coincide with the centre of gravity.

13. But *ſmall circular arcs* are ſo nearly coincident with cycloidal arcs near the vertical line, or line of quieſcence, that they may be ſubſtituted for the latter, where they do not exceed 4°, without ſenſible error.

14. Hence the time of a vibration in *ſmall circular arcs*, is to the time of the bob's falling down half the pendulum's length, *very nearly* as the circumference of a circle is to its diameter, which, in cycloidal arcs, has been ſhewn to be exactly ſo.

15. An eſcapement for *ſhort arcs*, therefore, became neceſſary, when the cycloidal cheeks were laid aſide, which acted with the *crown*-wheel eſcapement (an eſcapement adapted for long arcs), and Clement or Hooke contrived the *anchor*-eſcapement, which gave the pendulum, vibrating

vibrating in ſhort arcs, the name of the *royal pendulum*, from the noble property it poſſeſſes as a regulator. [Query, was not the ſign of the *crown* and *anchor* of horological origin ?]

16. As the momentum of a pendulum is compoſed partly of ponderous matter, and partly of velocity, the reduction of the arc of vibration produced a neceſſary addition to the weight of the bob.

17. The times of vibration of pendulums of different lengths will be always directly to each other as the *ſquare roots* of their reſpective lengths, where the accelerative force is conſtant and unaltered.

18. When pendulums of the *ſame length* vibrate with *different forces*, the times will vary inverſely as the *ſquare roots* of the *accelerative forces*.

19. The lengths of pendulums, vibrating in the *ſame times*, vary directly as the *forces* which accelerate them.

20. The times of vibration of pendulums of *different lengths*, acted upon by *different accelerative forces*, will vary as the ſquare roots of the *lengths* directly, and the ſquare roots of the *forces* inverſely.

21. Hence the ſame pendulum will not vibrate in preciſely the ſame time in all latitudes, where the force of gravity varies.

22. Nor will an attached pendulum, continuing to vibrate by the aid of ſome external force added to gravity, vibrate, even in the ſame latitude, in the ſame time as a detached pendulum vibrating by the force of gravity alone for a limited period.

23. Pendulums acting with different eſcapements, or having otherwiſe different maintaining powers, will therefore vary a little in their *lengths*, though they meaſure the ſame time, and even move in the ſame arcs.

24. External force, from the maintaining power, may be added to gravity, either inſtantly or gradually, for a longer or a ſhorter time, uniformly or variably, and commencing or ceaſing to act at any given point of the vibration ; or it may be applied to act in conjunction with gravity during the whole vibration ; all which modes will require ſo many correſponding lengths of pendulum to vibrate in the ſame time.

25. Hence originated all the variety of eſcapements that act with the pendulum, and modify the maintaining power, by giving their impulſes differently, as to place, quantity, quality, and duration.

26. That mode of giving the impulſe is beſt, which either deranges the action of gravity leaſt, or acts moſt in conformity with it.

27. When the ſame pendulum is by any cauſe made to vibrate in *different arcs*, the daily error, or difference, in ſeconds of time, will be $\frac{1}{10504}$ths of the difference of the ſquares of thoſe arcs, reckoned in degrees and parts of a degree.

28. A vibrating pendulum may have its arcs altered, not only by a variation in the additional force, or maintaining power, but may be ſo attracted by a contiguous heavy body, particularly if homogeneous, that its arc of vibration may be either enlarged or diminiſhed by the poſition of the ſaid body: if placed near the line of quieſcence, the arc may be ſhortened ; but if placed beyond the extremity of the arc, it may be enlarged.

29. If the point of ſuſpenſion be not firmly and immoveably fixed, a ſlight motion in it will have the ſame effect on the time, as lengthening the pendulum, though the maintaining power be the ſame ; and if the points of ſuſpenſion of two pendulums be contiguous, and be attached to the ſame ſhelf or yielding ſubſtance, they will continue to vibrate *together*, though they are not exactly of the ſame length, nor adjuſted preciſely to the ſame time. This curious property is obſervable in either the detached or attached pendulums.

30. When the pendulum is taken as an univerſal ſtandard of *linear meaſure*, as well as of time, the experiments to aſcertain the exact length of a ſeconds, or half-ſeconds pendulum, muſt be made always in the ſame latitude, on the ſame level, and in a detached ſtate if poſſible, or otherwiſe the reſult will be affected by all or ſeveral of the variety of circumſtances, which we have had occaſion to conſider as influencing the length of the vibrating pendulum.

31. That compenſation-pendulum may be accounted the beſt, that changes its rate leaſt throughout the year, provided that its adjuſtments can be conveniently made.

Pendulum *Level*. See Level.

Pendulum *Watch*. See Watch.

PENEDON, in *Geography*, a town of Portugal, in the province of Beira ; 19 miles N.E. of Viſeu.

PENELLA, a town of Portugal, in the province of Beira ; 15 miles S.E. of Coimbra.

PENELOPE, in *Mythology*, the mother of *Pan* (ſee his article) by the god Mercury. She was the daughter of Icarius, who lived at Athens in the time of Pandion II., and had offers of marriage from ſeveral princes of Greece. Her father, to prevent quarrels that might have happened, obliged them to contend for her in the games, which he cauſed them to celebrate. Ulyſſes was the conqueror, and gained the lady for his prize. (Pauſan. in Lacon.) After this marriage had been ſolemnized, Icarius uſed his utmoſt efforts to prevail with his ſon-in-law to ſtay with him at Sparta, where he was ſettled ; and deſpairing of being able to perſuade him, he conjured his daughter not to forſake him. Ulyſſes, tired with theſe importunities, referred the matter to the determination of his wife, leaving her at liberty either to accompany him to Ithaca, or to remain with her father. Penelope bluſhed at this ſpeech, and anſwered only by covering her face with a veil. Icarius, underſtanding this dumb language, conſented to her going with her huſband ; but moved by her graceful confuſion, conſecrated a ſtatue to "Modeſty," on the ſpot where Penelope had put a veil over her face. Penelope has been always conſidered as the moſt perfect model of conjugal love ; but Bayle and ſome other authors have ridiculed the idea of her having been made a model of chaſtity, when it is alleged, that ſhe ſuffered herſelf to be debauched by ſome of her lovers, who were always about her during the abſence of her huſband, and that ſhe was expelled by him from Ithaca, whence ſhe repaired firſt to Sparta, and afterwards to Mantinea, where ſhe ended her days.

Penelope, in *Ornithology*, a genus of birds of the order Gallinæ. The generic character is this ; bill naked at the baſe ; head covered with feathers ; chin naked ; tail with twelve feathers ; legs without ſpurs. There are four

Species.

Cristata, or Guan. Head with an erect creſt, temples violet. It inhabits Braſil and Guiana, and is about 30 inches long. It is frequently tamed, and its fleſh is reckoned very delicate. It utters a ſound ſomething like the word Jacu. The other characteriſtics of this ſpecies are, a black bill ; irides orange ; noſtrils reaching from the middle of the bill to the front ; orbits violet ; caruncle on the chin compreſſed, red, covered with a few hairs ; creſt oblong ; body black-green; back brown; neck, breaſt, and belly, ſpotted with white; legs red.

Cumanensis; Jacu or Yacou. Blackiſh; creſt and firſt quill-feathers white. It is about the ſize of a hen turkey. It is found in Cayenne and Guiana. It erects its creſt, expands its tail, and cries in a mournful tone, like a young turkey. It builds on the ground, is eaſily tamed, and is often domeſticated.

Pipile; Piping Curaſſow. Caruncle on the chin blue; belly black; back brown, ſpotted with black. Like the laſt it is found in Cayenne and other parts of South America. The voice is weak and piping.

Marail; Marail Turkey. Greeniſh-black; naked orbits and legs red; throat nakediſh, ſpeckled with white. It is the ſize of a common fowl, and not diſſimilar in ſhape. Though not much known to naturaliſts, it is common in the woods of Guiana, at a diſtance from the ſea. It is generally ſeen in ſmall flocks, excepting at breeding time, when it is only met with in pairs, and then frequently on the ground, or on low ſhrubs, at other times on high trees, on which it rooſts during the night. The female builds her neſt on ſome low buſhy tree, as near the trunk as poſſible, and lays three or four eggs. When the young have been hatched for ten or twelve days, they deſcend with the mother, which ſcratches on the ground like a hen, and broods them, till they can ſhift for themſelves. They breed twice a year. The young birds are eaſily tamed, and ſeldom forſake the places in which they have been brought up. Their cry is not unharmonious, unleſs they are irritated, when it is harſh and loud. Their fleſh is good for food, and highly eſteemed.

Penelope, a ſpecies of Anas. See Duck.

PENEO, in *Geography*, a river of Theſſaly, which runs into the Ægean ſea; 20 miles E. of Lariſſa.

PENETRABILITY. See Impenetrability.

PENETRALE, among the Romans, properly denoted the chapel conſecrated to the *penates*, or houſhold gods.

PENETRATION, Penetratio, the act whereby one thing enters another, or takes up the place already poſſeſſed by another.

The ſchoolmen define penetration the co-exiſtence of two or more bodies, ſo that one is preſent, or has its extenſion in the ſame place as the other.

Philoſophers hold the penetration of bodies abſurd, *i. e.* that two bodies ſhould be at the ſame time in the ſame place; and accordingly, impenetrability is laid down as one of the eſſential properties of matter. See Matter.

What we popularly call penetration only amounts to the matter of one body's being admitted into the vacuity of another. Such is the penetration of water through the ſubſtance of gold.

The theory of the penetration of bodies is of great importance in military and naval affairs, the object in all caſes of battery being to communicate the greateſt poſſible momentum to the obſtacle intended to be deſtroyed, whether it be the gates of a fortreſs, or the ſides of a veſſel; or rather we would ſay, that the effect to be produced ſhould be the greateſt poſſible, and which, it is well known, depends in a great meaſure upon the proper charges employed. If the charge be too ſmall, the velocity being alſo proportionally ſmall, the momentum thus communicated may fail to produce the deſired effect; and again, if the charge and velocity be too great, that is, if it be ſuch that the impinging ball paſſes quite through the oppoſing obſtacle, the momentum communicated to it in this caſe will alſo be leſs than if the ball had lodged within it. This may be illuſtrated by ſetting up a thin deal board upon its edge, and firing a ball through it from a muſket or piſtol, which if the charge be at all conſiderable, may be done without throwing down the board, whereas the ſame ball caſt from the hand againſt it would infallibly produce that effect. The reaſon for which is, that notwithſtanding the great momentum of the ball in the former caſe, the time of its paſſage is ſo ſhort, that the product of the momentum into the time (which is the meaſure of the effect) is ſo ſmall, as not to be ſufficient to overcome the natural gravity of the plank. The ſame thing is obſerved in naval actions, many balls paſſing completely through the ſides of the veſſel, the ſhocks of which are by far leſs than thoſe which lodge within them, or than thoſe which barely paſs through, and ſimilar effects are obſerved in the practice of land artillery, particularly when the oppoſing obſtacle is wood, as in the gates, &c. of fortified places. See Moore's "Treatiſe on Military Rockets, &c."

Theſe circumſtances have induced moſt authors on gunnery, to conſider the penetration of bodies as part of their ſubject, and various experiments have been inſtituted in order to furniſh dates for this purpoſe. Of theſe authors, Robins and Dr. Hutton have made the greateſt number of experiments, and particularly the latter, an ample account of which is given in vol. iii. of his Tracts, from which we have ſelected the following ſmall tablet, exhibiting the velocity and diameter of the ball, the penetration, &c., each caſe, as ſtated below, being a mean of a great many experiments made with the ſame ball, or with equal balls, and with equal charges.

Velocity.	Subſtance.	Diam. of Iron Ball.	Penetration in Inches.
1600	Elm	1.96	20
1200	Elm	1.96	15
1500	Elm	2.78	30
1060	Elm	2.78	16
1200	Oak	5.04	34
1300	Earth	5.50	180

In all theſe experiments the gun was placed within ſuch a diſtance of the obſtacle as not to affect the initial velocity of the ball, and the penetration was made in the direction of the fibres, the wood perfectly ſound, and cut off near the root of the tree. Now in order to make this table applicable to other caſes, *viz.* when the diameter and denſity of the ball, and the projectile velocity are different from thoſe above ſtated, we may proceed as follows.

Let d repreſent the diameter of the ball.

f, the height of a column of water equal to the reſiſting force of the obſtacle, conſidering it as uniform.

n, the ſpecific gravity of the ball, that of water being 1.

v, the velocity of projection.

$a = .7854$, the area of a circle to diameter 1.

Then $a d^2$ will be the area of the ſection, $a d^2 f$ the reſiſtance, and $\frac{2}{3} a n d^3$ the weight of the ball; ſo that the reſiſtance will be to the weight of the ball as $a d^2 f$ to $\frac{2}{3} a n d^3$, or as f to $\frac{2}{3} n d$; that is, as $\frac{3f}{2nd}$ to 1, or gravity. Now the velocity generated or deſtroyed by gravity in deſcribing any ſpace s, is $8\sqrt{s}$, thus found, as $\sqrt{16} : \sqrt{32} :: \sqrt{s} : 8\sqrt{s}$; and when the ſpace is the ſame, the velocities generated or deſtroyed, are as the ſquare roots of the forces, or the forces are as the ſquares of the velocities, and the velocity deſtroyed by the force $\frac{3f}{2nd}$, in deſcribing the ſpace

s, being v; therefore $1 : \frac{3f}{2nd} :: 64\,s : v^2$; hence $\frac{3f}{2nd} = \frac{v^2}{64\,s}$; conſequently $f = \frac{nd}{3} \times \frac{v^2}{32\,s}$; and $s = \frac{ndv^2}{96f}$.

Hence it appears, that the depth penetrated is as the denſity and diameter of the ball, and the ſquare of the velocity, divided by the ſtrength or reſiſting force of the obſtacle. So that if equal balls be diſcharged againſt the ſame obſtacle, then ſhall the depths of penetrations be as the ſquares of the velocities, which pretty nearly agree with the experiments above ſtated. Hence alſo it follows, that if unequal balls, but of the ſame denſity, be diſcharged with equal velocity, the depths of penetration will be as the diameters of the balls; ſo that a greater ball will not only make a wider aperture, but will penetrate farther into the obſtacle than a ſmaller ball, all other circumſtances being the ſame in both. Again, if it be known from experiment, how far a given ball will penetrate into any ſubſtance with a given velocity, the force of reſiſtance may be determined from the above formula $f = \frac{nd}{3} \times \frac{v^2}{32\,s}$, and hence the depth of penetration with any other ball, and with any other velocity, may be determined while the obſtacle remains the ſame.

This however is upon a ſuppoſition, that the reſiſtance of the obſtacle is conſtant, like the force of gravity, which cannot in fact be the caſe, as it is obvious, that the farther a ball penetrates into any obſtacle, the greater will be the reſiſtance, in conſequence of the increaſed denſity ariſing from the parts of the obſtacle driven before the ball; but it is extremely difficult to eſtabliſh any law of reſiſtance that will anſwer in all caſes, we muſt therefore adopt the hypotheſis of uniform reſiſtance, till farther experiments enable us to proceed with greater certainty; the reſiſting force of elm on this ſuppoſition, according to the firſt four reſults in the above tables, will be as follows.

$$1.\ f = \frac{ndv^2}{32\,s} = \frac{7\frac{1}{2} \times 1.96 \times 1600^2}{32 \times \frac{20}{12}} = 20000.$$

$$2.\ f = \frac{ndv^2}{32\,s} = \frac{7\frac{1}{2} \times 1.96 \times 1200^2}{32 \times \frac{15}{12}} = 15000.$$

$$3.\ f = \frac{ndv^2}{32\,s} = \frac{7\frac{1}{2} \times 2.78 \times 1500^2}{32 \times \frac{30}{12}} = 16406.$$

$$4.\ f = \frac{ndv^2}{32\,s} = \frac{7\frac{1}{2} \times 2.78 \times 1060}{32 \times \frac{34}{12}} = 15362.$$

The mean of theſe four reſults is 16692, which expreſſes the reſiſting force of elm, on the hypotheſis of an uniform reſiſtance, the force of gravity being aſſumed as unity; and now this value of f being eſtabliſhed for elm, the formula $s = \frac{ndv^2}{96f}$ will obviouſly furniſh the means of determining s, or the depth of penetration in any other caſe that may be propoſed. Alſo the reſiſtance being ſuppoſed uniform, we have, according to the doctrine of forces, $t = \frac{2\,s}{v}$ for the time of penetration.

In the ſecond of the above recited experiments, the velocity of the ball is 1200 feet, and the depth of penetration 15 inches; let it hence be required to find the time of penetration, and the time of paſſing through each ſucceſſive inch of the 15, and the velocity loſt at each of them.

Here v = 1200 feet = 14400 inches, alſo s = 15 inches, whence $t = \frac{2 \times 15}{14400} = \frac{1}{480}$ of a ſecond the time of penetration. Again, the velocities and times being as the ſquare roots of the ſpaces, we have

$$\surd 15 : \surd 15 - \surd 14 :: v$$

Velocity loſt.		Time in paſſing.	
$\frac{\surd 14 - \surd 14}{\surd 15}\,v = 40.7$	$:: \ t :$	$\frac{\surd 15 - \surd 14}{\surd 15}\,t = .00007$	1ſt inch.
$\frac{\surd 14 - \surd 13}{\surd 15}\,v = 42.2$	$:: \ t :$	$\frac{\surd 14 - \surd 13}{\surd 15}\,t = .00007$	2d
$\frac{\surd 13 - \surd 12}{\surd 15}\,v = 43.8$	$:: \ t :$	$\frac{\surd 13 - \surd 12}{\surd 15}\,t = .00008$	3d
$\frac{\surd 12 - \surd 11}{\surd 15}\,v = 45.7$	$:: \ t :$	$\frac{\surd 12 - \surd 11}{\surd 15}\,t = .00008$	4th
$\frac{\surd 11 - \surd 10}{\surd 15}\,v = 47.8$ &c.		$\frac{\surd 11 - \surd 10}{\surd 15}\,t = .00008$	5th
$\frac{\surd 10 - \surd 9}{\surd 15}\,v = 50.3$		$\frac{\surd 10 - \surd 9}{\surd 15}\,t = .00009$	6th
$\frac{\surd 9 - \surd 8}{\surd 15}\,v = 53.2$		$\frac{\surd 9 - \surd 8}{\surd 15}\,t = .00009$	7th
$\frac{\surd 8 - \surd 7}{\surd 15}\,v = 56.6$		$\frac{\surd 8 - \surd 7}{\surd 15}\,t = .00010$	8th
$\frac{\surd 7 - \surd 6}{\surd 15}\,v = 60.8$		$\frac{\surd 7 - \surd 6}{\surd 15}\,t = .00011$	9th
$\frac{\surd 6 - \surd 5}{\surd 15}\,v = 66.1$		$\frac{\surd 6 - \surd 5}{\surd 15}\,t = .00012$	10th
$\frac{\surd 5 - \surd 4}{\surd 15}\,v = 73.2$		$\frac{\surd 5 - \surd 4}{\surd 15}\,t = .00013$	11th

$$
\begin{array}{lll}
\frac{\surd 4 - \surd 3}{\surd 15} & v = & 83.0 \\
\frac{\surd 3 - \surd 2}{\surd 15} & v = & 98.5 \\
\frac{\surd 2 - \surd 1}{\surd 15} & v = & 128.3 \\
\frac{\surd 1 - \surd 0}{\surd 15} & v = & 309.8 \\
 & & \overline{} \\
 & \text{Sum} & 1200
\end{array}
$$

$$
\begin{array}{llll}
\frac{\surd 4 - \surd 3}{\surd 15} & t = & .00014 & \text{12th inch.} \\
\frac{\surd 3 - \surd 2}{\surd 15} & t = & .00017 & \text{13th} \\
\frac{\surd 2 - \surd 1}{\surd 15} & t = & .00022 & \text{14th} \\
\frac{\surd 1 - \surd 0}{\surd 15} & t = & .00054 & \text{15th} \\
 & & \overline{} & \\
\text{Sum } \frac{1}{480} & = & 00208 &
\end{array}
$$

Hence, as the motion loſt at the beginning is very ſmall, and conſequently the motion communicated to any body, as an inch plank, in paſſing through it, very ſmall alſo; we may conceive how ſuch a plank may be ſhot through when ſtanding upright without overſetting it. For more on this ſubject, ſee Hutton's Tracts, vol. iii. p. 288.

PENEUS, in *Ancient Geography*, and *Mythology*, a river of Theſſaly, which ran from W. to E., its ſource being in mount Pindus, and its mouth at the entrance of the Thermaic gulf. Some doubts have been ſuggeſted concerning the courſe of this river. The ancients thought that the breach by which it diſcharged itſelf into the ſea, was occaſioned by an earthquake, that ſeparated the mountains. Hence it has been ſometimes called "Araxes," from αϱασσω, ſcindo, to cleave. The modern name of "Salampria" is ancient, as, according to Euſtathius, this river was in his time called "Salimprias," a name, according to Heſychius, of Greek origin, σαλαβη and σαλαμβη, ſignifying the openings of gates.

Moſt authors are of opinion, that Deucalion's deluge was occaſioned by the river Peneus. (See Deucalion.) To this purpoſe, Herodotus obſerves, (l. i.) "It is ſaid that Theſſaly once was nothing but a lake, being environed on all ſides with hills. The country which lies between thoſe hills is what they call Theſſaly, which is watered with plenty of rivers, the chief of which are the Peneus, the Apidanus, the Onſchones, the Eripeus, and the Panito. Theſe five rivers, falling down from the neighbouring mountains, after having run through the low country, diſembogue themſelves into the ſea by a very narrow canal, where they all unite, and make but one great river, which retains the name of Peneus. They tell us farther, that before the canal was made, theſe rivers flooded the whole country, and turned it into a great lake; but that Neptune having formed that great canal, all the waters retired." Peneus, on account of its beauty, was an object of worſhip.

Peneus, a river of the Elide, in the northern part of the country, which flowed from its ſource eaſtward towards mount Scollis by Elis, and diſcharged itſelf into the ſea to the weſt of Ephyra.—Alſo, a name given to the Araxes, a river of Armenia, on account of its reſemblance to the Peneus of Theſſaly, according to Strabo.

PENGEBUR, a town of Perſia, in the province of Mecran; 130 miles N. of Kidge.

PENGHIOUM, a town of the Birman empire, at the confluence of a ſmall river with the Irrawaddy; near Yaynangheoum, or Earth oil creek.

PENGUIN, in *Ornithology*, a name given by ſailors of different nations to two different ſpecies of water-fowl, both web-footed, and both wanting the hinder toe.

The penguin of the Engliſh is the bird more commonly known by the name of the *goirfugel*, or the *alca impennis* of Linnæus. See Alca.

The penguin of the Dutch is the *anſer Magellanicus* of Cluſius. See Pinguin.

Penguin, or *Wild Ananas*, *Karatas*, in *Botany*. See Bromelia.

Penguin *Iſland*, in *Geography*, a ſmall iſland near the coaſt of New Holland, at the entrance into Adventure bay. N. lat. 43° 21′. E. long. 147° 33′.—Alſo, a ſmall iſland near the Cape of Good Hope, a little to the north of Table bay.—Alſo, an iſland near the S. coaſt of Newfoundland. N. lat. 47° 22′. W. long. 56° 45′.—Alſo, a ſmall iſland near the coaſt of Patagonia; nine miles S.E. of Port Deſire.

PENIA, in *Mythology*, the goddeſs of Poverty, and mother of Love.

PENICHE, in *Geography*, a ſea-port town of Portugal, in Eſtramadura, ſituated on a peninſula, which runs into the Atlantic; fortified and defended by a citadel; containing three pariſhes, and about 2800 inhabitants. This town is ſometimes called "New Liſbon;" 39 miles N.N.W. of Liſbon. N. lat. 39° 20′. W. long. 9° 5′.

PENICILLA, thus called from *penicillus*, a *pencil*, which it is ſuppoſed to reſemble in ſhape, in *Pharmacy*, a lozenge; or form of medicine made round by rolling.

PENICILLI Marini, in *Natural Hiſtory*, a ſort of marine tubuli, or caſes of ſea-worms, making a diſtinct genus of thoſe ſhells. They are defined to be ſhelly tubes, very ſlender, and terminating in the ſhape of a painter's pencil; many of them in their native ſhape adhering to ſtones, &c. on the ſea-ſhores, by means of a ſoft and lax ſubſtance. Some of theſe are white and pellucid, others yellowiſh or brown; and the more common ſort are about a finger's length, and about the thickneſs of a wheaten ſtraw; and ſome are of a ſort of funnel-like ſhape, and have their mouths ſurrounded by a ſort of hairs, or filaments. Theſe are called by ſome *proboſciplectani*, others are called *cadi*, and others *entalia*.

PENICILLUS, among *Surgeons*, is uſed for a tent, to be put in wounds, or ulcers.

PENIDIUM, in *Pharmacy*, barley-ſugar.

Dr. Quincy uſes the word penidium for a kind of clarified ſugar, with a mixture of ſtarch, made up into little lumps.

PENJEKORCH, in *Geography*, a river of Aſia, which runs into the Sewad, about five miles S. of the town of the ſame name. This river joins another S.E. of the town of Bijore, and in its courſe ſeparates the province of that name on the W., from Sewad, on the E.

Penjekorch, a river of Candahar, in Cabuliſtan; eight miles W. of Maſhanger.

PENIGK, or Penig, a town of Saxony, and capital of a lordſhip, in the principality of Schonburg, on the Muldau. In this place are a manufactory of woollen ſtuffs, and a pottery; 38 miles W. of Dreſden. N. lat. 50° 52'. E. long. 12° 35'.

PENING, a town of Bavaria, in the principality of Aichſtatt; nine miles E.N.E. of Aichſtatt.

PENINSULA, in *Geography*, a portion or extent of land, joining to the continent by a narrow neck or iſthmus; the reſt being encompaſſed with water.

The word is compounded of the Latin *pene* and *inſula*, q. d. *almoſt iſland*, which the French pertinently enough render *preſque iſle*.

Such is Peloponneſus, or the Morea; ſuch alſo are Africa, Jutland, &c.

Peninſula is the ſame with what is otherwiſe called cherſoneſus.

PENINSULA *Point*, a cape on the W. coaſt of the iſland of Mindoro. N. lat. 12° 40'. E. long. 120° 56'.

PENINUS, or PENIN, in *Mythology*, a god acknowledged by the Penini, inhabitants of the Alps, from whom that chain of mountains derived its name: as we learn from Livy, Dec. 3. l. xi. n. 38. Guichenon, in his Hiſtory of Savoy, has preſerved the inſcription that was upon the pedeſtal of a fine ſtatue, that repreſented this god under the figure of a young man naked, in theſe terms, "L. Lucilius Deo Penino optimo Maximo donum dedit." Cato and Servius (in 3 Æn.) ſay, that this was not a god, but a goddeſs, whom the one calls Penina, and the other Apenina; but both the figure and the inſcription expreſs the contrary. The ſtatue of that god was afterwards carried off, and that of Jupiter put in its place. Nevertheleſs, the worſhip of Peninus was not aboliſhed, but the mountaineers continued to pay adoration to him. Some ſay this god was Jupiter himſelf, which they infer from the epithets "Optimus Maximus;" but others ſay that he was the Sun; and that the carbuncle upon the ſtatue, called Peninus's eye, was the ſame with that of Oſiris, who, in Egypt, repreſented the ſun.

PENIS, in *Anatomy*;
PENIS, *Arteria dorſalis et profunda*;
PENIS *erector*, a muſcle of the organ;
PENIS *glans et preputium*;
PENIS *glandulæ odoriferæ*;
PENIS, *Vena magna*;
ſee GENERATION, in the deſcription of the male organs.

PENIS, *Amputation of*, in *Surgery*. This operation is ſometimes rendered indiſpenſable by carcinomatous diſeaſes, in which the miſchief has not as yet extended itſelf either too far towards the pubes, or to the glands in the groin. It is alſo very erroneouſly recommended to be practiſed in caſes of mortification; but every judicious ſurgeon will be of opinion, with Sabatier, that here it is entirely unneceſſary, becauſe if the diſorder has ceaſed to ſpread, the dead part will be thrown off by a ſpontaneous proceſs; and if the gangrene is ſtill ſpreading, the operation is not likely to check its progreſs. The manner of operating is as follows: Sabatier adviſes the ſurgeon to take hold of the part with his left hand, and draw the integuments forwards, while with one ſweep of the knife he makes the requiſite diviſion. A catheter is then to be introduced into the bladder. Were this precaution neglected, the corpora cavernoſa and urethra might become retracted towards the pubes, and the orifice of the urethra be covered with the redundant ſkin, ſo as to obſtruct the paſſage of the urine. Le Dran ſaw ſuch an accident happen, and was obliged to puncture the ſkin, in order to enable the patient to make water.

This operation is occaſionally followed by a conſiderable degree of hemorrhage. The blood ſometimes guſhes out of the middle pudendal vein, and the arteries which ramify at the lateral and upper parts of the corpora cavernoſa, while there is alſo a general flow of it from the ſpongy ſubſtance of the corpora cavernoſa and urethra. This ſort of bleeding is, in general, to be ſtopped like other hemorrhages. If the veſſels appear large, they ſhould be immediately tied. When they ſeem to be of more moderate ſize, and the blood only oozes from the corpora cavernoſa, ſtyptics and compreſſion will anſwer.

After ſuppuration has taken place, Sabatier conceives that the catheter is no longer needed. Towards the completion of the healing, care muſt be taken to keep the orifice of the urethra from becoming contracted, ſhould any tendency of this kind ſhew itſelf.

PENIS *of Birds*. See *Anatomy of* BIRDS.

PENISAARI, in *Geography*, an iſland of the Baltic, three verſts long, and diſtant ſix verſts from Lavanſaari, which ſee. It is inhabited only by a few families, and has no water-ſprings.

PENISCOLA, a town of Spain, in Valencia, ſituated on the coaſt of the Mediterranean, ſurrounded on three ſides by the ſea, and difficult of acceſs by land; 24 miles S. of Tortoſa. N. lat. 40° 24'. E. long. 0° 24'.

PENISHEHR, or PENJESHEHR, a town of Candahar, and capital of a diſtrict in the Cabuliſtan, on the E. ſide of the Hindoo Kho mountains; 46 miles N. of Cabul. N. lat. 35° 16'. E. long. 68° 24'.

PENISTONE, or PENNISTON, a ſmall market-town in the wapentake of Staincroſs, and liberty of the honor of Pontefract, Weſt Riding of Yorkſhire, England, is ſituated eight miles W.S.W. from Barnſley. The market is on Thurſday, but it is little frequented. Here are four annual fairs, which are chiefly noted for the ſale of moor ſheep. The town is environed with dreary moors, eſpecially to the weſtward, where nothing preſents itſelf to the eye but bleak and barren mountains, covered with heath or ling. Peniſtone, according to the population returns of 1811, contains 115 houſes, and 515 inhabitants. The church here is a large ſtructure, and near the centre of the town is a well endowed grammar ſchool. Beauties of England and Wales, vol. xvi. by John Bigland.

PENITENCE, PENITENTIA, is ſometimes uſed for a ſtate of repentance, and ſometimes for the act of repenting. See REPENTANCE and IMPENITENCE.

PENITENCE is alſo uſed for a diſcipline, or puniſhment attending repentance; more uſually called *penance*.

PENITENCE alſo gives the title to ſeveral religious orders, conſiſting either of converted debauchees, and reformed proſtitutes; or of perſons who devote themſelves to the office of reclaiming them. Of this latter kind is

PENITENCE, *Order of, of St. Magdalen*, eſtabliſhed about the year 1272, by one Bernard, a citizen of Marſeilles, who devoted himſelf to the work of converting the courtezans of that city.

Bernard was ſeconded by ſeveral others; who, forming a kind of ſociety, were at length erected into a religious order by pope Nicholas III. under the rule of St. Auguſtine.

F. Geſnay adds, that they alſo made a religious order of the penitents, or women they converted, giving them the ſame rules and obſervances which they themſelves kept.

PENITENCE, *Congregation of, of St. Magdalen, at Paris*, owed its riſe to the preaching of F. Tiſſeran, a Franciſcan, who converted a great number of courtezans about the year 1492. Louis, duke of Orleans, gave them his houſe for a monaſtery; or rather, as appears by their conſtitutions, Charles VIII. gave them the hotel, called Bochaigne, whence they were removed to St. George's chapel, in 1572. By virtue of a brief of pope Alexander, Simon, biſhop of Paris, in 1497, drew them up a body of ſtatutes, and gave them the rule of St. Auguſtine.

To qualify a woman for admiſſion, it was required, that ſhe had committed the ſin of the fleſh. None were admitted who were above thirty-five years of age.

Till the beginning of the laſt century, none but penitents were admitted; but ſince its reformation by Mary Alvequin, in 1616, none have been admitted but maids, who, however, ſtill retain the ancient name penitents.

PENITENTIAL, Pœnitentiale, an eccleſiaſtical book, retained among the Romaniſts; wherein is preſcribed what relates to the impoſition of penance, and the reconciliation of penitents.

In the Capitulars of Charlemagne, the prieſts are enjoined to ſtudy well their Penitential. There are various Penitentials: the Roman Penitential, that of Venerable Bede, that of pope Gregory III. &c.

PENITENTIARY, Pœnitentiarius, an office, or tribunal, in the court of Rome, wherein are examined, and delivered out, the ſecret bulls, graces, or diſpenſations, relating to conſcience, confeſſion, &c.

The expeditions of the penitentiary are ſealed up with red wax, and ſent cloſe; directed to the confeſſors.

Penitentiary is alſo an officer or dignitary, in ſome cathedrals, veſted with power from the biſhop to abſolve in caſes reſerved to him; on which account he is alſo called the *biſhop's ear*.

In ſome places there is a grand penitentiary, and a ſub-penitentiary. Anaſtaſius ſays, that pope Simplicius choſe ſome among the Roman prieſts to preſide over penances. At preſent the pope has his grand penitentiary, who is a cardinal, and the chief of the other penitentiary prieſts eſtabliſhed in the patriarchal churches of Rome, who conſult him in all difficult caſes.

He preſides in the penitentiary, diſpatches diſpenſations, abſolutions, &c. and has under him a regent, and twenty-four proctors, or advocates of the ſacred penitentiary.

Penitentiary *Houſes*, for the puniſhment of convicts. See Transportation.

PENITENTS, in the church of Rome. See Pœnitentes.

Penitents, an appellation given to certain fraternities, or ſocieties of perſons who aſſemble together for prayers, make proceſſions bare-footed, their faces covered with linen, and give themſelves diſcipline, &c.

There are White Penitents in Italy, at Avignon, and at Lyons. There are alſo Blue Penitents, and Black Penitents, which laſt aſſiſt criminals at their death, and give them burial.

Penitents, or *Converts of the name of Jeſus*, a congregation of religious at Seville, conſiſting of women, who had led a licentious life, founded in 1550.

This monaſtery is divided into three quarters: one for profeſſed religious; another for novices; a third for thoſe under correction.

When theſe laſt give ſigns of a real repentance, they are removed into the quarter of the novices, where, if they do not behave themſelves well, they are remanded to their correction. They obſerve the rule of St. Auguſtine.

Penitents *of Orvieto*, are an order of nuns, inſtituted by Antony Simoncelli, a gentleman of Orvieto. The monaſtery he built was at firſt deſtined for the reception of poor girls, abandoned by their parents, and in danger of loſing their virtue.

In 1662 it was erected into a monaſtery, for the reception of ſuch as, having abandoned themſelves to impurity, were willing to take up, and conſecrate themſelves to God by ſolemn vows. Their rule is that of the Carmelites.

Theſe religious have this in peculiar, that they undergo no noviciate. All required is, that they continue a few months in the monaſtery in a ſecular habit; after which they are admitted to the vows.

PENKEMAS Point, in *Geography*, a cape or headland of South Wales, on the N. point of the county of Pembroke, at the mouth of the Tivy, four miles below Cardigan.

PENKRIDGE, a market-town in the hundred of Cuddleſtone, and ſhire of Stafford, England, is ſeated on the river Penk, whence its name is ſuppoſed to have been derived, at the diſtance of ſix miles to the ſouth of Stafford. It is of very great antiquity, and, according to Camden, was the ſcite of the Roman ſtation, Pennocrucium, mentioned in the Itinerary of Antoninus; but Plot, Stukeley, and Horſley, place that ſtation at the neighbouring village of Stretton; and Salmon transfers it to Oldbury, in Warwickſhire. But though thus entertaining different opinions reſpecting the actual poſition of Pennocrucium, all theſe authors agree in conſidering the preſent town of Penkridge as the immediate offspring of the deſerted ſtation. Some Roman remains were diſcovered here about the middle of the laſt century, and among other ſmaller articles, a braſs head of the bolt of a catapulta.

Penkridge is but a ſmall mean looking town, containing, according to the late population returns, 204 houſes, and 925 inhabitants, who are principally engaged in different departments of the iron trade. The market day is Tueſday; and there are, beſides, two fairs annually, which are reſorted to for ſaddle and draught horſes. Here is an excellent charity ſchool for the cloathing and education of twelve boys and eight girls. The church is an old edifice, with a ſquare tower at the weſt end. In the reign of king Stephen it was collegiate, and belonged to the united ſees of Lichfield and Coventry; but it was afterwards beſtowed on John, archbiſhop of Dublin, and his ſucceſſors, who were perpetual deans of the college, and had the collation of all the prebendaries, who were thirteen in number. The revenue of this college was eſtimated at 106*l.* 15*s.* at the time of the diſſolution. The lands in Penkridge and its vicinity deſcend according to the rule of "Borough Engliſh."

Lapley, a ſmall village to the ſouth of this town, is diſtinguiſhed as the ſcite of an alien priory for black monks, which was annexed as a cell to the abbey of St. Remigius at Rheims, on whom it was beſtowed by Aylmer, earl of Cheſter and Mercia, in the time of Edward the Confeſſor. At its ſuppreſſion by Henry V. its ſcite and poſſeſſions were given to the college of Tong. The church belonging to this priory is ſtill ſtanding, and is now the parochial place of worſhip. It has a handſome tower, which riſes between the chancel and the body of the church.

Near this village is Stretton, above-mentioned, as the ſuppoſed ſcite of Pennocrucium. An elegant ſeat here, belonging to the family of Monckton, was anciently the property of the Congreves, anceſtors to the celebrated dramatic poet of that name. The Roman road, called the Watling ſtreet, paſſes cloſe to the ſouth ſide of the village. Tanner's Notitia Monaſtica; Camden's Britannia; and Beauties of England and Wales, vol. xiii. by Mr. Nightingale.

PENKUM, a town of Anterior Pomerania, which has ſuffered greatly by war and fire; 15 miles S.W. of New Stettin. N. lat. 53° 19′. E. long. 14° 20′.

PENLAU Lengau, a river of Auſtria, which flows from lake Alben, and runs into the Traun; four miles S.W. of Wels.

PENLEE Point, a cape in the Engliſh channel, on the S. coaſt of the county of Cornwall.

PENLLYN, William, in *Biography*, one of the ſucceſsful champions on the harp, at the Eiſteddfod, or ſeſſion of the bards and minſtrels, appointed in the ninth year of queen Elizabeth, at Caerwys in North Wales, where he was elected one of the chief bards and teachers of Inſtrumental Song. Pennant's Tour in North Wales, 1773, printed 1778.

PENMAEN Maur, in *Geography*, a large and lofty mountain of Caernarvonſhire, North Wales, riſes with a rapid aſcent from the ſouthern ſhore of the Menai river. Its ſummit is about 1540 feet above the level of the ſea. On the top is an ancient Britiſh fortreſs called "Braich y Dinas," alſo a bardie, or druidical circle of upright and proſtrate ſtones. Near the baſe of the mountain, on the north ſide, is a turnpike road, from Aber-Conway to Bangor, &c., which has been formed with much difficulty and expence. In ſome parts it is conſtructed on arches, thrown acroſs fiſſures, and in other parts it hangs over a ſteep and lofty precipice, about 200 feet above the ſea, and preſents a terrific appearance to the traveller. A wall has been built to guard againſt dangers. "The ſummit," ſays Mr. A. Aikin, "is a rude maſs of ſhattered rock, covered with heath, difficult of aſcent, and the deſcent even far greater than at any time we had before experienced." See Pennant's Tour in North Wales.

PENMAN Head, a cape of Scotland, on the N. coaſt of Aberdeenſhire. N. lat. 57° 37′. W. long. 2° 9′.

PENMARCK Point, a cape on the W. coaſt of France, S. of a bay which takes its name from the town of Audierne; 15 miles S.S.E. of Audierne. N. lat. 47° 48′. W. long. 4° 17′. Eaſt of this point are Penmarck rocks.

PENN, *Sir* William, *Knt*., in *Biography*, an admiral of England, and one of the commanders at the taking of Jamaica, was born at Briſtol, 1621. Being addicted from his youth to the ſea, he became a captain at twenty-one, and after ſeveral intermediate promotions was made admiral in the firſt Dutch war, at thirty-two years of age. In 1655 he came home, and was choſen member of parliament for Weymouth, not without hereby incurring the diſpleaſure of the republican government, by which he was committed for a while to the Tower, on a charge of quitting his command without leave to the hazard of the army. Upon the reſtoration of the monarchy, he was made a commiſſioner of the admiralty and navy, governor of the town and fort of Kinſale, vice-admiral of Munſter, and one of the council of that province. After ſuſtaining the chief command, under the duke of York, in the victory over the Dutch in 1665, he took leave of the ſea, but continued in his other employments till 1669, when, growing infirm, he retired to Wanſtead, in Eſſex, and died there the year following. He is ſaid to have acquitted himſelf, in his ſeveral high offices, with honour and fidelity.

Penn, William, an illuſtrious perſon among the Quakers, and founder of the colony of Pennſylvania, was the ſon of the admiral above-mentioned, by his wife Margaret, daughter of John Jaſper, merchant of Rotterdam. He was born in London, in the vicinity of the Tower, 14th October, 1644. His father gave him a liberal education, induced, no doubt, to greater care in the finiſhing of it, by proſpects of his ſon's advancement at court, where he himſelf was in high favour. But the mind of the ſon was formed for other purſuits, and before he had paſſed his twelfth year, was already glowing with a ſenſibility to religion, which eventually unfitted him for the employments of a corrupt court, and gave him to others of a more honourable and beneficent nature. He was placed firſt at Chigwell ſchool, in Eſſex, then at a private academy on Tower Hill, with the advantage beſides of a tutor; and laſtly, in 1660, entered a gentleman commoner of Chriſt-church college. He continued at Oxford two years, and was intimate with Robert Spencer, afterwards earl of Sunderland, and with John Locke. Though fond at this time of youthful ſports, he had ſtrong religious impreſſions; and, together with ſome other ſtudents, withdrew from the national way of worſhip to hold private meetings, at which they preached and prayed among themſelves. This conduct gave great offence to the heads of his college; the parties were fined for nonconformity, and, proceeding after this to ſome public acts of imprudent zeal, Penn and ſeveral others were expelled the college. Returning home, he continued to affect the company of religious perſons; from which his father, ſeeing the obſtacles it would throw in his way to preferment, endeavoured both by words and blows to deter him; and finding all methods ineffectual, became at length ſo incenſed, that he turned him out of doors. The patience of young Penn held out under this rough treatment, until (parental affection taking place of anger, and poſſibly ſuggeſting the expedient) his father concluded to ſend him, in company with ſome perſons of rank, on a tour to France. This took place in 1662. Here, though he ſpent ſome time in ſtudy under the celebrated Proteſtant preacher, Moſes Amyrault, the very different converſation of other aſſociates at length diverted his thoughts from religion. He had however acquired the language, together with the poliſhed manners of the French, when, in 1664, he was recalled by his father from Turin, to which place he had proceeded from Saumur, the reſidence of Amyrault. The admiral joyfully received his ſon, concluding the main point (of his fitneſs for promotion) was now gained. He was admitted of Lincoln's Inn to ſtudy the law, where he continued till the breaking out of the peſtilence, ſoon after which, being now twenty-two years of age, his father put under his management a conſiderable eſtate in Ireland, and he went to reſide in that kingdom.

In ſolitude, the religious ſtruggle in Penn's breaſt revived. On the one hand, natural vivacity, perſonal accompliſhments, and the reſpect and favour of his friends attracted his regard to the preſent world: on the other, devotion, and an indelible ſenſe of duty, fixed his contemplations on the next. He had been affected, about ten years before this time, by the preaching of Thomas Loe, a Quaker: and, being at Cork, was informed of a meeting for worſhip, then about to be convened, as it ſeems, by deſire of the ſame perſon. Penn attended it, and Loe delivered a diſcourſe, beginning with the words, "There is a faith, that overcomes the world, and there is a faith, that is overcome by the world;" on which he is ſaid to have expatiated with much clearneſs and energy. His doctrine agreeing with the previous experience and preſent diſpoſition of Penn, he now inclined to enter into communion with the Quakers, and from this time conſtantly attended their meetings. At one of theſe, held at Cork, November 1667, he, with many others, was apprehended by order of the mayor, who would have liberated Penn upon his giving bond for his good behaviour; but the latter, deeming the meeting no miſdemeanour, refuſed bond, and was ſent to priſon with the reſt. He wrote a few lines to the earl of Orrery, containing exceptions to the mayor's proceedings, an argument againſt perſecution, and a requeſt "for the ſpeedy releaſement of all" who had been committed on the occaſion. The earl contented himſelf with ordering Penn's diſcharge.

His father, being informed by a nobleman of his acquaintance of the danger his ſon was in of being proſelyted to Quakeriſm, remanded him home, and was readily obeyed. Penn had now again to paſs through the ordeal of parental diſpleaſure, and in this a principal object ſeems to have been, his continuance in the exterior of his education, or, as his biographer has it, in the cuſtoms and faſhions of the age. But ſo fixed was he in the reſolution to follow what he eſteemed a manifeſtation of the will of God in his conſcience to the contrary, that, although he behaved on theſe occaſions with Chriſtian meekneſs and filial affection, neither threats nor entreaties could move his conſtancy. The honour of the hat (in theſe times a matter of no light eſteem) was eſpecially contended for by the punctilious admiral; who, at laſt, would have tolerated his ſon in other inſtances of nonconformity, on condition that he ſhould be uncovered before the king, the duke of York, and himſelf. Penn took time to conſider of this propoſal in ſecret, he even made it a ſubject of faſting and ſupplication to God to be directed aright, and he deliberately refuſed the terms. This was ſacrificing much to ſincerity and conſiſtency in his profeſſion, for his father, upon this, finding his hopes of the *courtier* at an end, could no longer endure the *ſon* in his preſence, and he was a ſecond time driven from the paternal manſion. His integrity was now put to a ſevere proof: it appears, that he found a ſhelter among his adopted friends the Quakers, while his mother privately ſupplied his wants. At length the admiral relented, ſo far as to wink at his return to the family; and when in conſequence of being found at religious meetings (by the ſtate then called ſeditious conventicles) he was at any time impriſoned, would privately uſe his influence to get him releaſed.

The talents of Penn were ſoon devoted to the ſupport of the doctrine he had eſpouſed. He became a preacher among the Quakers, and publiſhed in 1668, on their behalf, a piece entitled "Truth exalted:" another occaſion, however, more important in its conſequences, preſently occurred. A preacher, named Thomas Vincent, irritated by the going over of two of his hearers to the Quakers, accuſed the latter of holding erroneous doctrine concerning the Trinity. A diſpute was held in conſequence, in a meeting-houſe belonging to a Preſbyterian congregation in London, chiefly between Vincent on the one part, and George Whitehead, an eminent Quaker, on the other. Vincent began by ſtating (in the gentle phraſe of the time) that the Quakers held "damnable doctrines;" which being denied, he followed up his charge with a queſtion, whether they owned "one Godhead ſubſiſting in three diſtinct and ſeparate perſons." Whitehead, and thoſe with him, rejecting theſe terms as unſcriptural, Vincent framed the following ſyllogiſm; "There are three that bear record in heaven, the Father, the Word, and the Holy Ghoſt, and theſe three are one. Theſe are either three manifeſtations, three operations, three ſubſtances, or three ſomethings elſe beſides ſubſiſtences: but they are not three manifeſtations, three operations, three ſubſtances, nor three any things elſe beſides ſubſiſtences: *ergo*, three ſubſiſtences."—Whitehead again rejected the terms, as not to be found in ſcripture, nor deducible from the text; and obſerving "that God did not uſe to wrap up his truths in heatheniſh metaphyſics, but to reveal them in plain language," he deſired an explanation. This was ſafe ground, though likely to prove barren of ſcholaſtic argument: but Penn, either not aware of its advantage, or as yet too full of Ariſtotle, choſe to deny the *minor* of the ſyllogiſm, and went into ſome diſtinctions, uſing the rejected terms ſubſtance and ſubſiſtence. After much of this ſort of logic, and ſome abuſe beſtowed on the Quakers, the diſpute ended, for the preſent, to the ſatisfaction of neither ſide. In proſecution of the controverſy thus raiſed, Penn wrote a piece with the following title: "The ſandy Foundation ſhaken, or thoſe ſo generally believed and applauded Doctrines, of one God, ſubſiſting in three diſtinct and ſeparate Perſons: the Impoſſibility of God's pardoning Sinners: a plenary Satisfaction: the Juſtification of impure Perſons by an imputative Righteouſneſs; refuted from the Authority of Scripture and right Reaſon." The diſpute with Vincent had excited much attention. This publication did more; it ſtirred up the vindictive ſpirit of intolerance. It was evil ſpoken of, ſays Sewel, the hiſtorian of the Quakers, and not long after Penn was committed to the Tower; and, as ſome thought, not without his father's being acquainted with it, perhaps to prevent a worſe treatment. From what quarter this was apprehended, we ſhall ſee preſently; for Penn being thus ſecured in the Tower, and denied the acceſs of his friends, his ſervant one day brought him word (as it ſeems, from the admiral) that the *biſhop of London* was reſolved he ſhould either publicly recant, or die a priſoner. His reply evinced a mind unterrified at the proſpect of ſufferings, which he conſidered as inflicted for conſcience ſake: and he began to occupy his ſolitude with religious compoſitions, the moſt conſiderable among which was a practical treatiſe on the Chriſtian religion, entitled "No Croſs No Crown." In this work, his contemporary, Dr. Henry More, ſays, he has treated the ſubject of a future life, and the immortality of the ſoul, with a force and ſpirit equal to moſt writers. It has paſſed through many editions.

After near ſeven months durance, Penn wrote to the ſecretary of ſtate, lord Arlington, requeſting to be heard in his own defence before the king, and complaining warmly of the manner in which his ſentiments had been miſrepreſented by his enemies. In this letter ſeveral juſt and noble ſentiments occur. He tells his lordſhip, "that he is at a loſs to imagine how *a diverſity of religions opinions* can affect *the ſafety of the ſtate*, ſeeing that kingdoms and commonwealths *have lived* under the balance of divers parties. He conceives that *they only are unfit* for political ſociety, who maintain principles *ſubverſive of induſtry, fidelity, juſtice, and obedience;* but to ſay that men muſt form their faith *of things proper to another world*, according to *the preſcriptions of other mortal men in this*, and, if *they do not*, that they *have no right to be at liberty, or to live in this*, is both *ridiculous and dangerous*. He maintains that the underſtanding can never be convinced by other arguments than what are *adequate to its own nature. Force may make hypocrites*, but can make *no converts*, &c. &c." He now likewiſe publiſhed a ſhort piece, entitled "Innocency with her open Face, preſented by way of Apology for the Book, entitled The ſandy Foundation ſhaken." He here ſays, "that which I am credibly informed to be the greateſt reaſon of my impriſonment, and of that noiſe of blaſphemy which hath pierced ſo many ears of late, is my denying the divinity of Chriſt, and diveſting him of his eternal Godhead; which moſt buſily has been ſuggeſted, as well to thoſe in authority, as maliciouſly inſinuated among the people." In confutation of which charges, he proceeds to prove from ſcripture the Godhead of Chriſt. Both of theſe tracts were republiſhed in the collection of his works, in folio, 1771; and the reader, who deſires to obtain a juſt view of his ſentiments on the ſeveral controverted points, will do well to compare them with each other, and with his doctrinal works at large. Soon after this explanatory defence, Penn was liberated from the Tower, and went to Ireland, where he ſeems to have been occupied for twelve months in the care of his father's eſtate, and in various ſervices to his friends, the Quakers; after which he returned to England.

In the year 1670, the Quakers being perſecuted by ſome magiſtrates, under the act againſt conventicles, were forcibly kept out of their meeting-houſe in Gracechurch-ſtreet. They met as near it as they could, in the ſtreet, agreeably to their practice in ſuch caſes; and their firmneſs herein eventually procured them the free exerciſe of their right. On the occaſion alluded to, Penn, preaching in the ſtreet, was apprehended by warrant from ſir Samuel Starling, lord mayor, and committed to Newgate. At the next ſeſſions at the Old Bailey he was indicted, along with William Mead, another eminent Quaker, for meeting in, and conſpiring to preach to an unlawful and tumultuous aſſembly. He made, ſays his biographer, a brave defence, diſcovering both the free ſpirit of an Engliſhman, and the undaunted magnanimity of a Chriſtian, inſomuch that, notwithſtanding the moſt partial frowns and menaces of the bench, the jury acquitted them both. It ought to be added, that this jury exhibited an inſtance of firm, perſevering juſtice, under moſt tyrannical and indecorous treatment by the court, worthy of the notice and remembrance of every Engliſhman. They were fined for the verdict which they had brought in, and ordered to be impriſoned till the fines were paid. But this dangerous aſſumption of power was afterwards adjudged illegal by the court of common pleas, on which occaſion the chief juſtice Vaughan diſtinguiſhed himſelf by a very able ſpeech in vindication of the rights of juries. The trial of Penn and Mead is inſerted in the collection of Penn's works, and has been alſo publiſhed ſeparately.

Not long after this event admiral Penn died, perfectly reconciled to his ſon, to whom he left an eſtate of 1500*l.* *per annum*. Penn engaged about this time in a public diſpute, at Wycomb, with Jeremy Ives, a celebrated Baptiſt, on the univerſality of a divine light in the minds of men; which doctrine Ives undertook to diſprove, but ſeems to have quitted the field to his antagoniſt immediately after ſtating his argument. In the month called February 1670-1, Penn was again committed, on the pretext of preaching publicly, to Newgate, where he remained ſix months. It is obſervable that he had recently publiſhed a piece in favour of liberty of conſcience, and another entitled "A ſeaſonable Caveat againſt Popery;" the one probably offenſive to the intolerant clergy, the other to the court. At his commitment he held a ſpirited dialogue on perſecution with ſir John Robinſon, lieutenant of the Tower; at the cloſe of which, the latter calling for an officer with a file of muſketters, "No, no," ſaid Penn, "ſend thy lacquey, *I know the way to Newgate.*"

Early in 1672 he married Gulielma Maria, daughter of ſir William Springett, formerly of Darling in Suſſex. He ſettled at Rickmanſworth, Herts, continuing to render ſervice, both by preaching and writing, to the religious cauſe in which he was now engaged for life. Nor did he neglect an attention to the intereſts of his country, but publiſhed, in this year, a pamphlet entitled "The propoſed Comprehenſion ſoberly and not unſeaſonably conſidered;" and in 1675, a larger work, the title of which is "England's preſent Intereſt conſidered, with Honour to the Prince, and Safety to the People, in Anſwer to this one Queſtion, What is moſt fit, eaſy, and ſafe, at this Juncture of Affairs, to be done, for quieting of Differences, allaying the Heat of contrary Intereſts, and making them ſubſervient to the Intereſt of the Government, and conſiſtent with the Proſperity of the Kingdom?" The anſwer to this, and the argument of the piece, is in three things: "1. An inviolable and impartial maintenance of Engliſh rights. 2. Our ſuperiors governing themſelves upon a balance (as near as may be) towards the ſeveral religious intereſts. 3. A ſincere promotion of general and practical religion." Becoming, about this time, intereſted in the property of Weſt Jerſey, he took an active part in the meaſures uſed to promote the ſettlement of that province.

In 1677 Penn, in company with George Fox, Robert Barclay, and others, went over to Holland, and aſſiſted at a general meeting of the *Friends* in thoſe parts, held for the purpoſe of ſettling their religious diſcipline; and thoſe at Dantzic being under perſecution, Penn wrote, in their name, an addreſs to the king of Poland, with a confeſſion of faith, and a requeſt that he would interpoſe for them. He then proceeded with Barclay to Herwerden, the court of the princeſs Elizabeth of the Rhine, elder ſiſter of Sophia, electreſs of Hanover, on whom the ſucceſſion of the crown of England was afterwards ſettled. Their object was a religious viſit to this princeſs, and the counteſs of Hornes, her companion, both Proteſtants, and the former eſteemed one of the moſt learned of her ſex in that age. Some correſpondence, begun upon the report of their extraordinary piety, had opened the way for a perſonal interview. Penn and his companion were well received at Herwerden: a correſpondence by letter was afterwards kept up between the former and the princeſs, and ſhe dying in 1680, he inſerted in the ſecond edition of his "No Croſs no Crown" a teſtimony to her highly exemplary character. In returning through Germany and Holland, he preached in many places, at meetings convened for the occaſion. He was heard, this year, before a committee of parliament, in ſupport of a petition from the Quakers, who were oppreſſed by proſecutions in the exchequer, under ſtatutes enacted againſt the Papiſts, but converted by ſome magiſtrates into engines of annoyance to Proteſtant diſſenters. In 1679, and during two years following, he publiſhed ſeveral things; as, "An Addreſs to Proteſtants;" "England's great Intereſt in the Choice of this new Parliament," a piece dedicated to the electors; and "One Project for the Good of England," which he preſented to the parliament itſelf. He likewiſe exerted himſelf to procure the return of Algernon Sidney as a member of the houſe, firſt at Guildford, and afterwards at Bramber. About this time he was elected a fellow of the Royal Society.

We come now to the moſt conſiderable of Penn's actions, the ſettlement of a colony in North America, on liberal and pacific principles. A tract of country on the weſt ſide of the Delaware, (formerly belonging to the Dutch, and called the New Netherlands,) was granted on petition, by Charles II., to William Penn, and his heirs, in conſideration of admiral Penn's ſervices, and of debts due to him from the crown at his deceaſe. To this the duke of York added, by ceſſion, a further contiguous portion of territory, ſeated lower on the Delaware. The king's patent bore date the 4th of March, 1680-1; and in this inſtrument he gave to the province, in honour of the patentee, its new name of Pennſylvania. Penn, being thus conſtituted abſolute proprietor and governor, publiſhed "A brief Account of the Province of Pennſylvania," in which he propoſed terms of ſettlement to ſuch as might incline to remove thither, offering land at forty ſhillings purchaſe, and one ſhilling *per annum* quit-rent, for one hundred acres. A great number of buyers came forward, ſeveral of whom formed a company, calling themſelves "The free Society of Traders in Pennſylvania." Three ſhips preſently departed, with adventurers from England and Wales, chiefly induſtrious and reputable perſons of Penn's own communion. Two of theſe arrived on the coaſt in time to winter; the third was detained till ſpring in the Weſt India iſlands. Thus was the ſettlement begun, the proprietor being occupied meantime in providing a government for the colony, and in concerting meaſures for its ſecurity. The native Americans, or Indians, having experienced, in ſome provinces on that continent, much injuſtice, had made the moſt terrible repriſals: ſound policy, therefore, conſpiring with his own temper and principles, made it Penn's care to have them treated with candour, juſtice, and humanity; and his relation, W. Markham, ſailing with the firſt ſettlers, he joined him with others in a commiſſion to open a friendly intercourſe with the natives, to whom he ſent out conſiderable preſents, and a letter couched in plain conciliatory terms. In the beginning of 1682 he publiſhed "The Frame of the Government of the Province of Pennſylvania in America, together with certain Laws agreed upon in England, by the Governor and divers Freemen of the aforeſaid Province, to be further explained and confirmed there by the firſt provincial council that ſhall be held, if they ſeem meet. In the preface to this work we have a ſketch of his ſentiments on the forms and ſubſtance of civil government. "That," he obſerves, "which makes a good government, muſt keep it ſuch: to wit, men of wiſdom and virtue; qualities that, becauſe they deſcend not with worldly inheritances, *muſt be carefully propagated by a virtuous education of youth*:" and in order to give effect where he had power, to that great principle of good government, liberty of conſcience, in behalf of which he and his friends at home ſo deeply ſuffered, he recogniſed it in the firſt article of his "Conſtitutions," and proceeded to eſtabliſh it by the following "Law." "All perſons living in the province who ſhall confeſs and acknowledge the one Almighty and Eternal God, to be the creator, upholder, and ruler of the world, and that hold themſelves obliged in conſcience to live peaceably and juſtly in civil ſociety, ſhall in no ways be moleſted or prejudiced for their religious perſuaſion, or practice in matters of faith and worſhip, nor ſhall they be compelled, at any time, to frequent or maintain any religious worſhip, place, or miniſtry whatſoever." Having completed his preparations, the governor, early in the autumn of 1682, ſailed for Pennſylvania; his family (of whom he took leave in a pathetic and inſtructive letter) remaining behind. He was accompanied by about an hundred perſons, moſtly Quakers, from his own neighbourhood: but of theſe the ſmall-pox, which had been inadvertently carried on board, ſwept off no leſs than thirty. In other reſpects the voyage was proſperous, and paſſing up the Delaware, he was met by the coloniſts, conſiſting of Engliſh, Dutch, and Swedes, with demonſtrations of ſatisfaction. Having landed at Newcaſtle October 24, he convened and addreſſed the inhabitants, received legal poſſeſſion of the country, and renewed the magiſtrates' commiſſions. After paying a viſit to New York, he met the firſt provincial aſſembly at Cheſter, on the Delaware, then called Upland. Here, in a ſeſſion of three days, the territory ceded by the duke of York was annexed to the province; an act of ſettlement was confirmed; reſident foreigners naturalized; and the laws, which had been formed in England, after ſome reviſion, paſſed in form. Penn now viſited lord Baltimore in his government of Maryland; whence he returned to Coquannock (the future ſcite of Philadelphia), and began to purchaſe lands of the natives. He now likewiſe firſt entered perſonally with them into that firm alliance of peace and good offices, and formed (to uſe their own ſymbol) that chain of friendſhip, which was to laſt as long as ſun and moon endure. Certain it is that his ſtrict obſervance of juſtice in paying them for the ſoil (which was their inheritance), and the intereſt he manifeſted, during many ſucceſſive treaties, in their real welfare, not only operated to ſecure this colony, for a long ſeries of years, from hoſtile attacks, but implanted in the generous, though uncultivated mind of the American, a regard for *Onas* (Penn), and his children (the Quakers,) which bids fair to be trammitted to the lateſt remains of the race.

Philadelphia, the capital of the province, was next to be laid out, of which, at the time of Penn's arrival, not a houſe was completed; the coloniſts having, in general, no better lodgings than caves, hollowed out of the high banks of the river: the very plot fixed on for the city was claimed by ſome Swedes, to whom the governor allowed a greater quantity of land in exchange. This city extending two miles in length and one in breadth, and abutting at each end on a navigable river, was now planned, with admirable boldneſs, convenience, and regularity, and laid out under the inſpection of Thomas Holmes, ſurveyor-general to the province. Ere twelve months had elapſed, the rudiments of the future metropolis ſhewed themſelves in about fourſcore dwellings, the ſeats of freedom, peace, and induſtry. The governor diſpatched his plan to the committee of the Free Society of Traders, accompanied with a deſcription (the beſt extant of theſe times) of the country, its natural hiſtory, and aborigines: this deſcription is inſerted in the collection of his works before-mentioned. The firſt jury was impannelled here early in 1683; and one Pickering was tried, with others his acceſſaries, before the governor and council, and convicted of counterfeiting the Spaniſh ſilver money current in the province. His ſentence diſcovers the ſame ſpirit of mildneſs and equity, which, at this day, conſtitutes the praiſe and the efficacy of the criminal code of Pennſylvania. He was to pay a fine of forty pounds towards the building of a court-houſe, ſtanding committed till payment; find ſecurities for his good behaviour; and make reſtitution, in good ſilver, to the holders of his baſe coin, *which, being firſt melted down, was to be reſtored to him.* Various legiſlative, economical, and religious meaſures, together with a tedious diſpute with lord Baltimore, on the ſubject of the boundary line between this province and Maryland, continued to occupy Penn till about Midſummer 1684; when he found it needful, on various conſiderations, to return to England. His intereſt at court had declined during his abſence: but it was now reſtored, upon the death of Charles II, by the acceſſion of his more immediate patron James II. He made uſe of his influence for the relief of his friends, the Quakers, who ſtill lay under the ſcourge of penal ſtatutes; and for the gratuitous ſervice of many others. In particular he exerted himſelf in favour of the meaſure at that time ſo much, though ſo inſincerely, held out by the court, of univerſal liberty of conſcience. In 1686 (as we learn from biſhop Burnet), being in Holland, in the courſe of a tour to Germany, &c. he had ſeveral interviews on this ſubject with the prince of Orange, on behalf (though not as an accredited miniſter) of king James: but his propoſal going ſo far as to aboliſh the teſts, it was rejected, probably by Burnet's advice, who was then with the prince, and in his confidence. However freely we may excuſe Penn, on the fair plea of gratitude, for his attachment to James, it is to be lamented that he gave implicit credit to pretended ſchemes of religious liberty, the duplicity of which was ſo fully penetrated by others. His intimate reception at court, and the appearance of being in ſome way truſted or employed by the king, now ſubjected him to the general imputation of being a concealed Papiſt. Even his old acquaintance, Dr. Tillotſon (afterwards archbiſhop of Canterbury), ſuſpected him: but ſome expreſſions of Tillotſon's on the ſubject coming to Penn's ears, a correſpondence enſued between them, at the cloſe of which Tillotſon acknowledged

ledged himſelf fully ſatisfied that there exiſted no juſt grounds for the ſurmiſe. About this time (beſides a further account of his province) Penn publiſhed ſeveral pieces on his favourite topic, liberty of conſcience, one of which was entitled "Good Advice to the Church of England, Roman Catholic, and Proteſtant Diſſenter, in which it is endeavoured to be made appear, that it is their duty, principle, and intereſt to aboliſh the penal laws and teſts."

The laſt occaſion in which we have to view Penn in connection with the court of James, is in an occaſional attendance on the movements of the latter, this year, through ſeveral of the midland counties. Penn ſeems to have made uſe of ſeveral intervals in this *progreſs*, to pay religious viſits to his friends, and to preach to the people. On ſome of the latter occaſions the king, too, was preſent to hear him. At Oxford he remonſtrated with James on his arbitrary treatment of the fellows of Magdalen college, and attempted a mediation between them and the king, which he farther proſecuted afterwards at Windſor; but it proved abortive.

The revolution brought Penn again into difficulties, as a ſuſpected Papiſt, or Jeſuit, and a ſecret agent for the old government. On the 10th of December 1688, walking in Whitehall, he was ſent for by the lords of the council, then ſitting, who, though nothing was laid to his charge, obliged him to give ſureties for his appearance on the firſt day of the next term; he was continued on theſe to the Eaſter term following, on the laſt day of which he was cleared in open court. In 1690 he was again brought before the council, on an accuſation of holding correſpondence with the late king James; he appealed to king William, who, after a conference of near two hours, inclined to acquit him; but to pleaſe ſome of the council he was held upon bail for a while, and in Trinity term, of the ſame year, again diſcharged. He was yet a third time attacked, and his name inſerted in a proclamation, dated July 18th this year, wherein (among divers of the nobility, and others, to the number of eighteen) he was charged with adhering to the king's enemies, but proof failing reſpecting him, he was again cleared by order of the court of king's bench. He now purpoſed to go again to his province, and gave out propoſals for a new ſettlement there. It appears that though his ſtay in England might be neceſſary to the ſecurity of his title as proprietary, it was highly detrimental both to his intereſts in America, and, through deficiency hitherto of revenue from it, to his private eſtate. His order for convoy had already paſſed the ſecretary of ſtate, when the voyage was prevented by a new charge againſt him, backed by the oath of one Fuller, a wretch who was afterwards declared by parliament an impoſtor: the charge, however, being that of partaking in a plot to reſtore the late king, a warrant was granted for his apprehenſion, which he narrowly eſcaped at his return from George Fox's burial, the 16th of the month called January 1690. Seeing now no probability of fair treatment, he retired (or, as Burnet chuſes to ſay, abſconded) for two or three years: during which time, beſides a preface to the collected works of Barclay, he wrote the following pieces: 1. "Juſt Meaſures," an epiſtle to the Quakers in vindication of religious diſcipline: 2. "A Key," or a treatiſe explanatory of their principles and practice: 3. "Reflections and Maxims relating to the Conduct of Human Life:" the two latter of theſe have gone through many editions. At the cloſe of 1693, being admitted through the interceſſion of ſome of the nobility to appear before the king and council, he now effectually repreſented his innocence, and got clear of this long political perſecution. About this time his wife, who was an amiable and accompliſhed woman, died, and he married, after two years, Hannah, daughter of Thomas Callowhill, of Briſtol; and ſoon after loſt, by a conſumption, his eldeſt ſon, a promiſing youth, juſt of age. The interval from his appearing again in public, to the year 1699, appears to have been chiefly devoted to religious labours and controverſies: he alſo preſented to parliament ſome arguments for exempting Quakers from oaths; and ſome remarks on a bill againſt *blaſphemy*, in which he very rationally propoſed that the term ſhould be ſo defined as to preclude malicious interpretations: this bill was dropped.

On the prevalence of Penn's enemies at court, he had been deprived of his government of Pennſylvania, which was annexed, in October 1692, to that of New York, under colonel Fletcher. The oſtenſible reaſons for this ſtep were mal-adminiſtration, and danger of the loſs of the province thereupon: the real one probably was a jealouſy excited by the growing proſperity of the colony, and by principles and practices in its juriſprudence too liberal for the age. Penn's rights were reſtored to him by an inſtrument of William and Mary, dated in Auguſt 1694, but it was not till five years after this, that he embarked a ſecond time for the province, accompanied by his family. The veſſel, being three months at ſea, did not arrive at Philadelphia "until the beginning of the tenth month, 1699, when a dangerous and contagious diſtemper, called the *yellow fever*, having raged in the province, and carried off great numbers of people, had ceaſed." Penn ſeems now to have intended to ſpend the remainder of his life in America, and he applied himſelf diligently to the offices of government; in which the inevitable difficulties ariſing from a mixed population, of various diſpoſitions and intereſts, and enjoying a great ſhare of liberty, required the exerciſe of both ſkill and patience. His adminiſtration was ſucceſsful, and the colony is ſtated to have been at this period, when compared with others of the ſame ſtanding on the continent, in an eaſy and flouriſhing condition. His old allies, the natives, were not overlooked, and religion being ever a predominant conſideration with Penn, he engaged his friends at a monthly meeting for diſcipline, held the beginning of 1700, in a plan for the inſtruction of the natives and of the negroes, who had now been introduced among them, in the principles of the Chriſtian faith. Later experience has ſhewn that Chriſtianity, to obtain a cordial and general reception among theſe people, ſhould be preceded by her handmaid, civilization. A public ſchool, (free to the children of the poor,) had been already founded here. In the ſecond month 1701, a treaty was held between the governor and about forty of the chief perſons among the natives, in which, beſides renewing former covenants, the parties eſtabliſhed ſome regulations on the ſubject of trade between them: a principal care of the governor, on this occaſion, ſeems to have been to prevent the abominable practice, already uſed by ſome unworthy coloniſts, of drawing the natives into a ruinous traffic, by offering them ſpirituous liquors.

During theſe tranſactions an attempt was making, at home, under pretence of advancing the prerogatives of the crown, and of national benefit, to invade the ſeveral proprietary governments in America, and reduce them to regal ones. A bill for this purpoſe was already before the lords, when the land-owners of Pennſylvania, preſent in England, petitioned the houſe, and gained time for the governor's return; who, on notice of the meaſure, preſently embarked, and arrived at Portſmouth in December 1701. The bill which had been poſtponed, was now entirely dropped, and the acceſſion of queen Anne, ſoon after, placed Penn once more in the ſunſhine at court. His eſtate, however, had now ſuffered much, by liberal diſburſements, by inadequate returns, and by the continual political impediments thrown in his way. He was moreover involved, in 1707, in a ſuit at law with the executors of a perſon who had been his ſteward; and his caſe not admitting of relief by the court of chancery, he was obliged to live within the rules of the Fleet, until the diſpute could be adjuſted. Advantage was now taken of his embarraſſments by the miniſtry, to endeavour to buy what was before to have been taken by an act of power. He demanded for his province 20,000*l.*, and, after ſome diſcuſſion, had agreed to accept of 12,000*l.*, when he was incapacitated by illneſs from completing the ſale. This defect was to have been ſupplied by an act of parliament, and by the queen's order one was prepared. It now appeared, on the petition of Henry Gouldney and others, that Pennſylvania had actually been mortgaged to them by its proprietor in 1708, for the ſum of 6600*l.*! Let us turn from this proſpect: it is ſickening to ſee public ſpirit and liberal enterpriſe reduced to the neceſſity of pawning and ſetting to ſale its honourable fruits. The eſtate, however, was not ſold, but continued in the hands of Penn, and the proprietaries, after the revolution in America, received from the legiſlature of Pennſylvania the ſum of 130,000*l.* in lieu of their quit-rents, beſides retaining many valuable tracts of land. They alſo received, by an act of the Britiſh parliament, a remuneration of 4000*l.* *per annum*, in conſideration of their loſſes, and of the "meritorious ſervices" of their anceſtor.

For ten years after his return to Europe, Penn lived moſtly near London, and was ſtill active in religious and civil ſociety. He wrote, in 1709, "Some Account of the Life and Writings of Bulſtrode Whitelocke, eſq." This was publiſhed along with the "Memorials of Engliſh Affairs," written by that excellent man and ſtateſman, with whom Penn had been for many years acquainted. In 1710, his health declining, he took a handſome ſeat at Ruſhcombe, near Twyford, Bucks. Here, in 1712, he was attacked with fits, ſuppoſed to be apoplectic, by which his underſtanding and memory were much impaired, and he became, in conſequence, unfit for public action, though not inſenſible, as it appears, to the ſympathy of his friends and the comforts of religion in a peaceful conſcience. He died, after a gradual declenſion of ſix years, the 30th of the month called July 1718, and was interred at the Quaker's burial-ground, at Jordans, near Beaconsfield.

One of the ableſt and beſt informed of Penn's contemporaries, Burnet, in his hiſtory of his own times, has exhibited him, on ſeveral occaſions, to ſome diſadvantage, both as a man and a citizen. That he ſhould no where report any good of a perſon ſo eminent might juſtly excite our ſurpriſe, were it not apparent that Penn was, on ſeveral accounts, odious to this hiſtorian: we muſt therefore receive the little he is pleaſed to ſay concerning him, with due allowance for the effect of party prejudice. That Penn was a perfect, or a faultleſs character, will not, by his warmeſt friends, be pretended. He appears to have wanted diſcernment in his eſtimate of affairs at home: but in his policy abroad, where he moved without ſhackles, there is a ſoundneſs of principle, and a dignity of feeling, that make ample amends for this defect: his integrity was evinced through many ſevere trials: his errors may be pronounced a fraction of no moment, when ſet againſt the great ſum of good, of which, under the Author of every good gift, he was the conſcious and the willing donor to mankind. Penn's Life, prefixed to his Works, in folio. Sewell's Hiſtory of the Quakers. Proud's Hiſtory of Pennſylvania.

PENN's *Cove*, in *Geography*, a bay on the E. coaſt of Whidbey's iſland, in the gulf of Georgia. N. lat. 48° 16'. E. long. 237° 39'.

PENN's *Creek*, a river of Pennſylvania, which runs into the Suſquehannah, N. lat. 40° 48'. W. long. 76° 56'.

PENN, *Fort*, lies at the mouth of a ſmall creek, on the W. ſide of Delaware river, in Northampton county, about 21 miles N. of the line of Eaſton, and near 70 miles N. of Philadelphia. N. lat. 40° 59'. W. long. 75° 13'.

PENN, *Port*, lies in Newcaſtle county, Delaware, on the W. bank of Delaware river, oppoſite to Reedy iſland.

PENN's, a townſhip of Pennſylvania, on the river Suſquehannah, containing 2309 inhabitants.

PENN's *Neck*, a town of Salem county, New Jerſey, in Old Man's creek; 12 miles N.E. by N. of Salem.—Alſo, the name of a range of farms of excellent ſoil, ſituated about one mile and a half S.E. of Princeton, in New Jerſey, on a point of land formed by Millſtone river, and Stony creek; ſo called from the celebrated William Penn, who formerly owned this tract.

PENNA, LORENZO, in *Biography*, an eccleſiaſtic of Bologna, publiſhed a work entitled, "Li primi albori Muſicali, per li principianti della Muſica figurata;" one of the beſt treatiſes on practical muſic that appeared in Italy during the 17th century. The firſt ſketch of this book was publiſhed in 1656. A ſecond edition, enlarged, of the firſt book, appeared at Bologna, 1674. The ſecond book at Venice, 1678: and the whole completed, in three books, 1684. In 1696, the work had gone through five editions. The author's rules for counterpoint, and extemporary playing on keyed inſtruments, are conciſe and clear, as far as they go; which is, however, very ſhort of what is now wanted, ſince the bounds of modulation and uſe of diſcords have been ſo much extended.

PENNA, in *Geography*, a town of Italy, in the marquiſate of Ancona; 9 miles E. of Camerina.

PENNA *d'Agher, Le*, a ſmall iſland near the W. coaſt of Sardinia. N. lat. 43° 33'. E. long. 8° 16'.

PENNA *di Billi*, a town of Italy, in the duchy of Urbino, the ſee of a biſhop; 14 miles W.N.W. of Urbino.

PENNANT, THOMAS, in *Biography*, celebrated as a naturaliſt and touriſt, to whoſe various writings we have had frequent recourſe in our reſearches in the ſeveral departments of natural hiſtory, was born at Downing, in Flintſhire, in the year 1726. He received his ſchool education at Wrexham and Fulham, and from the latter place he was removed to the univerſity of Oxford, where he entered upon the ſtudy of juriſprudence, though, probably, without any intention of purſuing the law as a profeſſion. A preſent made to him, when he was about 12 years old, gave him a taſte for the ſtudies and purſuits in natural hiſtory, for which he afterwards became famous. In the year 1746 he made a tour into Cornwall, in the courſe of which he became acquainted with Dr. Borlaſe, and thus acquired a ſort of paſſion for the ſcience of mineralogy. In the year 1754 he was elected a fellow of the Society of Antiquaries, which was highly gratifying to him, as he had always been accuſtomed to combine antiquarian ſtudies with his reſearches into nature. His firſt effort as an author, in the department of natural hiſtory, was a paper on certain coralloid bodies found in Coalbrook-dale, which was inſerted in the Philoſophical Tranſactions for the year 1756. He had previouſly to this commenced a correſpondence with the illuſtrious Linnæus, to whom he ſent an account of a *concha anomia* from the Norwegian ſeas, and in return he was made a member of the Royal Society of Upſal. About this time Mr. Pennant married, and paſſed ſome years in domeſtic retirement. By way of occupation he began, in 1761, to prepare his Britiſh Zoology, in 132 coloured plates, imperial folio, with explanations. This work he afterwards publiſhed for the benefit of the Welſh charity-ſchool in London. In 1763 he came into poſſeſſion of the eſtate of Downing, and with it a rich mine of lead-ore, which enabled him to make great improvements. The death of his wife interrupted his domeſtic enjoyments, and in the ſpring of 1765 he made a tour to the continent, and viſited Switzerland, part of Germany, and Holland, and acquired an intimacy and friendſhip with ſeveral perſons of great ſcientific knowledge, among whom were Buffon, Haller, the Geſners, Gronovius, and Pallas. His conference with the latter at the Hague gave riſe to the plan of his "Synopſis of Quadrupeds." In 1767 he was elected a fellow of the Royal Society of London, and in the next year he republiſhed his Britiſh Zoology, in two vols. 8vo., and in 1769 a third was added, including fiſhes and reptiles. In the ſame year he took a journey to the remoteſt point of Scotland, and the obſervations which he made were afterwards the baſis of a very intereſting publication. In 1770 he publiſhed 103 additional plates to his Britiſh Zoology, with ſeveral new deſcriptions, and in the following year he printed his Synopſis of Quadrupeds, in one volume 8vo. His well-earned reputation cauſed him to be preſented, by his Alma Mater, with the compliment of the degree of Doctor of Laws The account of his firſt Tour to Scotland was well received by the literary world, for previouſly to this little was known of Scotland by the people of England; and the valuable and well-arranged facts given by this excellent traveller, were highly prized by perſons on both ſides of the Tweed. In 1772 he repeated his northern tour, extending it to the Hebrides, the reſult of which was a rich harveſt of valuable and entertaining obſervations. In the following year he publiſhed "Genera of Birds," in one volume, and employed himſelf in a journey through the northern counties of England.

Mr. Pennant was now become an habitual traveller, and he found his excurſions equally conducive to the health of his body and vigour of his mind. In all his tours he laid up new ſtores of information, and he found even the moſt frequented tracts fertile of thoſe topographical memoranda to which his attention was principally directed. In 1778 he gave the public an account of his native country, Wales, in a work entitled "A Tour in Wales," and in 1781 he added another volume, with the title of "A Journey to Snowden." Theſe are particularly intereſting, on account of the many anecdotes interſperſed illuſtrative of the manners and hiſtory of that part of the iſland. He did not neglect his original object of purſuit, Natural Hiſtory. He had, in the year 1777, added a volume to his Britiſh Zoology, containing the Vermes, Teſtaceous and Cruſtaceous animals. In 1781 he publiſhed his "Hiſtory of Quadrupeds," and in the ſame year his "Hiſtory and Natural Hiſtory of the Turkey" was inſerted in the Philoſophical Tranſactions. His "Arctic Zoology," in two vols. 4to. appeared in 1785. To this there was a copious introduction, which is thought to be the moſt intereſting and original of all his writings. It is a kind of ſurvey of all the coaſts of the arctic regions, beginning from the ſtraits of Dover, and proceeding to the remoteſt north, on the eaſt and weſt, and filled with a great variety of geographical, hiſtorical, and phyſical facts, affording a ſeries of the moſt animated pictures. In 1782 he publiſhed "A Journey from Cheſter to London;" and alſo an account of the antiquities of the capital itſelf, entitled "London." Several ſmaller pieces of the political and miſcellaneous kind filled up the intervals of his greater works, and proved the continued activity of his mind. Theſe facts are chiefly taken from the hiſtory of his literary life by himſelf, which was printed in the year 1793. After which he publiſhed a natural hiſtory of the pariſhes of Holywell and Downing, within the latter of which he reſided more than 50 years. Not long before his death appeared another work, in two volumes 4to., which was entitled "A View of Hindooſtan," which was executed in an able manner, and which bears a ſtrong reſemblance to the introduction to the "Arctic Zoology." He died at his ſeat at Downing in the year 1798, in the 72d year of his age. He inherited from nature a ſtrong and vigorous conſtitution; his countenance was open and intelligent; his diſpoſition active and cheerful; and his vivacity, both in writing and converſation, rendered him, at all times, an entertaining companion. He was exemplary in the relations of domeſtic life, zealouſly attached to the intereſts of his country, both local and general, and kindly attentive to the wants of his poor neighbours. As an author his ſtyle is lively, and well adapted to convey the ideas which he intended to expreſs, but it is not always correct. In the department of natural hiſtory he is clear and judicious in his principles of arrangement, conciſe, energetic, and exact in his deſcriptions. His facts are regarded as of good authority.

PENNANT, or *Pendant*, in a *Ship*. See PENDANT.

PENNANTIA, in *Botany*, was ſo named by Forſter, in honour of his friend and patron the late Thomas Pennant eſq. of Downing, Flintſhire, the great Britiſh zoologiſt, who in his various publications has incidentally touched on botany in many places, and who publiſhed in his various tours the firſt Britiſh figures of ſome of our rareſt plants. Forſt. Gen. t. 67. Schreb. 739. Mart. Mill. Dict. v. 3. Juſſ. 428. Lamarck Illuſtr. t. 854.—Claſs and order, *Polygamia Dioecia*, rather *Pentandria Monogynia*. Nat. Ord. uncertain; perhaps akin to the *Urticæ* of Juſſieu.

Gen. Ch. *Cal.* none, unleſs the corolla be taken for ſuch. *Cor.* Petals five, equal, lanceolate, acute, concave, widely ſpreading. *Stam.* Filaments five, capillary, the length of the petals; anthers oblong, incumbent. *Piſt.* Germen ſuperior, obtuſely triangular; ſtyle none; ſtigma flat, peltate, obſcurely three-lobed. *Peric.* Capſule? triangular, of two cells. *Seeds* ſolitary, ſomewhat triangular.

Some flowers, on a ſeparate plant, have the filaments twice as long as in the above, with ovate anthers, but no piſtil.

Eſſ. Ch. Calyx none. Petals five, equal. Style none. Capſule? of two cells. Seeds ſolitary.

1. P. *corymboſa*. Forſt. Prodr. 75.—Native of New Zealand.—A tree or ſhrub, with round leafy *branches*, dotted, and ſomewhat downy, when young. *Leaves* alternate, ſtalked, two inches or rather more in length, obovate, either quite entire, or with two or three broad, blunt, ſhallow teeth or ſmall lobes; furniſhed with a mid-rib, and many tranſverſe interbranching veins; dark green above, nearly ſmooth, except the rib, which is on both ſides minutely hairy; pale and ſmooth beneath. *Footſtalks* not half an inch long, channelled, hairy. *Stipulas* minute, oblong, concave, membranous, very ſoon falling off. *Corymbs* terminal, much branched, many-flowered, hairy; the branches moſtly alternate. *Flowers* about the ſize of Laurus-tinus; as far as can be judged of them in a dry ſtate, they ſeem to be pale green or yellowiſh-white. The whole ſpecimen bears a general reſemblance to ſome kind of *Viburnum*, but the abſence of a calyx is a ſtriking difference. Such is Forſter's original ſpecimen before us. The younger Linnæus however obtained in England, if we miſtake not, a ſpecimen under the name of *Pennantia*, which is a very dif-

ferent things. The *leaves* are ovate, four inches long, green on both ſides, undivided and entire. *Branches* and *footſtalks* ſmooth, with a ſolitary ſtalked gland at a little diſtance above each of the latter, and no *ſtipulas*. *Flowers* numerous, in a terminal, compound, ſmooth cluſter; their *ſtyle* as long as the *corolla*, their *ſtamens* longer, and, what is moſt remarkable, each *flower* has a *calyx*, deeply divided into five ovate fringed ſegments, and rather elongated at its baſe. This plant therefore is unqueſtionably altogether different from Forſter's *Pennantia;* it may be an *Ehretia*, but we know nothing of the fruit, nor is it to our preſent purpoſe to inveſtigate this queſtion. The true *Pennantia* above deſcribed has ſo much reſemblance in ſome points to the order of *Urticæ*, that we venture to hint its probable affinity thereto. Poſſibly the ſuppoſed *corolla* of five petals may be a deeply divided *calyx*. As to the true nature of the *fruit*, nothing certain is known. Forſter examined the *germen* only, and though we allow that the rudiments of two cells is a circumſtance much againſt our conjecture, we conceive there are not ſufficient materials to lead us to any other ſafe concluſion.

PENNAR, in *Geography*, a river of Hindooſtan, which riſes in Myſore, traverſes the circar of Cuddapa and the Carnatic, and runs into the bay of Bengal, 12 miles E. of Nellore. N. lat. 12° 26′. E. long. 80° 13′.

PENNARE POINT, a cape in the Engliſh channel, on the S. coaſt of Cornwall; 6 miles W.S.W. of Dedman's point. N. lat. 50° 12′. W. long. 4° 46′.

PENNARTH BAY, a bay on the S. coaſt of Wales, in the Severn, at the mouth of the Taf, below Cardiff. A point of land, called Pennarth point, bounds it on the ſouth.

PENNAS, LAS, a town of Peru, in the dioceſe of La Paz; 70 miles N. of Potoſi.

PENNATA FOLIA, winged leaves, among *Botaniſts*, are ſuch leaves of plants as grow directly one againſt another, on the ſame rib or ſtalk: as thoſe of the aſh, walnut-tree, &c. See LEAF.

PENNATULA, or SEA-PEN, in *Natural Hiſtory*, a genus of the claſs and order Vermes Zoophyta. The generic character is as follows: animal not affixed, of various ſhapes, ſupported by a bony part within, naked at the baſe, the upper part with generally lateral ramifications, furniſhed with rows of tubular denticles, producing radiate polypes from each tube. There are eighteen

Species.

COCCINEA. The ſtem is round, radiating, with papillous polype-bearing ſides, and clavate at the top. It inhabits the deeps of the White ſea, and unites the two genera Alcyonium and Pennatula; it is ſoft, red, an inch and half high, and as thick as the little finger; it is wrinkled, with the papillæ diſpoſed in rows.

GRISEA. Stem fleſhy, with a ſmooth midrib and imbricate plaited ſpinous ramifications. It is found in the Adriatic, and is about eight inches long; it ſhines by night; back of the midrib lanceolate, ſmoothiſh; rays imbricate, and undulate on the anterior margin, the lobules are armed with a ſpine, and obtuſely crenate at the margin.

PHOSPHOREA. Stem fleſhy, with a rough midrib and imbricate ramifications. It inhabits moſt ſeas, and emits a ſtrong phoſphoric light in the dark; it is about four inches long, and red; the ſtem is villous, with a lanceolate rough midrib, and nearly incumbent rays, the tubes pointing all one way.

FILOSA. The ſtem is a little fleſhy, with a rib feathered on each ſide, and furniſhed with two filiform tentacula at the baſe. It inhabits European ſeas, and is from four to ſix inches long.

RUBRA. Stem fleſhy, with a broad, tuberculate midrib, the ramifications are imbricate, with each a ſhort ſpine at the baſe. It inhabits the Mediterranean, is about ſix inches long; in colour it is whitiſh, varied with red dots and ſaffron lines.

MIRABILIS. Stem filiform, with lunate, diſtant, alternate ramifications. It inhabits the American, the Atlantic, and Norwegian ſeas; is about three or four inches long, and is fulvous; the tubes are round, with a ſpinous tip.

SAGITTA. Stem filiform, with cloſe-ſet ramifications, and naked at the tip. It inhabits the ocean, and is thought not to be a diſtinct ſpecies.

ANTENNINA. Stem nearly quadrangular, ſetaceous, with polype-ſuckers, on three ſides. It inhabits the Mediterranean; is two feet ten inches high, and with regard to colour it is yellowiſh dotted with red.

STELLIFERA. Simple, equal, with ſolitary polypes towards the tip. It inhabits the Norway ſeas, and is about four inches long.

PHALLOIDES. Simple, with a cylindrical midrib every where covered with polypes. It inhabits the Indian ocean, is ſix inches long, and grey.

ARUNDINACEA. Stem quadrangular and very long. It inhabits the Norway ſeas, and is four feet long; the ſtem is linear, with cylindrical rays of ſolitary tubes, which are deciduous, erect, crowded, and ſeated on a thin pedicle.

SCIRPEA. This is ſimple, linear, tapering, with a round midrib producing polypes on one ſide. It inhabits the ocean, and is eighteen inches long; the ſtem is fleſhy, thicker and longer than the midrib; the bone is ſomewhat flexile.

JUNCEA. Simple, linear, with a truncate rib, and tranſverſe polype bearing wrinkles on each ſide. This is found in the Indian ocean, is two feet long, white, beneath horny, the rays mixed, fulvous and white.

GRANDIS. Pen-ſhaped, linear-lanceolate, with a ſmooth round ſtem, and jagged toothed ramifications. It inhabits the Indian ocean; is a foot long, greeniſh-grey, ſhines with a cinereous light in the dark, and ſometimes ſtings the hand if it be touched.

ARGENTEA. Pen-ſhaped, lanceolate, with a ſmooth round ſtem, and very cloſe-ſet imbricate, ſtriate ramifications. This alſo is found in the Indian ocean, and is about a foot long; in colour it is a rich, ſilvery white, elegantly ſtriate along the ramifications with lines of black; like many of the tribe it is luminous in the dark.

ENCRINUS. Stem quadrangular, taper, very long, bony, covered with a callous membrane, with an umbellate cluſter of polypes from the top. It inhabits the Greenland ſeas, is about ſix feet long, and when taken freſh from the ſea, appears like a noſegay of yellow flowers.

CYNOMORIUM. Cylindrical, fleſhy, ſomewhat clavate, bearing polypes on the whole upper ſurface. It inhabits the Mediterranean, is reddiſh, and about four inches long.

RENIFORMIS Stem round, vermicular, ſupporting a kidney-ſhaped leaf-like head, producing polypes on one ſurface. It is found in South Carolina. The body is expanded, kidney-ſhaped, flat, riſing from a ſhort ſtem, and covered on the upper ſurface with numerous tubular orifices, through which the polypes are protruded at pleaſure; the upper ſurface is of a rich purple, the under ſide leſs brilliant, and ſometimes yellowiſh.

PENNE′, in *Geography*, a town of France, in the department of the Lot and Garonne, and chief place of a canton, in the diſtrict of Villeneuve d'Agen; 3 miles E. of it.

The place contains 854, and the canton 10,621 inhabitants, on a territory of 162½ kiliometres, in 22 communes.

PENNEDO *de St. Pedro*, a ſmall iſland in the Atlantic. N. lat. 0° 55′. W. long. 27° 10′.

PENNEVISCH, in *Ichthyology*, a name given by ſome to the moſt common ſpecies of the fiſh called *bagre*, caught in the Eaſt and Weſt Indies.

PENNEWANG, in *Geography*, a town of Auſtria; three miles N. of Schwanaſtadt.

PENNI, Giovanni Francesco, called *Il Fattore*, or the ſteward, from having been entruſted with the domeſtic concerns of Raphael, in *Biography*, ſoon became one of his principal aſſiſtants. He more than any other helped him in the execution of the cartoons of the Arazzi, and in the Loggii of the Vatican painted the hiſtories of Abraham and Iſaac. After the death of his maſter, he executed the freſco of the coronation in the Stanza of Conſtantine. The upper part of the Aſſumption of the Virgin at Monte Lupi, in Perugia, is aſcribed to him, but the lower part was painted by Julio Romano. Few of his own works remain. Facility of conception, grace of execution, and a ſingular felicity in landſcape, are mentioned as his characteriſtics.

Penni wiſhed much to have united himſelf with his co-heir Julio, but being coldly received by him at Mantua, went to Naples, where his works and principles might have contributed much towards the renown of his name, had he not been intercepted by death, in the year 1528, at the age of 40. Fuſeli's Pilkington.

PENNIGONDA, in *Geography*, a town of Hindooſtan, in the circar of Rajamundry; 38 miles E. of Rajamundry.

PENNING, in *Commerce*, a money of account in Holland. The gilder, or florin, contains 20 ſtivers, and each of theſe is ſubdivided into 16 pennings; the rix-dollar is = 800 pennings; 2 pennings are = a duyt, and 8 duyts = 2 groots Flemiſh = a ſtiver.

PENNINGTON, Isaac, in *Biography*, a member of the ſociety of friends, and a conſiderable writer among that people, was the ſon of an alderman of London, who repeatedly filled the office of chief magiſtrate, was a noted member of the Long Parliament, and nominated one of the judges of king Charles I., though he did not take his ſeat among them. Iſaac was born about the year 1617, and having the proſpect of ſucceeding to a large eſtate, he was furniſhed with the means of obtaining the beſt education. As he grew up, he had, from his father's ſituation in life, opportunities of mixing with ſome of the moſt conſiderable men of the age, and if he had been of an ambitious turn of mind, he might have occaſionally indulged hopes of riſing very high in the world. But from a very early age he was under ſtrong religious impreſſions, and as he grew up to manhood, diſcovered an increaſing attachment to retirement, ſerious contemplation, and the reading of the ſcriptures. While he was in this ſtate of mind, he met with ſome of the writings of the Friends, "which," ſays he, "I caſt an eye upon and diſdained, as falling very ſhort of that wiſdom, light, life, and power which I was ſearching after." There was, however, ſomething in them that rouſed his attention, and he went to one of their public meetings, at which George Fox preached, whoſe diſcourſe produced on him a ſudden and complete converſion to the principles of the new ſect. From this time he joined the ſociety in oppoſition to the influence of his connections, as well as unmoved at the proſpect of reproaches and loſſes to which his profeſſion would unqueſtionably expoſe him. In the years 1661 and 1662, Mr. Pennington was called forth to be a confeſſor for the profeſſion which he had embraced. For the crime, as it was called, of holding meetings of Friends for the worſhip of God in his own houſe, he was committed to Ayleſbury gaol, where he was kept in cloſe cuſtody for ſeventeen weeks, great part of which was in the winter ſeaſon; and to aggravate the ſeverity of his treatment, he was confined in a cold and very incommodious room, without a chimney, by which cruel uſage he contracted ſo violent a diſorder, that for ſeveral weeks after his releaſe he was not able to turn himſelf in his bed. From this time till the year 1670, he ſuffered ſix different impriſonments. Theſe repeated calamities, together with heavy pecuniary loſſes, ariſing, in many inſtances, from the confiſcation of his property, to diſcharge the oppreſſive fines which were levied upon him, Mr. Pennington ſuſtained with firmneſs and ſerenity, believing himſelf to be a ſufferer for obeying God rather than man. With the ſame equanimity and fortitude he bore the attacks of a painful diſtemper, which terminated his life in the year 1679, in the 63d year of his age. His character procured him the reſpect and eſteem of all good men, as it exhibited an excellent pattern of piety, virtue, and the ſtricteſt morality. He was moſt faithful in the diſcharge of all the duties of life, and was author of numerous writings, which were highly prized by the people with whom he aſſociated. They were collected and publiſhed in a folio volume in 1681. They have ſince been reprinted in 4to. and 8vo., and in the year 1796, ſome of his "Letters" were publiſhed.

Pennington, or *Pennytown*, in *Geography*, a pleaſant and flouriſhing village in Hunterden county, New Jerſey; 9 miles W. of Princeton, containing a church and about 42 houſes.

PENNISETUM, in *Botany*, ſo called by Richard, from *penna*, a feather, and *ſeta*, a briſtle; Richard in Perſ. Syn. v. 1. 72. Brown Prodr. Nov. Holl. v. 1. 195. (See Panicum.) The name alludes to the feathery ſtructure of the briſtles which compoſe the involucrum.

PENNON, or Penon, a ſtandard with a triangular tail, anciently borne before knights bachelors, who brought a certain number of followers into the field. Some inſtances occur of pennons being carried before eſquires, but they were only ſuch as poſſeſſed certain eſtates or fiefs; or who could bring a ſufficient ſuite of vaſſals into the field. The pennon was in figure and ſize like a banner, which was ſmall and of a ſquare figure, with the addition of a triangular point. They were charged with armorial bearing of their owner. On the performance of any gallant action by the knight and his followers, the pennon was converted into a banner by the king, or commander-in-chief, cutting off the point, by which the knight was raiſed to the degree of a banneret. Both knights and bannerets were bound to appear in the field at the head of a certain number of men, whence ancient hiſtorians frequently expreſs the ſtrength of an army by the number of banners and pennons of which it conſiſted.

PENNSBOROUGH, West, in *Geography*, a town of America, in Cumberland county, Pennſylvania; famous for a remarkable flow of water from a ridge of lime-ſtone, called "The Big Spring," which, after turning ſix mills, diſcharges itſelf through Conidogwinnet creek into the Suſquehannah.

Pennsborough, *Eaſt*, a townſhip in the ſame county.

PENNSBURY, a ſmall town of Pennſylvania, in Buck's county, on a ſmall creek of Delaware river. This was a manor which Mr. Penn reſerved for himſelf, where he built a houſe, and planted orchards and gardens; which, with many additional buildings and improvements, ſtill continue.

PENNSYLVANIA, one of the principal provinces of the United States of America, extending in length 228, and in breadth 156 miles, between 39° 43′ and 42° N. lat. and 74° 48′ and 80° 8′ W. long. and comprehending 46,000 ſquare miles. It is bounded E. by Delaware river, which divides it from New Jerſey; N. by New York and lake Erie; N.W. by a part of lake Erie, where is a good port; W. by the ſtate of Ohio and a part of Virginia; S. by Virginia, Maryland, and Delaware. The figure of this ſtate is a parallelogram, if we except the N.W. corner of this ſtate, containing about 202,000 acres, lately purchaſed of Congreſs by the ſtates. In the year 1800 Pennſylvania was divided into thirty-five counties, as in the following Table:

Counties.	No. of Towns.	No. of Inhabitants.	Chief Towns.	No. of Inhabitants.
City and County of Philadelphia	18	81,009	Philadelphia	41,220*
Montgomery	28	24,150	Norriſtown	922
Bucks	28	27,496	Newtown	781
Delaware	21	12,809	Cheſter	957
Cheſter	40	32,093	Weſt-Cheſter	374
Lancaſter	25	43·403	Lancaſter	4,292
Berks	35	32,407	Reading	2,886
Northampton	30	30,062	Eaſton	1,055
Luzerne	19	12,839	Wilkſburg	835
Dauphin	12	22,270	Harriſburg	1·472
Northumberland	24	27,797	Sunbury	613
Wayne	9	2,562		
Adams	16	13,172	Gettyſburg	
Allegany	16	15,087	Pittſburg	1,565
Armſtrong	3	2,399		
Beaver	6	5,776	Beaverton	
Bedford	12	12,039	Bedford	
Butler	4	3,916		
Crawford	2	2,346	Meadville	
Cumberland	18	25,386	Carliſle	2,032
Fayette	17	20,159	Union	1,719
Franklin	14	19,638	Chamberſton	
Green	10	8,605	Wayneſboro'.	
Huntingdon	18	13,008	Huntingdon	1,251
Lycoming	10	5,414	Williamſport	
Mercer		3,220		
Mifflin & Center	12	13,609	Lewiſburg & Bellefont	
Somerſet	13	10,188	Somerſet	
Venango	2	1,130	Franklin	
Warren	1	233	Warren	
Waſhington	22	28,298	Waſhington	
Weſtmoreland	14	22,726	Greenſburgh	
York	18	25,643	York	
Erie	6	1,468	Erie	
Total 35	523	602,545		

* The ſuburbs contain 39,789 inhabitants.

A new cenſus having taken place ſince the above table was formed, ſome of the ſtatements admit of conſiderable alteration. The interruption of intercourſe between the two countries has prevented our obtaining this cenſus; but as ſoon as it is received, the neceſſary corrections ſhall be made.

The total number of acres in all the counties is reckoned at 29,634,840; and a great portion of the ſtate is divided into townſhips, in each of which the freemen aſſemble annually to chuſe overſeers of the poor, aſſeſſors, a collector, ſupervisors of roads, and a conſtable. The number of inhabitants, which is 602,545, includes 1706 ſlaves. In this ſtate are ſix conſiderable rivers, *viz.* the Delaware, Schuylkill, Suſquehannah, Youghiogeny, Monongahela, and Allegany. The only ſwamps, worthy of notice, are the Great Swamp, between Northampton and Luzerne counties, and Buffaloe Swamp, near the head waters of the Suſquehannah. Theſe ſwamps are found, upon examination, to be bodies of firm land, thickly covered with beech and ſugar maple. A conſiderable proportion of this ſtate may be reckoned mountainous. The principal ridges, in the great range of Allegany mountains, comprehended in Pennſylvania, are the Kittatinny, or Blue mountains. Behind theſe, and nearly parallel to them, are Peters, Tuſcarora, and Neſcopek mountains, on the E. of the Suſquehannah; and on the W. Sharemon's hills, Sideling hills, Ragged, Great Warriors, Evits and Will's mountains; then the great Allegany ridge, which being the largeſt gives name to the whole range; and W. of this are the Cheſnut ridges. Between the Juniata and the W. branch of the Suſquehannah are Jacks, Tuffys, Nittiny, and Bald Eagle mountains. The vales between theſe mountains are generally of a rich, black ſoil, ſuited to the various kinds of graſs and grains. Some of the mountains admit of cultivation almoſt to their ſummits. The other parts of the ſtate are generally level, or agreeably variegated with hills and vallies.

The ſoil of Pennſylvania is of various kinds; in ſome parts it is barren; but a great proportion of the ſtate is good land, and no inconſiderable part of it is very good. In general, however, the ſoil is more fit for grain than for graſs. This ſtate includes the greater part of the kinds of trees, ſhrubs, and plants, that grow within the United States. Oaks of ſeveral ſpecies form the chief bulk of the woods. Hickory and walnut are alſo more abundant than in the northern ſtates. Saſſafras, mulberry, and tulip or poplar trees are frequent and thriving. The Magnolia glauca grows in low grounds; and the acuminata attains to great height about the weſtern mountains. Grapes are common; and ſome of them, mellowed by froſt, with the addition of ſugar, make good wine. The white pine and white cedar grow well in ſome parts; and alſo red cedars are not rare in high grounds. The ſugar maple is plentiful in the weſtern and northern parts of the ſtate, and the inhabitants are ſupplied from them with a conſiderable quantity of ſugar.

Iron ore is diſtributed in large quantities through various parts of the ſtate; and in ſome places appear copper, lead, and alum. Here are alſo limeſtone quarries, and various kinds of marble. In the middle and weſtern country is abundance of coal. In the new ſettlements of the country there are large flocks of wild turkies. Partridges are numerous; pheaſants are dear; and grouſe are found in ſome diſtricts. In the cold ſeaſon pigeons migrate from the north in large numbers. In ſpring and autumn, ſeveral kinds of ducks, and ſome wild geeſe, are found on the rivers. The ſinging birds migrate to Pennſylvania from the north and ſouth in certain ſeaſons, and are numerous. In the rivulets trouts are common; in the eaſtern rivers the principal fiſh are roch, ſhad, and herring, which, in the ſpring, come from the ſea in large ſhoals. In the weſtern waters are a ſpecies of catfiſh, weighing from 50 to 100 pounds, and alſo yellow perch and pike, which are large and numerous.

Among the uſeful quadrupeds in the new diſtricts are deer in great number, beavers, otters, racoons, and monkies. Buffaloes rarely croſs the Ohio, and elks ſeldom advance from the north. Panthers, wild cats, bears, foxes, and wolves, are not rare; the fur of all which is valuable. In the north ſettlements rabbits and ſquirrels are frequent; in the marſhes are minks and muſk-rats: but opoſſums and ground hogs are rare. The beſt ſettled land is on the ſouth ſide of Pennſylvania; which is owing to the roads that have been formed in this part of the country and adjacent diſtricts. The principal article of agricultural cultivation is wheat. The next in value is Indian corn. Buck-wheat, rye, barley, and oats, are alſo cultivated. As are alſo German ſpelts, chiefly as food for horſes. Potatoes are plentiful; and alſo turnips, cabbage, parſneps, and carrots, and the ſmall oval pea. The culture of meadows is a conſiderable object in this ſtate; thoſe on the rivers are banked, drained, tuſſocked, ploughed, and harrowed; and ſown with Timothy graſs and clover. The ſummer is long enough to admit of two mowings, and even three in rich ground. On farms that have ſprings and ſtreams, dairies are built over them ſo as to place the milk-veſſels in the water, which is neceſſary to avoid the injurious effects of heat. Horſes, it is ſaid, are raiſed beyond the proper uſe, as oxen might more generally ſupply their place. The beſt for teams are bred in Lancaſter county; and the elegant ſaddle and coach horſes have more or leſs of the blood of ſtallions imported from England. The number of ſheep is conſiderable, and increaſes. Hogs, ſupplied with food from the woods of oak and beech, exceed home conſumption. Mules and aſſes are hitherto very rare. Poultry are abundant, and turkies are cheap. Flax and hemp are cultivated; the growth of hops is inconſiderable: bees are objects of attention. In favourable ſeaſons, cherries, apples, and cider abound. Some attempts have been lately made about eleven miles from Philadelphia for the plantation of vineyards. Improved farms and roomy lots in the country towns have gardens, which ſupply common vegetables, fruits, and flowers.

The general ſtyle of architecture in this ſtate is neat and ſolid. Stone buildings are moſt common in the old ſettlements; log and frame-houſes in the new. Towns have a conſiderable proportion of brick houſes: ſhingles cover the roofs. Neceſſary tradeſmen and mechanics are ſettled on ſmall farms or lots throughout the improved country, and alſo in villages. Manufacturers dwell chiefly in towns, though many of them are ſcattered through the country. The product of domeſtic female induſtry is conſiderable. The wives and daughters of even opulent farmers knit and ſpin; and in the towns, ſome females of higher rank do the ſame. Woollen ſtockings are made in ſufficient quantity for uſe; and hemp, which is uſed in ſeveral places for coarſe wearing apparel, bags, lines and nets, &c. is manufactured, in large quantities, into cordage, cables, and ropes. Iron works are of long ſtanding, and are in an improving condition. The furnaces are 16, and the forges 37. The ſlitting and rolling-mills are ſaid to cut and roll 1500 tons *per annum*. The fabricated articles are numerous, and of all the common kinds. Manufactories of leather, ſkins, and fur, are very extenſive and good. The moſt reſpectable trades employed in materials of wood are cabinet-making, houſe-carpentry, coach-making, and ſhip-building. The port of Philadelphia is ſaid to be among the firſt in the world for naval architecture. Paper of moſt kinds form a beneficial branch of manufacture, in which are employed above 50 mills, the annual product of which is computed at 25,000 dollars. Manufactories in ſtone, clay, and foſſils, are bricks, and various pieces of marble, common earthen ware, grind-ſtones, and mill-ſtones. Pot and pearl-aſhes are gradually advancing; tin-wares are well executed for various domeſtic purpoſes. Copper, braſs, lead, and pewters are alſo the materials of various manufactured articles. A conſiderable quantity of cotton is wrought in families; linens imported are now printed; ſugar refineries, and diſtilleries of molaſſes, and various preparations of tobacco, furniſh employment for many hands. The manufactures of Pennſylvania are ſaid to have greatly increaſed within a few years, partly by the immigration of workmen from abroad, as well as by the ſkill and induſtry of the natives. Several new machineries have been lately ſet up at Philadelphia, and in ſome other places.

The commerce of Pennſylvania with the eaſtern and northern ſtates, is, in great part, an exchange of ſtaple commodities; which are too numerous to be recited. The commerce of Pennſylvania with the weſt is carried on by the Ohio with the Spaniſh, and by the lakes with the Britiſh dominions; and both ways with the Indian tribes. At preſent nearly the whole foreign commerce is carried on by the port of Philadelphia. The value of the exports from this ſtate in the year ending September 30, 1791, was 3,436,092 dollars, 58 cents; in 1792, 3,820,662 dollars; in 1793, 6,958,836 dollars; in 1794, 6,643,092 dollars; in 1795, 11,518,260 dollars; in 1799, 12,431,967 dollars; in 1801, 17,438,193 dollars; in 1804, 11,030,157 dollars. The importation is very great, both for the conſumption of Pennſylvania, and of the diſtricts ſupplied from Philadelphia: common and fine imported linens and woollens are uſed to a great amount, notwithſtanding the quantity of home-made; much Swediſh iron and Ruſſian hemp is imported; and Engliſh hard-ware is in great demand. The tonnage of this ſtate amounted, in 1796, to 98,237 tons; in 1799, to 93,824 tons.

The population of this ſtate (for which ſee the Table) is, according to the cenſus of 1800, more than 13 for every ſquare mile. The inhabitants are principally the deſcendants of Engliſh, Iriſh, and Germans, with ſome Scotch, Welſh, Swedes, and a few Dutch. The Friends and Epiſcopalians are chiefly of Engliſh extraction, and compoſe about one-third of the inhabitants. The Germans compoſe about one-quarter of the inhabitants of Pennſylvania: they conſiſt of Lutherans (who are the moſt numerous), Calviniſts or the Reformed church, Moravians, Catholics, Mennoniſts, Dutch Baptiſts (corruptly called Tunkers and Dunkers, by way of reproach), and Zwingfelters, who are a ſpecies of Quakers. They are all diſtinguiſhed for their temperance, induſtry, and economy. The Baptiſts (except the Mennoniſt and Dutch Baptiſts) are chiefly the deſcendants of emigrants from Wales, and are not numerous. The original Swedes went over in the year 1638, as a colony, under the government and protection of Sweden. Few Swedes have ſince ſettled in America: and their language is nearly extinct. Theſe people uniformly had the character of probity, mildneſs and hoſpitality; but have been careleſs of their lands and intereſt. A privilege, almoſt peculiar to this ſtate, has been granted to foreigners by the legiſlature; *viz.* that of buying and holding lands and houſes within this commonwealth, without relinquiſhing their allegiance to the country in which they were born.

The character of the Pennſylvanians is naturally diverſified by difference of extraction, various degrees of education, and of opulence.

The congregations of the different denominations of Chriſtians in Pennſylvania are as follow; *viz.* Preſbyterians, 86 congregations; German Calviniſts, 84; German Lutherans, 84; Friends or Quakers, 54; Epiſcopalians, 26; Baptiſts, 15; Roman Catholics, 11; Scotch Preſbyterians, 8; Moravians, 8; Free Quakers, 1; Univerſaliſts, 1; Covenanters, 1; Methodiſts, ſeveral; beſides a Jewiſh ſynagogue; amounting in all to about 400 religious ſocieties. Religious liberty was formerly on a more reſpectable eſtabliſhment in this ſtate than in the other parts of America. But even here it was imperfect till the late revolution; for Roman Catholics and Jews were excluded from a ſhare in the government. The latter continued under this diſadvantage, until the new conſtitution gave them, and all people of whatever nation or religion, unlimited liberty of conſcience, with capacity for all civil rights and privileges.

The military ſtrength of this country conſiſted, in 1799, of 93,221 men.

Pennſylvania abounds with literary, humane, and other uſeful inſtitutions more than any other of the American ſtates. We ſhall here merely enumerate them, and mention the time of their inſtitution. They are the American Philoſophical Society, formed in 1769 (ſee Society); the Society for promoting Political Inquiries, inſtituted in February 1787; the College of Phyſicians, inſtituted in the ſame year, and incorporated in 1789; the Pennſylvania Hoſpital, eſtabliſhed in 1751; Philadelphia Diſpenſary, inſtituted in 1786; the Pennſylvania Society for the Abolition of Slavery and the Relief of free Negroes unlawfully held in bondage, begun in 1774 and enlarged in 1787; the Society for alleviating the Miſeries of Priſons, which is become a regular work-houſe with an annexed place of confinement; the Society of United Brethren for propagating the Goſpel among the Heathens, inſtituted in 1787; the Pennſylvania Society for the Encouragement of Manufactures and uſeful Arts, inſtituted in 1787; the Philadelphia Society for the Information and Aſſiſtance of Perſons emigrating from foreign Countries, inſtituted in 1794. Beſides theſe there are two inſurance companies, an humane ſociety, for the recovery of drowned perſons, inſtituted in 1770; an agricultural ſociety, a ſociety for the relief of German, and another for the relief of Iriſh emigrants, a marine ſociety, a charitable ſociety for the ſupport of widows and families of Preſbyterian clergymen, and St. George's and St. Andrew's charitable ſocieties. Moſt of theſe ſocieties are in the city of Philadelphia.

Under the head of colleges, &c. we may enumerate the Univerſity of Pennſylvania, founded and endowed by the legiſlature during the late war, and lately united with the college of Philadelphia; Dickinſon college, at Carliſle; Franklin college, at Lancaſter; and the college at Waſhington (ſee College); the academy of the Epiſcopalians, at York-town; the academies at German-town, Pittſburgh, Allen's-town, and other places; the ſchools of the Moravians, and other private ſchools in different parts of the ſtate. The principal cities and towns of Pennſylvania are Philadelphia, the metropolis, the borough of Lancaſter, Pittſburgh, Bethlehem, Nazareth, Carliſle, Harriſburg, Yorktown, Waſhington, Sunbury, &c. See the Table at the beginning of this article, and an account of each town under its reſpective name.

As to the conſtitution of this ſtate, we may obſerve, that the ſupreme executive power of the commonwealth is veſted in a governor; the legiſlative, in a general aſſembly, conſiſting of a ſenate and a houſe of repreſentatives. The governor is choſen for three years, but cannot hold his office more than nine years in twelve. A plurality of votes makes a choice. The repreſentatives are elected for one year; the ſenators for four. The latter are divided into four claſſes. The time of one claſs expires each year, whoſe ſeats are then filled by new elections. Each county chooſes its repreſentatives ſeparately. The ſenators are choſen in diſtricts formed by the legiſlature. There is to be an enumeration of the inhabitants once in ſeven years. The number of ſenators and repreſentatives is, after each enumeration, to be fixed by the legiſlature, and apportioned among the ſeveral counties and diſtricts, according to the number of taxable inhabitants. There can never be fewer than ſixty, nor more than one hundred repreſentatives. The number of ſenators cannot be leſs than one-fourth, nor greater than one-third of the repreſentatives. The elections are made on the ſecond Tueſday of October. The general aſſembly meets on the firſt Tueſday of December, in each year, unleſs ſooner convened by the governor. A majority of each houſe makes a quorum to do buſineſs, and a leſs number may adjourn from day to day and compel the attendance of members. Each houſe chooſes its ſpeaker and other officers, judges of the qualifications of its members, and eſtabliſhes the rules of its proceedings. Impeachments are made by the houſe of repreſentatives, and tried by the ſenate. All bills for raiſing revenue originate in the lower houſe, but the ſenate may propoſe amendments. The ſenators and repreſentatives are free from arreſts, while attending the public buſineſs, except in caſes of treaſon, felony, and breach of the peace; and are not liable to be queſtioned concerning any thing ſaid in public debate. They are compenſated out of the public treaſury, from which no money can be drawn but in conſequence of appropriation by law. The journals of both houſes are publiſhed weekly, and their doors kept open, unleſs the buſineſs require ſecrecy. All bills which have paſſed both houſes, muſt be preſented to the governor. If he approve he muſt ſign them, but if he does not approve he muſt return them, within ten days, with his objections, to the houſe in which they originated. No bills ſo returned ſhall become a law, unleſs it be repaſſed by two-thirds of both houſes. The governor is commander-in-chief of the military force; may remit fines and forfeitures, and grant reprieves and pardons, except in caſes of impeachment; may require information from all executive officers; may, on extraordinary occcaſion, convene the general aſſembly, and adjourn it, for any term not exceeding four months, in caſe the two branches cannot agree on the time themſelves. He muſt inform the general aſſembly of the ſtate of the commonwealth; recommend ſuch meaſures as he ſhall judge expedient; and ſee that the laws are faithfully executed. In caſe of vacancy in the office of governor, the ſpeaker of the ſenate exerciſes that office. The judicial power is veſted in a ſupreme and inferior court, the judges of which, and juſtices of the peace, are appointed by the governor, and commiſſioned during good behaviour; but are removeable on the addreſs of both houſes. The other officers of the ſtate are appointed, ſome by the governor, ſome by the general aſſembly, and ſome by the people. The qualifications for an elector are 21 years of age, two years' reſidence, and payment of taxes. They are privileged from arreſts in civil actions, while attending elections. Thoſe for a repreſentative are 21 years of age, and three years inhabitancy. For a ſenator, 25 years of age, and four years inhabitancy. For a governor, 30 years of age, and ſeven years inhabitancy. The governor can hold no other office. The ſenators and repreſentatives none, but of attorney at law, and in the militia. No perſon, holding an office of truſt, or profit, under the United States, can hold any office in this ſtate, to which a ſalary is by law annexed. All the officers of the ſtate are liable to impeachment, and are bound by oath, or affirmation, to ſupport the conſtitution, and perform the duties of their offices.

The declaration of rights aſſerts the natural freedom and equality of all; liberty of conſcience; freedom of election, and of the preſs; ſubordination of the military to the civil powers; trial by jury; ſecurity from unreaſonable ſearches and ſeizures; a right to an equal diſtribution of juſtice; to be heard in criminal proſecutions; to petition for the redreſs of grievances; to bear arms; and to emigrate from the ſtate. It declares that all power is inherent in the people, and that they may, at any time, alter their form of government; that no perſon ſhall be obliged to maintain religious worſhip, or ſupport any miniſtry; that all perſons, believing in the being of a God, and a future ſtate of rewards and puniſhments, are eligible to office; that laws cannot be ſuſpended but by the legiſlature; that all perſons ſhall be bailable, unleſs for capital offences, when the proof is evident, or preſumption ſtrong; that every debtor ſhall be releaſed from priſon, on delivering his eſtate to his creditors, according to law, except there be ſtrong preſumption of fraud; that the privileges of the writ of *habeas corpus* ſhall not be ſuſpended but in time of rebellion, or public danger; that no *ex poſt facto* law ſhall be made; that no perſon ſhall be attainted by the legiſlature, or forfeit his eſtate for a longer term than his own life; that no title of nobility, or hereditary diſtinction, ſhall ever be granted. The conſtitution above deſcribed was ratified in 1790.

Under the head of the hiſtory of this ſtate it is not neceſſary to enlarge. Pennſylvania was granted by king Charles II. to Mr. William Penn, ſon of the famous admiral Penn, in conſideration of his father's ſervices to the crown (ſee his biographical article); and the charters received the royal ſignature on the 4th of March 1681. To ſecure his title againſt all claims, and prevent future altercation, Mr. Penn procured a quit-claim deed from the duke of York, of all the lands covered by his own patent, to which the duke could have the leaſt pretenſions. This deed bears date Auguſt 21, 1682. In the ſame month he obtained from the duke, by deed of feoffment, Newcaſtle, with 12 miles of the adjacent territory, and the land ſouth to the Hoarkills. In December following, Mr. Penn effected an union of the lower counties with the province of Pennſylvania. The firſt frame of government for Pennſylvania is dated in 1682; another was propoſed by Mr. Penn in 1683; in 1699, while Mr. Penn remained in Pennſylvania, the laſt charter of privilege, or frame of government, which continued till the revolution, was agreed upon and eſtabliſhed. It was delivered to the people in October 1701. In 1700, 1701 and 1708, Mr. Penn obtained from different denominations of Indians ſome portion of territory. By the favourable terms which Mr. Penn offered to ſettlers, and an unlimited toleration of all religious denominations, the population of the province was extremely rapid. At the revolution the government was aboliſhed; and the people, by their repreſentatives, formed a new conſtitution on republican principles. The proprietaries were excluded from all ſhare in the government, and the legiſlature offered them 130,00*l.* in lieu of all quit-rents, which was finally accepted. The proprietaries, however, ſtill poſſeſs in Pennſylvania many large tracts of excellent land. After many diſputes the republicans acquired the aſcendancy, and the conſtitution underwent an alteration, that aſſimilated it nearly to the federal conſtitution. The federal conſtitution was ratified by Pennſylvania December 13, 1787. Morſe's Geography, 1805.

PENNY, or PENY, in *Commerce*, an ancient Engliſh coin, which had formerly conſiderable courſe; but is now dwindled into an imaginary money, or money of account.

It is derived by Camden from *pecunia;* but others ſuppoſe that the word is formed from *pendo, to weigh,* and it was ſometimes written, according to this origin, *pending*.

The ancient Engliſh penny, *penig*, or *pening*, was the firſt ſilver coin ſtruck in England; nay, and the only one current among our Saxon anceſtors; as is agreed by Camden, Spelman, Dr. Hickes, &c.

Of the heptarchic pennies we have given an account under the article MEDALS, &c., *Modern;* and we have there given a brief hiſtory of the penny, as a ſilver coin, both before and after the Conqueſt.

The penny, which in Ethelred's time was the 20th part of the troy ounce, was equal in weight to our three-pence; five of them made one ſhilling, or ſcilling Saxon; and thirty a mark or mancuſe, equal to our 7*s.* 6*d.* It was the largeſt ſilver coin in England, and retained this value till the reign of Edward III.

Till the time of king Edward I. the penny was ſtruck with a croſs ſo deeply indented in it, that it might be eaſily broke, and parted, on occaſion, into two parts; thence called *half-pennies;* or into four, thence called *fourthings*, or *farthings*. But that prince coined it without indenture; in lieu of which he firſt ſtruck round half-pence and farthings.

Stow, in his Annals, p. 200, obſerves, that half-pennies were firſt coined round, A.D. 1279, in the reign of Edward I. But hiſtorians have ſince diſcovered, that half-pennies of this kind were coined by Henry I., and that though the uſual way in the reign of the two firſt Williams was to cut the penny into two for making of half-pennies, &c. yet it has been ſuppoſed that ſome few half-pennies might even then be coined round. Some few pieces of this kind are preſerved in the cabinets of the curious. See Mr. Pegge's remarks on this ſubject in Gent. Mag. vol. xxviii. p. 64. &c.

Edward I. alſo reduced the weight of the penny to a ſtandard; ordering that it ſhould weigh thirty-two grains of wheat, taken out of the middle of the ear. (Stat. 13 Edw. I.) This penny was called the penny ſterling. Twenty of theſe pence were to weigh an ounce; whence the penny became a weight, as well as a coin.

By 9 Edw. III. it was diminiſhed to the twenty-ſixth part of the troy ounce; by 2 Henry VI. it was the thirty-ſecond part; by 5 Edw. IV. it became the fortieth, and alſo by 36 Hen. VIII. and afterwards the forty-fifth; but by 2 Eliz. ſixty pence were coined out of the ounce, and during her reign ſixty-two, which proportion is obſerved in our times.

The penny ſterling is now diſuſed as a coin; and ſcarcely ſubſiſts, but as a money of account, containing the twelfth part of a ſhilling, or the two hundred and fortieth part of a pound.

The courſe of exchange between England and France is ſettled on the foot of ſo many pence ſterling, for a French crown of three livres. See EXCHANGE.

For an account of the French penny, or denier, in the old ſyſtem, ſee DENIER. For the Dutch penny, ſee PENNING. For the German penny, ſee PFENING.

The *penny Flemiſh*, called "grote," or "groot," is a money of exchange in Flanders, Holland, and Hamburgh. Accounts are ſometimes kept in Brabant and Flanders in pounds Flemiſh of 20 ſhillings Flemiſh, ſubdivided into twelve groots or pence Flemiſh: but moſtly in florins or gilders of 20 ſtuyvers or ſtivers, called alſo patars, each of which was formerly ſubdivided into 16 pennings, but for a long time they have been divided into twelve parts or deniers. The pound Flemiſh, or pond Vlams, is reckoned at $2\frac{1}{2}$ rix-dollars, 6 florins, 20 ſhillings, 120 ſtivers, 240 groots, or 1920 Brabant pennings. The rix-dollar, or patacon, is worth $2\frac{2}{5}$ florins, 8 ſhillings Flemiſh, 48 ſtivers, or 96 pence Flemiſh. The Brabant penning contains three mites. See PFENING.

PENNY, in *Ancient Statutes*, &c. is uſed for all ſilver money.

And hence the *ward-penny*, *aver-penny*, *hundred-penny*, *tithing-penny*, and *brothal-penny*. See PENCE, &c.

Penny, in *Geography*, a town of Bengal; 18 miles S.E. of Purneah.

Penny-*Earth*, in *Agriculture*, a term uſed by the farmers for a hard, loamy, or ſandy earth, with a very large quantity of ſea-ſhells intermixed in it, ſome of which being round and flat, and in ſome meaſure reſembling pieces of money, have occaſioned the earth's being called by this name. It is an earth not eaſily dug, but is uſually undermined with pick-axes, and then falls in large lumps: which, with the froſts, break to pieces, and leave the ſhells looſe. It is prepared by breaking and mixing well with water, and then makes very deſirable floors. The Jerſey combers' comb-pots are alſo made of it, and the ſides and roofs of ovens are plaiſtered with it; and being rightly managed, it combines into a floor almoſt as ſtrong as plaiſter of Paris.

Penny, *Bord, Half*. See Bord *Half-penny*.

Penny, *Half*. See Half-*penny*.

Penny, *Rete*. See Rete-*penny*.

Penny, *Schar*. See Schar-*penny*.

Penny, *Ward*. See Ward-*penny*.

Penny or *Twopenny Poſt*. See Post.

Penny-*Royal*, in *Botany*, &c. See Mentha *Pulegium*.

Penny-*Royal, Virginian*, a ſpecies of *Satureia*; which ſee.

Penny-*Weed*, in *Agriculture*, a troubleſome weed, known ſometimes by the name of nettle.

Penny-*Wort*, in *Botany*. See Cotyledon.

Penny-*Wort, Marſh* and *Water*. See Hydrocotyle.

Penny-*Weight*, a troy weight, containing twenty-four grains; each grain weighing a grain of wheat, gathered out of the middle of the ear, well dried.

The name took its riſe hence, that this was actually the weight of one of our ancient ſilver pennies.

Twenty of theſe penny-weights make an ounce troy. See Weight.

PENOBSCOT, in *Geography*, a river of America, which is the moſt conſiderable in the diſtrict of Maine, and riſes by two branches in the high lands. Between the ſource of the W. fork, and its junction with the E., is Mooſehead lake, 30 or 40 miles long, and 15 wide. The E. branch paſſes through ſeveral ſmaller lakes. From the Forks, as they are called, the Penobſcot Indians paſs to Canada, along either branch, principally the W., the ſource of which, as they ſay, is not more than 20 miles from the waters which empty into the St. Lawrence. At the Forks is a remarkable high mountain: and from thence down to Indian Old Town, ſituated on an iſland in this river, the diſtance is about 60 miles, and in the interval the river widens and embraces a great number of iſlands. Juſt below Indian town are the Great Falls, where is a carrying place of about 20 rods, and thence for 12 miles to the head of the tide there are no falls to obſtruct boats. From thence for 35 miles to the head of Penobſcot bay, or to the ſcite of old fort Pownal, the river flows in a pretty ſtraight courſe, and is eaſily navigated. Paſſing by Majahagaduſe on the E. ſeven miles, and Owl's head twenty miles farther, you enter the ocean. The Indians have a communication from this river to Scoodick river, by a portage of three miles. This river was the eaſtern limit of Nova Scotia or Acadia, by the treaty of Utrecht. Within about twenty miles there are more than ſixty iſlands, of various ſizes, comprehending in the whole about 12,000 acres. Fifty-four of theſe the Indians have reſerved to their own uſe.

Penobscot, a bay on the coaſt of Hancock county, in the ſtate of Maine, and called by the firſt diſcoverer "Norembega," about ſixteen leagues wide from Naſkeag point and Burnt-coat iſland on the E., to the point on which Thomaſtown ſtands, on the W. ſide of the bay. The chief iſlands it incloſes are Fox, Haut, Long and Deer iſlands; beſides a number of ſmall iſles, rocks, and ledges. On a fine peninſula on the E. ſide of the bay, the Britiſh built a fort, and made a ſettlement, which is now the ſhire-town of the county of Hancock, and is a commodious place for the lumber trade. Haut iſland, or the iſle of Holt, lies in N. lat. 44° 23′, and W. long. 68° 10′, and is the ſouthernmoſt of the large iſles.

Penobscot, a poſt-town of Maine, on the E. ſide of the bay of its name, which is a port of entry, and carries on a ſmall trade in fiſh and lumber. In 1796 it was divided into two towns; the one retaining the name of Penobſcot, containing 935 inhabitants, and the other named "Caſtine," which ſee.

Penobscots, a ſmall tribe of Indians who live in Indian Old Town, on an iſland in Penobſcot river, and who ſay, that they have for five hundred years poſſeſſed the iſland on which their town ſtands. (See Indian *Old Town*.) In a former war, this tribe loſt its lands; but at the commencement of the laſt war, ſome new reſtrictions were ſettled, and they conſider that, notwithſtanding theſe, they have a right to haul and fiſh as far as the mouth of the bay of Penobſcot extends. This was their original right, in oppoſition to any other tribe, and they now enjoy it.

PENOMAZIN, a town of Siam; 60 miles S. of Tenaſſerim.

PENON. See Pennon.

Penon, *El*, in *Geography*, a town of South America, in the province of Carthagena; 36 miles S. of Mompox.

PENOWAL, a town of Hindooſtan, in the circar of Oudeypour; 20 miles S.E. of Cheitore,

PENRHYN, a ſea-port of North Wales, in the county of Caernarvon, on the Menai, from which great quantities of ſlate are exported; two miles S.W. of Bangor.

Penrhyn *Dwa*, a cape on the W. coaſt of Wales, and county of Caernarvon; 10 miles S. of Pwllhely.

PEN-RHYS, or Penrice. See Oxwich.

PENRISE, a town of South Wales, in the county of Glamorgan, on the W. ſide of a bay in the Briſtol channel; having a caſtle and a weekly market on Thurſday; 14 miles W.N.W. of Swanſea. N. lat. 51° 46′. W. long. 4° 10′. See Oxwich.

PENRITH, New, a market town in Leath ward, and county of Cumberland, England, is ſituated in a vale within the diſtrict called Inglewood Foreſt, 18 miles from Carliſle, and 283 from London. It is a place of conſiderable antiquity, and was ſucceſſively in poſſeſſion of the Engliſh and Scottiſh ſovereigns; during whoſe contentions it ſuffered by the depredations of the Scots, by whom it was burned in the 18th of Edward III., and again in the following reign. About that period the plague raged in Penrith: and in the year 1597, a ſecond viſitation of this dreadful diſorder nearly depopulated the pariſh; for 2260 perſons fell victims to it within a year and a half. The fear of infection prevented the continuance of the regular markets; and places were appointed, without the town, for purchaſing the proviſions brought by the country people. Penrith is built in a very irregular manner: the houſes are, in general, compoſed of red ſtone, and covered with blue ſlate. The population, in the year 1811, amounted to 4328, occupying 938 houſes. The inhabitants are chiefly employed in agriculture, and in weaving checks and fancy cloths for waiſtcoats. A weekly market is kept on Tueſday, and here are five annual fairs. The ſtations for marketable commodities are diſpoſed in a ſingular manner: the wheat market is in one part of the town, barley is ſold in another part, rye and potatoes in a third: cattle, hogs, and horſes, have alſo diſtinct places of ſale. The church is a neat, but plain ſtructure: the body was rebuilt of red ſtone in the year 1722, at the expence of 2253*l.* and connected with the ancient tower. In the church-yard is a ſingular monument of antiquity, called the Giant's Grave, the origin of which has frequently exerciſed the ſagacity and ſpeculations of antiquarians. It conſiſts of two ſtone pillars, ſtanding at the oppoſite ends of a grave, about the diſtance of fifteen feet aſunder, eleven feet ſix inches in height, and nearly five feet in circumference at the bottom, where they are mortiſed into round ſtones embedded in the earth. The ſpace between them is two feet in breadth, and is incloſed by four thin ſemi-circular ſtones, two on each ſide, of unequal lengths, but little more than twenty inches in height. Three of theſe ſtones have an ornament of foliage, rudely ſculptured, remaining round their upper edges; the fourth is plain, of a different kind, and ſeems to have been placed in the room of one decayed. The pillars taper upwards; their lower parts are rounded to about the height of ſeven feet, where they aſſume a ſquare form, and appear to have terminated in a point; but the tops are broken. On the ſquare parts are ſome traces of ornamental fret-work; and the interior ſide of one pillar has a rude delineation of ſome animal, reſembling the wolf. Near the ſummit of each pillar are the veſtiges of a raiſed croſs, now almoſt obliterated. Biſhop Lyttleton, in his remarks on this monument (publiſhed in the Archæologia,) inclines to the opinion of its being the ſepulchre of ſome Britiſh prince interred here ſubſequent to the introduction of Chriſtianity; and tradition aſcribes it to the Britiſh king Ewain, a warrior of gigantic ſize, who reigned in this county in the time of Athelſtan, or Ida. That this Ewain was actually buried at Penrith, appears in the higheſt degree probable, from the notice of his ſepulchre in the "Verſes of the Graves of the Britiſh Warriors," written about the cloſe of the ſixth century. At a ſmall diſtance from this monument, with which, however, it does not appear to have any connection, is a ſingle ſtone, called the Giant's Thumb, five feet eight inches in height, about fourteen inches broad at the lower part, but contracting upwards to ten inches: the head, which appears to have been circular, expands to the diameter of about eighteen inches. This ſeems to have been an ancient ſtone croſs.

Previous to the year 1400, the inhabitants of Penrith were frequently diſtreſſed for freſh water: but about that time, Strickland, biſhop of Carliſle, purchaſed a ſufficiency of the water of the river Peteril, which he conveyed to the town at his own expence. He alſo founded a chantry here, and endowed it with ſix pounds annually for the ſupport of a prieſt. The revenues of this eſtabliſhment were given by queen Elizabeth to an ancient ſchool (inſtituted ſo early as the year 1340,) which ſhe refounded, by the title of "The Free Grammar School of Queen Elizabeth in Penrith."

Weſtward of this town are the ruins of a caſtle, which appears to have been built of an oblong form, and fortified with a very deep outward foſs, and a walled rampart. This fortreſs was diſmantled in the time of the commonwealth: the principal remains are the outſide walls and arched vaults.

On the heights, to the north of Penrith, is a ſquare ſtone building, called the Beacon, difficult of acceſs, but affording a variety of delightful views of the ſurrounding country. Hiſtory and Antiquities of Weſtmoreland and Cumberland. by Nicholſon and Burn, 2 vols. 4to. 1777. Beauties of England and Wales, vol. iii. by Britton and Brayley.

PENRY, Ap-Henry, John, in *Biography*, a victim to perſecution and tyranny in the reign of queen Elizabeth, was born in ſome part of the county of Brecknock in the year 1559. When he was about the age of nineteen, he became a ſub-ſizer of Peter-Houſe, in the univerſity of Cambridge, where he was admitted to the degree of B.A. about the year 1583. After he had finiſhed his college ſtudies he took holy orders, and preached ſeveral times at Oxford, as he did afterwards at Cambridge, with much reputation, but he ſoon rendered himſelf obnoxious to the ruling party in the church, by adopting the ſentiments of that body of the clergy who were diſtinguiſhed by the name of *Puritans*. Having choſen his lot with this proſcribed party, he travelled into Wales, and he is ſaid to have been the firſt who preached the goſpel publicly in Welſh, and ſowed the good ſeed among his countrymen. In the year 1588 he publiſhed "A View of ſome Part of ſuch Public Wants and Diſorders as are in the Service of God, within her Majeſty's Country of Wales, with an humble Petition for ſpeedy Redreſs;" in which he undertook to ſhew, not only the neceſſity of reforming the ſtate of religion among the Welſh, but alſo the moſt proper means of bringing about that work. He likewiſe publiſhed, about the ſame time, "An Exhortation to the Governors and People of her Majeſty's Country of Wales, to labour earneſtly to have the preaching of the Goſpel planted among them." Both theſe pieces were written upon Puritanical principles, and were attacked by ſome zealous friends to the eſtabliſhed hierarchy.

As the public printing-preſſes were ſhut againſt the Puritans, ſome of them purchaſed a private one, and carried it about from one part of the country to another to prevent diſcovery. The publications which excited the greateſt attention, were ſuppoſed to be the productions of a club of writers, of whom Mr. Penry was eſteemed one of the moſt active. Among the tracts which were printed and diſperſed by them all over the kingdom, one that gave the moſt offence bore the title of "Martin Mar-Prelate," which contained a violent and bitter ſatire againſt the hierarchy, and all its ſupporters, and was ſoon followed by other pieces of the ſame deſcription. When theſe pieces were known, a ſpecial warrant was iſſued by the privy-council in 1590, with the ſignatures of archbiſhop Whitgift and other members, for the apprehenſion of Mr. Penry as an enemy of the ſtate, and calling upon all the queen's good ſubjects to conſider him in that light. Penry withdrew into Scotland, where he drew up many obſervations on ſubjects relating to religion for his own private uſe; and he prepared the heads of a petition to the queen, intended to lay before her the true ſtate of religion, and the many abuſes in the church of England, eſpecially in the management of eccleſiaſtical matters, of which her majeſty was ignorant. One object of it was that he might be allowed to return to Wales, to preach the goſpel in his native country. With the intention of finiſhing the petition above-mentioned, when opportunity ſhould offer, and of delivering it afterwards to the queen with his own hands, Mr. Penry ventured back to England in the year 1593, and lived in concealment at Stepney, near London, till he was diſcovered, ſeized, and thrown into priſon. Having obtained his papers, the privy-council determined to proſecute him without delay for a capital offence. No evidence could be brought againſt him but what his own private papers afforded; nevertheleſs, upon this, his enemies contrived to get a verdict againſt him, and it was ſoon reſolved that he ſhould be put to death. He proteſted againſt the ſentence as totally contrary to the law of the land; he defied his perſecutors to prove againſt him a ſingle act of diſloyalty, but he had attacked the hierarchy, and could not be forgiven. Archbiſhop Whitgift was the firſt perſon who ſigned the warrant for his execution. As ſoon as the warrant was ſigned, it was ſent to the ſheriff, who, on the ſame day, gave orders to erect a gallows at St. Waterings, and while the priſoner was at dinner, ſent his officers to bid him prepare to die that afternoon. He was accordingly carried, without delay, to the place of execution, and ſo ſavage was the conduct of the ſheriff that he refuſed him the opportunity of addreſſing his friends, but was turned off in a hurry on the 29th of May 1593, when he was in the 34th year of his age. His learning and piety were highly extolled by his friends; and Mr. Strype ſays of him, "that he was well diſpoſed to religion, but miſtaken in his principles, and ſo very hot in his temper, and became ſo buſy in church controverſies, to his own deſtruction." He had connected himſelf with that branch of the Browniſts, who maintained the diſcipline of the church of England to be popiſh and antichriſtian, and all her ordinances and ſacraments invalid. (See BROWNISTS.) Beſides the articles already noticed, Mr. Penry was author of "An Appellation to the High Court of Parliament, from the bad and injurious Dealing of the Archbiſhop of Canterbury, &c.;" "A Dialogue on the injurious Dealings of the Biſhops;" and "A Treatiſe to ſhew that Reformation, and thoſe that ſincerely favour the ſame, are unjuſtly charged to be Enemies to her Majeſty and the State." The editor of this Cyclopædia traces his genealogy, by the maternal branch, to the family of Mr. Penry.

PENRYN, in *Geography*, a borough and market-town in the pariſh of St. Gluvias, hundred of Kerriar, and county of Cornwall, England, is ſituated three miles from Falmouth, and 266 from London, on the ſide of a hill, and bank of a river, called the King's road, which unites with Falmouth harbour. The town formerly poſſeſſed a college, which, according to Leland, was caſtellated, and had three ſtrong towers. Parts of this were lately to be ſeen, but are now enveloped by modern buildings. The manor was an appendage to the ſee of Exeter, and the town appears to have been made a borough by one of the biſhops towards the end of the reign of Edward I. The town was incorporated in the 18th year of James I. and is governed by a mayor, recorder, ſteward, portreeve, twelve aldermen, twelve common-council-men, a town clerk, and other officers. Two members are returned to parliament; the right of election is in the mayor, aldermen, and inhabitants paying ſcot and lot. Three weekly markets are held on Wedneſday, Friday, and Saturday, and three fairs annually. The market-houſe, which is alſo uſed as a town-hall, ſtands near the middle of the principal ſtreet, from which others diverge at right angles. From the peculiar ſituation of the town, it poſſeſſes an extenſive fiſhery. In the population returns of the year 1811, Penryn is ſtated to contain 362 houſes, inhabited by 2713 perſons. On the oppoſite ſide of the river is the village of St. Gluvias, the church and parſonage houſe of which are placed in very beautiful ſituations. Polwhele's Hiſtory, &c. of Cornwall. Beauties of England and Wales, vol. ii.

PENS, a town of the iſland of Cuba; 22 miles S.W. of Bayamo.

PENSA LIBRA, in our *Ancient Cuſtoms*, a pound of money paid by weight, not by tale.

PENSACOLA, in *Geography*, the capital of Weſt Florida, ſituated on the W. ſide of a bay, to which it gives name. The harbour is on the N. ſhore of the gulf of Mexico; 11 leagues E. of Port Lewis and Mobile, and 158 W. of the iſlands of Tortuga. It is ſpacious, and ſecure from all winds, and has four fathoms of water at its entrance, deepening gradually to ſeven or eight. The bay lies in N. lat. 30° 15′, and W. long. 87° 14′., and admits of veſſels drawing no more than 21 feet of water. The town is of an oblong form, healthfully, as well as delightfully ſituated, about one mile in length, and a quarter of a mile in breadth. While the Britiſh nation poſſeſſed it, it contained ſeveral hundred habitations, and many of the houſes and public buildings were ſpacious and elegant. But ſince the Spaniards took poſſeſſion of it, it has been upon the decline. The exports from this town, conſiſting of ſkins, logwood, dyeing ſtuff, and ſilver dollars, amounted, while it belonged to Britain, to 63,000*l.* annually; and the average value of imports from Great Britain was 97,000*l.* The town and fort of Penſacola ſurrendered, after a ſpirited defence, to the Spaniards in 1781; and with them the whole province. The entrance into the bay is defended by a ſmall fort and the W. end of Roſe's iſland, and a battery nearly oppoſite, on the main land. Eſcambia Coenecuh river is the largeſt ſtream which falls into the bay; it admits ſhallops ſome miles up, and boats upwards of 50 miles. N. lat. 30° 18′. W. long. 87° 17′.

PENSEN, a town of Germany, in the principality of Culmbach; ſix miles E of Bayreuth.

PENSFORD *St. Thomas*, or as it is ſometimes called *Publow St. Thomas*, a ſmall market town in the hundred of Keynſham, and county of Somerſet, England, is ſeated on the river Chew, which here flows through a fine wooded vale environed by ſmall hills, the acclivities of which are covered with orchards. It is a town of high antiquity, and is conjectured by Dr. Stukeley to have derived its name from the Britiſh words *Pen Iſc*, ſignifying the head of the river, being near the ſource of the Chew. In the time of Leland it ſeems to have been a very flouriſhing place, for it is mentioned by that aſſiduous antiquary as "a praty townlet, occupied with clothinge." This buſineſs is now, however, much declined, and the town is nearly bereft of all its former trade. None of its buildings deſerve notice except the church, which is a handſome, modern ſtructure, with a tower at the weſt end, apparently of more ancient date than its other portions. The market day here is Tueſday, and there are two fairs annually. An old ſtone bridge of three arches is thrown over the river, and connects the town with the village of Publow, to the church of which that of Pensford is a chapelry, though in other reſpects it is parochial.

According to the late population returns, (1811,) Pensford town and pariſh contain 66 houſes and 144 inhabitants. By the ſame cenſus the pariſh of Publow contains 166 houſes and 820 inhabitants. Hiſtory of Somerſetſhire by the Rev. John Collinſon, vol. ii. 4to. Beauties of England and Wales, vol. xiii.

PENSILES HORTI, in *Antiquity*, gardens raiſed on arches by Nebuchadnezzar, king of Babylon, in order to gratify his wife Amyctis, daughter of Aſtyages, king of Media. Q. Curtius makes them equal in height to the walls of the city, *viz.* fifty feet. They contained a ſquare of four hundred feet on every ſide, and were carried up into the air in ſeveral terraſſes, laid above one another, and the aſcent from terraſs to terraſs was by ſtairs ten feet wide. The arches ſuſtaining the whole pile were raiſed above one another, and it was ſtrengthened by a wall, ſurrounding it on every ſide, of twenty-two feet in thickneſs. The floors of each of the terraſſes were laid in the following manner: on the top of the arches were firſt laid large flat ſtones ſixteen feet long and four broad, and over them was a layer of reed, mixed with a great quantity of bitumen, over which were two rows of bricks cloſely cemented together by plaiſter, and over all were laid thick ſheets of lead; and, laſtly, upon the lead was laid the mould of the garden. The mould or earth was of ſuch a depth, as to admit the largeſt trees to take root and grow; and it was covered with various kinds of trees, plants, and flowers. In the upper terraſs there was an aqueduct or engine, whereby water was drawn up out of the river, for watering the whole garden. Diod. Sic. lib. ii. Strab. lib. xvi. Q. Curtius, lib. v. c. 1. or Prid. Conn. vol. i. p. 144.

PENSION, Penſio, a yearly appointment, or ſum of money paid any one for ſervices or conſiderations already paſt. Of this kind are penſions from the crown, which diſqualify thoſe, on whom they are conferred, for being elected members of the houſe of commons. (See Parliament.) Thoſe penſions exceeding the value of 100*l.* *per annum* are ſubject to a duty conſiſting in an annual payment of one penny in the pound, (over and above all other duties). A perſon, who takes a penſion from any foreign prince without the conſent of the king, is chargeable with the crime of contempt againſt the king's prerogative. See Contempt.

For penſions of an eccleſiaſtical nature, ſee Corody and the article Pensions.

Pension, in *Military Language*, denotes the annual allowance granted by his majeſty to the indigent widows of officers killed, or dying in the ſervice, which may be conſidered as a kind of military reward. The fund for theſe penſions ariſes from the pay of two fictitious men, borne on the muſter-roll of every troop or company in the army on the Britiſh eſtabliſhment. The mode of granting this bounty is ſubject to certain regulations accompanying this grant in the year 1737. An augmentation has been ſince made to the amount of theſe penſions; and the new rates, commencing from the 25th of December, 1798, are as follow: for a colonel's widow, 80*l.* *per annum*; lieutenant colonel's, 50*l.*; major's, 40*l.*; captain and captain lieutenant's, 30*l.*; lieutenant's, 26*l.*; ſecond lieutenant, cornet, enſign, quarter-maſter, and adjutant's, 20*l.*; pay-maſter's of the regiment or diſtrict, 26*l.*; chaplain's, 16*l.*; ſurgeon's of the regiment, 26*l.*; ſtaff ſurgeon and apothecary's, 26*l.*; phyſician and purveyor's, 30*l.*; aſſiſtant and veterinary ſurgeon's, 20*l.*; deputy purveyor and hoſpital mate's, 16*l.* *per annum*. The penſions to widows of ſea-officers, granted by the admiralty, are conſiderably increaſed, commencing from January 1814.

Pension in the inns of court. That, which in the two Temples is called a *parliament*, and in Lincoln's Inn a *council*, is in Gray's Inn termed a *penſion*; *viz.* an aſſembly of the members of the ſociety to conſult of the affairs of the houſe. *Penſions* alſo denote certain annual payments of each member to the houſe, for certain occaſions.

When a penſion writ is iſſued, none ſued thereby in the inns of court ſhall be diſcharged, or permitted to come into commons, till all duties be paid.

Hence, a penſion order, in the ſame inn, is a peremptory order againſt ſuch of the ſociety, as are in arrear for penſions, and other duties.

Pensions *of Churches*, are certain ſums of money paid to clergymen in lieu of tithes; and ſome churches have ſettled on them annuities or penſions, payable by other churches; which penſions are due by virtue of ſome decree made by an eccleſiaſtical judge upon a controverſy for tithes, by which the tithes have been decreed to be enjoyed by one, and a penſion inſtead of them to be paid to another; or they have ariſen by virtue of a deed made by the conſent of the parſon, patron, and ordinary; and if ſuch penſion hath been uſually paid for twenty years, then it may be claimed by preſcription, and be recovered in the ſpiritual court; or a parſon may proſecute his ſuit for a penſion by preſcription, either in that court, or at common law, by a writ of annuity; but if he takes his remedy at law, he ſhall never afterwards ſue in the ſpiritual court. If the preſcription be denied, that muſt be tried by the common law. F.N.B. 51. Hard. 230. Ventr. 120.

PENSIONARY, or Pensioner, a perſon who has a penſion, appointment, or yearly ſum, payable during life, by way of acknowledgment: charged on the eſtate of a prince, company, particular perſon, or the like.

In the Romiſh countries it is frequent to have penſions on benefices; theſe were anciently granted with a great deal of eaſe, under pretence of infirmities, poverty, &c. But ſince the twelfth century, theſe pretences were carried ſo far, that the incumbents, or titularies, of benefices, were little more than farmers.

This obliged the ſpiritual powers to fix the cauſes, and the quantities, of penſions. Penſions are now only creatable by the pope, and are never to exceed one-third of the revenue; two-thirds being ſtill to remain to the incumbent.

Pensionary was alſo the appellation of the firſt miniſter of the ſtates of the province of Holland; under the old ſyſtem.

The penſionary was chairman in aſſemblies of the ſtates of that province; he propoſed the matters to be conſulted on, collected the votes, formed and pronounced the reſolutions of the ſtates; he alſo opened letters, conferred with foreign miniſters, &c.

He was charged with inſpecting the finances, preſerving the rights of the province, maintaining the authority of the ſtates, and ſeeing to the obſervation of the laws, &c. for the good of the ſtate. He aſſiſted in the college of deputy-counſellors of the province, who repreſented the ſovereignty in the abſence of the ſtates; and he was perpetual deputy of the ſtates-general of the United Provinces. His commiſſion was only given for five years; after which it was deliberated whether or no it ſhould be renewed. Indeed there was no inſtance of its having been revoked. Death only put a period to the functions of this important miniſter. Formerly he was called the *advocate of the province*: the title penſionary was only given at the time Barnevelt had the office. Grotius calls him in Latin *adſeſſor juriſperitus*; Merula, *advocatus generalis*; and Matthæus, profeſſor at Leyden, *conſiliarius penſionarius*, which is the quality the ſtates gave him in their inſtruments.

Pensionary was alſo the firſt miniſter of the regency of each city, in the province of Holland.

His office was, to give his advice in matters relating to the government, either of the city in particular, or of the ſtate in general; and in aſſemblies of the ſtates of the province he was ſpeaker in behalf of his city.

Yet the function of theſe penſionaries was not alike every where; in ſome cities they only gave their advice; and were never found in aſſemblies of the magiſtrates, except when expreſsly called thither; in others they attended conſtantly; and in others they even made the propoſitions on the part of the burgher-maſters, drew up their concluſions, &c. They were called penſionaries, becauſe they received an appointment or penſion.

PENSIONERS, Gentlemen, a band of gentlemen, whoſe buſineſs it is to guard the king's perſon in his own houſe; and who for that end wait in the preſence-chamber.

They were firſt ſet on foot by king Henry VII.; the number is forty; and each is obliged to keep three double horſes, and a ſervant, who is to be armed; ſo that they properly make a troop of guards, and have accordingly been muſtered by their own officers; but this part of duty, to which they are ſworn, the king uſually diſpenſes with.

Their officers are a captain, whoſe ſalary is 1000*l.* a-year, lieutenant, with 500*l.* a-year, ſtandard-bearer, with 310*l.* a-year, and clerk of the cheque, whoſe annual appointment is 120*l.* Their ordinary arms are gilt pole-axes, with which they attend the king to and from the chapel royal; receiving him in the preſence-chamber, or coming out of his private lodging; as alſo at all great ſolemnities. Their penſion 100*l. per annum.*

To this band belong alſo a pay-maſter, harbinger, axe-keeper, and meſſenger.

PENSTOCK. See Pen.

PENTA, in *Geography*, a town of the iſland of Corſica; ſeven miles N.E. of La Porta.

PENTACEROS, in *Natural Hiſtory*, a name given by Linkius, and ſome other authors, to a kind of *ſtella marina*, or ſea ſtar-fiſh, compoſed of five principal rays, with ſeveral tranſverſe hairy or downy proceſſes.

PENTACHONDRA, in *Botany*, from πεντε, *five*, and χονδρος, *a grain*, becauſe of the five ſeeds in the berry, by which character the genus is diſtinguiſhed from its allies. Brown Prodr. Nov. Holl. v. 1. 549. Claſs and order, *Pentandria Monogynia.* Nat. Ord. *Epacrideæ*, Brown.

Gen. Ch. *Cal.* Perianth inferior, double; the innermoſt of five equal, lanceolate, concave leaves; outermoſt of four or more, much ſmaller, imbricated ones. *Cor.* of one petal, funnel-ſhaped; limb in five ſpreading equal ſegments, longitudinally bearded on the upper ſide with denſe hairs. Nectary of five ſcales, at the baſe of the germen. *Stam.* Filaments five, thread-ſhaped, equal, inſerted into the tube; anthers incumbent, oblong. *Piſt.* Germen ſuperior, roundiſh, of five cells; ſtyle ſhort, columnar; ſtigma obtuſe. *Peric.* Berry with five ſeeds.

Eſſ. Ch. Outer calyx of four or more leaves. Corolla funnel-ſhaped; its limb ſpreading, longitudinally bearded. Berry with five ſeeds.

Obſ. This genus might perhaps, without impropriety, be referred to Leucopogon, ſee that article; it being very difficult in this tribe to define the limits between a drupa and a berry, at leaſt in ſome caſes.—The ſpecies are dwarf mountain *ſhrubs*, with ſcattered ſtalked *leaves*, and ſolitary, terminal, erect, white *flowers*.—They are natives of Van Diemen's land and New Zeeland.

1. P. *involucrata.*—Filaments projecting beyond the tube. Calyx fringed; the outer one of eight ſcales. Leaves elliptic-lanceolate, flattiſh, many-ribbed. Young branches downy. Stem erect.—Gathered by Mr. Brown, in Van Diemen's land.

2. P. *pumila.* (Epacris pumila; Forſt. Gen. t. 10. f. *a*—*h.* Prodr. 13.)—Stamens ſhorter than the tube. Outer calyx of four ſcales. Leaves nearly elliptical, three-ribbed, naked at the margin. Young branches ſmooth. Stem proſtrate, much branched.—Found by Forſter in New Zeeland; by Mr. Brown in Van Diemen's land.

Pentachord, in *Ancient Muſic*, an inſtrument of five ſtrings invented by the Scythians, played with the jaw-bone of a dog, inſtead of a plectrum. Laborde. The concord of the fifth is ſometimes called pentachord.

PENTACROSTIC, a ſet or ſeries of verſes, ſo diſpoſed as that there are always found five acroſtics of the ſame name, in five diviſions of each verſe. See Acrostic.

PENTACTINODOS, in *Natural Hiſtory*, a name given by ſome authors to thoſe ſpecies of ſtar-fiſh which are compoſed of a body divided into five rays.

PENTADACTYLON, *Five-Fingers*, in *Botany*, a name given by ſome authors to the ricinus, or palma Chriſti, from the figure of its leaf.

PENTADACTYLOS Piscis, the *Five-fingered Fiſh*, in *Ichthyology*, the name of a fiſh common in all the ſeas about the Eaſt Indies, and called by the Dutch there *viif vinger viſch.*

It has this name from five black ſtreaks which it has on each ſide, reſembling the prints of five fingers. It grows to about a foot and half long; its head is ſmall in proportion to its body; its ſnout is long, and its fins large, and reaching almoſt to its tail; its general colour is very bright and elegant, a yellow, with an admixture of purple, and of a ſilvery gloſs; it has no ſcales, and is a dry but not ill-taſted fiſh.

PENTADACTYLOS-ASTER, in *Natural Hiſtory*, a name given by Linkius, and ſome other authors, to a ſpecies of ſtar-fiſh, compoſed of a ſmall body, and five principal rays, which have each ſeveral proceſſes coming from them, covered with down.

PENTAEDROSTYLA, the name of a genus of ſpars.

The word is derived from the Greek πεντε, *five*, ηδρα, *ſides*, and ϛυλος, *a column.*

The body of the genus are ſpars, in form of pentangular columns, terminated by pentangular pyramids at one end, and irregularly fixed at the other to ſome ſolid body.

Of this genus there are three known ſpecies.

PENTAGLOSSUM, in *Botany*, from πεντε, *five*, and γλωσσα, *the tongue*, in alluſion probably to the ſhape of the five red petals, is a genus founded by Forſkall, Fl. Ægypt. Arab. 11, upon the *Lythrum thymifolium* of Linnæus, which having but two ſtamens, was not recogniſed by its finder, as a *Lythrum*, though its whole habit, and every character beſides, preciſely accord with that well-known genus. See Lythrum.

PENTAGON, from πενταγονος, *quinquangulus*, compounded of πεντε, *five*, and γωνια, *angle*, in *Geometry*, a figure of five ſides and five angles.

If the five ſides are equal, the angles are ſo too; and the figure is called a *regular* pentagon, as *Plate* X. *Geometry*, *fig.* 17. Moſt citadels are regular pentagons.

The moſt conſiderable property of a pentagon is, that one of its ſides, *v. gr.* DE, is equal in power to the ſides of a hexagon and a decagon inſcribed in the ſame circle ABCDE; that is, the ſquare of the ſide DE is equal to the ſum of the ſquares of the ſides D*a* and D*b*.

A pentagon, and alſo a decagon, may be inſcribed in a circle, by drawing the two diameters AP, *mn* (*fig.* 18.) perpendicular to each other, and biſecting the radius *on* at *q*. With the centre *q*, and diſtance *q*A, deſcribe the arc A*r*, and with the centre A, and radius A*r*, deſcribe the arc *r*B. Then AB is one-fifth of the circumference, and AB carried five times over will form the pentagon; and the arc AB biſected in *s* will give A*s* the 10th part of the circumference, or the ſide of the decagon. See Decagon.

If tangents be drawn through the angular points, they will form the circumſcribing pentagon or decagon. See Polygon, and Regular *Figure.*

Pappus has alſo demonſtrated, that twelve regular pentagons contain more than twenty triangles inſcribed in the ſame circle, lib. v. probl. 45.

The dodecahedron, which is the fourth regular body, conſiſts of twelve pentagons.

PENTAGON-ASTER, in *Natural Hiſtory*, a name given by Linkius, and other authors, to a kind of *ſtella marina*, or ſtar-fiſh, compoſed of five rays, with a number of tranſverſe

tranſverſe proceſſes iſſuing from them, covered with a hairineſs.

It is one of the general claſſes of the *ſtellæ crinitæ*, ſo called from this hairineſs.

PENTAGONIA, in *Botany*, from πεντε, *five*, and γωνια, *an angle*, becauſe of the figure of the corolla, a name given by ſome old writers to thoſe ſpecies of *Campanula* that have a wheel-ſhaped corolla, with five angles, of which *C. Speculum*, or Venus's looking-glaſs, is an example. L'Heritier once intended to form a ſeparate genus of theſe plants, by the name of *Priſmatocarpus*; but on due conſideration of the great diverſity of figure, in the corolla, of other ſpecies of the very natural genus *Campanula*, he gave up his deſign.

PENTAGONOTHECA, from πεντε, *five*, γωνια, *an angle*, and θηκη, *a caſe* or *cell*, a name given by Vaillant to the PISONIA, (ſee that article,) on account of the form of its ſeed-veſſel.

PENTAGRAPH, an inſtrument whereby deſigns, prints, &c. of any kind, may be copied in any proportion, without a perſon's being ſkilled in drawing.

The inſtrument is otherwiſe called a *parallelogram*.

The common pentagraph (repreſented *Plate* XXIII. *Miſcel. fig.* 5.) conſiſts of four braſs or wooden rulers, two of them from fifteen to eighteen inches long, the other two half that length. At the ends, and in the middle of the longer rulers, as alſo at the ends of the ſhorter, are holes, upon the exact fixing of which the perfection of the inſtrument chiefly depends. Thoſe in the middle of the long rulers are to be at the ſame diſtance from thoſe at the end of the long ones, and thoſe of the ſhort ones; ſo that, when put together, they may always make a parallelogram.

The inſtrument is fitted together for uſe by ſeveral little pieces, particularly a little pillar, N° 1, having at one end a ſcrew and a nut, whereby the two long rulers are joined; and at the other a little knot for the inſtrument to ſlide on. The piece, N° 2, is a rivet with a ſcrew and nut, with which each ſhort ruler is faſtened to the middle of each long one. The piece, N° 3, is a pillar, one end of which, being hollowed into a ſcrew, has a nut fitted to it. At the other end is a worm to ſcrew into the table; when the inſtrument is to be uſed, it joins the ends of the two ſhort rulers. The piece, N° 4, is a pen, portcraion, or pencil, ſcrewed into a little pillar. Laſtly, the piece, N° 5, is a braſs point, moderately blunt, ſcrewed likewiſe into a little pillar.

Uſe of the Pentagraph, or *Parallelogram.*—1. To copy a deſign in the ſame ſcale or bigneſs as the original; ſcrew the worm, N° 3, into the table: lay a paper under the pencil, N° 4, and the deſign under the point, N° 5. This done, conducting the point over the ſeveral lines and parts of the deſign, the pencil will draw or repeat the ſame on the paper.

2. If the deſign be to be reduced, *e. gr.* into half the ſpace, the worm muſt be placed at the end of the long ruler, N° 4, and the paper and pencil in the middle. In this ſituation conduct the braſs point over the ſeveral lines of the deſign, as before; and the pencil at the ſame time will draw its copy in the proportion required; the pencil here only moving half the lengths that the point moves.

Hence, on the contrary, if the deſign be to be enlarged by one half, the braſs point, with the deſign, muſt be placed in the middle at N° 3, the pencil and paper at the end of the long ruler, and the worm at the other.

3. To enlarge or reduce in other proportions, there are holes drilled at equal diſtances on each ruler: *viz.* all along the ſhort ones, and half way of the long ones, in order for placing the braſs point, pencil, and worm, in a right line therein; *i. e.* if the piece carrying the point be put in the third hole, the two other pieces muſt be put in its third hole.

If, then, the point and deſign be placed at any hole of the great rulers, and the pencil with the paper at any hole of the ſhort ruler, which forms the angle therewith, the copy will be leſs than half the original. On the contrary, if it be placed at one of the holes of that ſhort ruler, which is parallel to the long ruler, the copy will be greater than half the original.

The conſtruction of this inſtrument requires a very conſiderable degree of accuracy; for which reaſon there are very few of the inſtruments that ſucceed. Few will do any thing tolerably but ſtraight lines; and many of them not even thoſe. In order to prove that the figure deſcribed by a pentagraph is ſimilar to the given figure; let C, (*fig.* 6.) be the fixed centre of motion; P the pencil for tracing the given figure P P, and p the pencil which traces the other figure pp; p, &c. muſt be ſo adjuſted, that p, C, and P, may lie in one ſtraight line; then, ſince $Bp : Ap :: BP : AC$, whatever be the ſituation of the pentagraph, the angles PCP and pCp, are vertical; and, therefore, PCp will in every poſition of the inſtrument be a right line; but $PC : pC :: BA : Ap$, in each of the two poſitions in the figure, and conſequently the triangles PCP, pCp, are ſimilar; and $PP : pp$ $(:: PC : Cp) :: BA : Ap$, or in a given ratio. Hence it appears, that by moving the pencil p, Ap may be equal to BA, or leſs in any proportion; and conſequently pp may be equal to P P, or leſs in the ſame proportion.

PENTAGYNIA, in *Botany*, from πεντε, and γυνη, *a female*, the name of an order which occurs in the 5th, 10th, 11th, 12th, and 13th claſſes of the Linnæan artificial ſyſtem. Its character depends, as the name expreſſes, on the preſence of five ſtyles, or, if ſtyles be wanting, of ſo many ſeſſile ſtigmas. In the 12th claſs however, *Icoſandria*, it is neceſſary to take this character with conſiderable latitude. Plants of the natural tribe of *pomaceæ*, which make an important part of that claſs, are very uncertain as to the number of their ſtyles in the ſame genus, and even variable in the ſame ſpecies. Hence the writer of the preſent article has, in his Introduction to Botany, chap. 24, preſumed to adviſe that the order in queſtion ſhould admit flowers with from two to five ſtyles, or even a few more occaſionally. In the 13th claſs, *Polyandria*, the order *Pentagynia* ſeparates ſome genera, from others, to which they are cloſely allied, in the *Trigynia*, and admits *Nigella*, ſome ſpecies of which have ten ſtyles. Hence it is no leſs eligible to adopt the ſame latitude here as in *Icoſandria*. Perhaps the definition of the order, in both theſe claſſes, might moſt conveniently be "*ſtyles from two to ten*."

Some genera in other claſſes may have five ſtyles; but the orders of ſuch claſſes being marked by other characters, the number of ſtyles uſually becomes a part of the generic definition.

PENTALOBA, ſo named by Loureiro, from the five lobes of the berry. Loureir. Cochinch. 154.—Claſs and order, *Pentandria Monogynia*. Nat. Ord. *Meliæ*, Juſſ.

Gen. Ch. *Cal.* Perianth inferior, of five lanceolate, erect, hairy leaves. *Cor.* Petals five, lanceolate, erect, cohering by their lower part, ſomewhat reflexed at their ſummits. Nectary tubular, erect, with five teeth. *Stam.* Filaments five, thread-ſhaped, flattiſh, inſerted into the inciſions of the nectary, about as long as the petals; anthers ovate, erect. *Piſt.* Germen roundiſh, hairy, with five furrows; ſtyle ſhort, thick, hairy; ſtigma ſimple. *Peric.* Berry roundiſh, five-lobed, of one cell. *Seeds* five, ovate.

Eſſ. Ch. Corolla of five petals, bell-ſhaped. Nectary tubular, five-cleft, bearing the ſtamens. Calyx of five leaves. Berry ſuperior, with five lobes, and five ſeeds.

1. P. *ſeſſilis.*—Native of hills in Cochinchina, where it is known by the name of Cây Cuong tàu, and forms a middle-ſized *tree*, with aſcending *branches*. *Leaves* alternate, lanceolate, ſlightly ſerrated, ſmooth. *Flowers* ſeſſile, cluſtered together, of a pale hue.—We have ſeen no ſpecimen, but we do not recognize any known plant in the above characters and deſcription.

PENTALUPO, in *Geography*, a town of Naples, in Calabria Ultra; 6 miles E. of Reggio.

PENTAMETER, derived from ϖενταμετρος, *q. d. five meaſures*, in *Poetry*, a kind of verſe, conſiſting of five feet or metres.

The two firſt feet of a pentameter may be either dactyls or ſpondees; the third muſt be always a ſpondee; and the two laſt anapæſts.

It is uſually joined to hexameters, in elegies, epiſtles, epigrams, and other little pieces. There is no work extant of pentameters alone.

PENTANDRIA, in *Botany*, the fifth claſs in the Linnæan artificial ſyſtem, is ſo called from its diſtinctive character of having five unconnected ſtamens, in the ſame flower with the piſtil or piſtils. This is the largeſt of all the Linnæan claſſes. The number five prevails far beyond any other in the ſtructure of flowers; for the great claſs *Syngeneſia* has alſo five ſtamens in nearly every known inſtance, but their anthers are united into a tube, and the flowers compound. Some genera of the *Pentandria* indeed have likewiſe combined anthers, and ſuch, having ſimple flowers, conſtitute the Linnæan order of *Syngeneſia Monogamia*; an order now, by common conſent, aboliſhed, being found not only unnatural, but highly inconvenient, various ſpecies of other genera, as *Gentiana*, having likewiſe combined anthers.

The orders of the 5th claſs are ſix. 1. *Monogynia*, one of the largeſt and moſt important in the whole ſyſtem, comprehending ſeveral natural tribes or orders, as the *Aſperifoliæ*, to which Borage and Viper's Bugloſs belong, ſtrongly evincing their claim to the laſt-mentioned appellation; the elegant *Preciæ*, of which the Primroſe is an example; the *Rotaceæ*, to which the beautiful *Hottonia* belongs; the *Luridæ* or Nightſhade tribe, the *Campanulaceæ*, the *Vites*, amongſt various other things, follow, and the order cloſes with a part of the *Contortæ*. 2. *Digynia*, begins with the remainder of the *Contortæ*, followed by ſome genera with incomplete flowers, as *Chenopodium*, *Salſola*, *Ulmus*; to which ſucceed *Swertia*. *Gentiana*, and others. The reſt of the order is made up of the *Umbelliferæ*, an extenſive, peculiar, and difficult tribe, of which we ſhall ſpeak in its proper place hereafter. 3. *Trigynia*, has the Sumach, Elder, and *Viburnum*, with *Paſſiflora*, and various other plants; but this order is much ſmaller than either of the preceding. 4. *Tetragynia*, conſiſts merely of *Evolvulus* and *Parnaſſia*. 5. *Pentagynia* has, from the agreement between the number of ſtyles and of ſtamens, a conſiderable proportion of plants, among which are *Statice*, *Linum*, *Droſera*, *Craſſula*, all large genera, with a few ſmaller ones. 6. *Polygynia* conſiſts of *Myoſurus* and *Xanthorrhiza*.

Willdenow has made an order, *Pentandria Decagynia*, for the admiſſion of Forſter's *Scheſſlera*, which has ten ſtyles; but he properly records an obſervation of the late Mr. Dryander, that this genus is an *Aralia*.

PENTANDRIA is alſo the appellation of ſome orders in the Linnæan ſyſtem, as the ſecond of the claſs *Monadelphia*, comprehending *Erodium*, *Hermannia*, &c.: the 1ſt in *Diadelphia*, conſiſting of *Monnieria* only: the 5th in *Gynandria*, according to Linnæus, but we ſcarcely know a genuine example: and finally the 5th orders in *Monoecia* and *Dioecia*.

PENTANGLE, in *Geometry*, a figure with five angles.

PENTAPETALOUS PLANTS, are ſuch whoſe flowers conſiſt of five leaves.

PENTAPETES, in *Botany*, πενταπετες, *having five leaves*, an ancient name for Cinquefoil, adopted for a very different plant by Linnæus. Though he declines any explanation of it, the five leafy expanſions, which, in his *Pentapetes*, accompany the ſtamens, ſeem ſo well to account for this appellation, that one cannot but think the idea of ſuch an adaptation of the word had occurred to him, though he might have forgotten it when he wrote the Philoſophia Botanica, p. 175. There ſeems otherwiſe no poſſibility of accounting for his choice of the name, for the particular genus in queſtion; of which indeed what is now ſeparated under the denomination of PTEROSPERMUM, ſee that article, was the original type, but the above character is common to that and the preſent genus.—Linn. Gen. 351. Schreb. 459. Willd. Sp. Pl. v. 3. 727. Mart. Mill. Dict. v. 3. Juſſ. 276. Lamarck Illuſtr. t. 576. Gærtn. t. 134.—Claſs and order, *Monadelphia Dodecandria.* Nat. Ord. *Columniferæ*, Linn. *Malvaceæ*, Juſſ.

Gen. Ch. *Cal.* Perianth inferior, double; the outer a little remote, of three lanceolate, pointed, deciduous leaves; inner of one leaf, in five deep, lanceolate, pointed, ſpreading ſegments, permanent. *Cor.* Petals five, roundiſh, ſpreading, oblique, affixed by their claws to the tube of the ſtamens. *Stam.* Filaments 15, thread-ſhaped, erect, ſhorter than the corolla, united below into an oblong pentagonal tube, but ſeparate above; anthers arrow-ſhaped, erect. Between every parcel of three ſtamens ſtands a linear-lanceolate, obtuſe, erect, petal-like leaf, originating from the tube, and much longer than the ſtamens, being five in all. *Piſt.* Germen ſuperior, ovate, with five furrows; ſtyle thread-ſhaped, rather longer than the five leaf-like appendages, ſwelling upwards, ſtriated; ſtigma with five ſlight ſegments. *Peric.* Capſule membranous, nearly globoſe, pointed, of five cells and five valves, the partitions from the centre of each valve. *Seeds* eight in each cell, inſerted in two rows into the central column, obovate, angular, abrupt, without wings.

Eſſ. Ch. Calyx double; the outer of three leaves, deciduous. Petals five. Stamens fifteen, with five intermediate leafy appendages. Stigma club-ſhaped. Capſule membranous, of five cells, with contrary partitions. Seeds numerous.

1. P. *phœnicea.* Scarlet Pentapetes. Linn. Sp. Pl. 958. Ait. Hort. Kew. ed. 1. v. 2. 438. I. Mill. Illuſtr. t. 58. Mill. Ic. t. 200. (Dombeya phœnicea; Cavan. Diſſ. 129. t. 43. f. 1. Blattaria ceylanica, flore amplo coccineo; Comm. Hort. v. 1. 11. t. 6. Flos impius; Rumph. Amboin. v. 5. 288. t. 100. f. 1.)—Native of various parts of the Eaſt Indies, ſometimes cultivated for its beauty in our ſtoves, where it has been known conſiderably above a century. It flowers in July, and is annual. The *ſtem* is two or three feet high, round, branched, leafy, beſprinkled with a few cloſe-preſſed ſtarry briſtles, indicative of its natural order. *Leaves* alternate, ſtalked, lanceolate, taper-pointed, ſtrongly crenate, ſmoothiſh, more or leſs haſtate at the baſe. *Stipulas* in pairs, linear. *Flowers* axillary, ſolitary, drooping, on rough ſtalks ſhorter than the *footſtalks*; they are of a beautiful ſcarlet colour, and above an inch in diameter; the five leafy appendages are externally rough or hoary. The fooliſh name by which Rumphius has diſtinguiſhed this flower, and which is ſaid to be a tranſlation of its Indian appellation, alludes to its "profane or impious nature, in never looking towards heaven." So may flowers, as well

as men, be ſometimes calumniated! The all-wiſe Creator, rich in infinite reſources, has cauſed this and many more bloſſoms to droop, that their ſtamens may be ſheltered from rain; whilſt the ſame end is accompliſhed in others by their courting the full blaze of day, in an erect expanded poſition. In the ſpring of our damp climate, drooping or cloſed flowers abound; in India perhaps a different economy is generally beſt ſuited to the nature of the country. S.

Pentapetes, in *Gardening*, compriſes a plant of the exotic kind, for the ſtove, of which the ſpecies cultivated is the ſcarlet-flowered pentapetes (P. phœnicea).

Method of Culture.—This plant may be increaſed by ſowing the ſeeds upon a good hot-bed early in March; and when the plants are fit to remove, there ſhould be a new hot-bed prepared to receive them, into which muſt be plunged ſome ſmall pots filled with good kitchen garden earth; into each of which one plant ſhould be put, giving them a little water to ſettle the earth to their roots, ſhading them from the ſun till they have taken new root; when they ſhould be treated in the ſame way as other tender exotic plants, admitting the free air to them every day in proportion to the warmth of the ſeaſon, and covering the glaſſes with mats every evening. When the plants are advanced in their growth, ſo as to fill the pots with their roots, they ſhould be ſhifted into larger pots, filled with the ſame ſort of earth as before, and plunged into another hot-bed, where they may remain as long as they can ſtand under the glaſſes of the bed without being injured; and afterwards they muſt be removed either into a ſtove or glaſs-caſe, where they may be ſcreened from the cold, and in warm weather have plenty of freſh air admitted to them.

Theſe plants are ſometimes turned out of the pots when they are ſtrong, and planted in warm borders; where, if the ſeaſon prove very warm, the plants will flower tolerably.

PENTAPHARMACUM, a medicine conſiſting of five ingredients: it has alſo been applied in the ſame ſenſe to aliments. Adrian the emperor was, as we are informed, particularly fond of a diſh of five ingredients, called by this name. The ingredients were the udder of a ſow, ham, peacock, brawn, and a ſort of paſte.

PENTAPHYLLOIDES, in *Botany*. See Potentilla and Pentaphyllum.

PENTAPHYLLUM, an old name, ſynonimous with *Quinquefolium*, and applied, like that, by ſome of the old writers to ſuch ſpecies of *Potentilla* as have five, or ſometimes more, radiating leaflets upon one ſtalk, forming a digitate leaf. Thoſe ſpecies that are furniſhed with leaves otherwiſe conſtructed, make Tournefort's genus of *Pentaphylloides*.

PENTAPLEURUM, a name given by ſome botanical writers to the common ſmall plantain, uſually called *ribwort* and *plantago quinquenervia*, from its leaves always having juſt five ribs running along them.

PENTAPOGON, from πεντε, *five*, and πωγων, *a beard*, was ſo named by M. R. Brown, in alluſion to the five beards, or awns, of the huſk.—Brown Prodr. Nov. Holl. v. 1. 173.—Claſs and order, *Triandria Digynia*. Nat. Ord. *Gramina*.

Gen. Ch. *Cal.* Glume of two oblong, acute, equal, beardleſs valves, containing one ſtalked floret. *Cor.* of two valves; the outermoſt rather longer than the calyx, ovate, bearing five awns at the ſummit, of which the middle one is much the longeſt, and ſpirally twiſted; inner half the ſize of the outer, ovate, acute, concave, membranous, beardleſs. *Stam.* Filaments three, capillary, ſhorter than the corolla; anthers oblong, pendulous. *Piſt.* Germen ſuperior, roundiſh; ſtyles none; ſtigmas two, ſpreading, feathery. *Peric.* none, except the permanent corolla. *Seed* one, oblong, pointed.

Eſſ. Ch. Calyx of two equal, beardleſs valves, containing one ſtalked floret. Outer valve of the corolla with five terminal awns; the middle one longeſt, and ſpiral.

1. P. *Billardieri*. (Agroſtis quadrifida; Labill. Nov. Holl. v. 1. 20. t. 22.)—Native of Van Diemen's land. A ſmall and ſlender graſs, ſcarcely a ſpan high. *Root* fibrous. *Stems* ſeveral, round, ſtriated, with one bent joint near the bottom, and one ſhort *leaf*, with a long hairy *ſheath*. Radical *leaves* numerous, tufted, ſhort and ſetaceous. *Panicle* erect, about two inches long, not much branched, of 15 or 20 upright *flowers*. Valves of the *calyx* ſerrated at the keel. *Floret* hairy at its baſe.

PENTAPOLIS, Πενταπολις, in *Ancient Geography*, &c. a country wherein are five cities.

The Pentapolis of the ſacred writings comprehended Sodom, Gomorrah, Adama, Seboim, and Segor; and of theſe the laſt only eſcaped the flames which deſtroyed the others.

The moſt celebrated was the Pentapolis Cyrenaica, or Pentapolis of Egypt, whoſe five cities were Berenice, Arſinoe, Ptolemais, Cyrene, and Apollonia.

Among the ancient geographers and hiſtorians we likewiſe read of the Pentapolis of Lybia, now called *Meſtrata*; the Pentapolis of Italy; and the Pentapolis of Aſia Minor, which contained Lindus, Jalyſſos, Camiros, Cos, and Cnidus. This country once bore the name of Hexapolis, when it comprehended Halicarnaſſus.

PENTAPTEROPHYLLUM, in *Botany*, a name by which Dillenius has called the meriophyllum of other authors, characteriſed under that name in the Genera Plantarum of Linnæus, p. 459.

PENTAPTOTON, in *Grammar*, a noun which has only five caſes.

PENTASTICH, Pentastichon, in *Poetry*, a ſtanza, or diviſion of a poem conſiſting of five verſes.

PENTASTYLE, in *Architecture*, a work wherein are five rows of columns.

Such was the portico begun by the emperor Gallienus, and which was to have been continued from the Flaminian gate to the bridge Milvius, *i. e.* from the Porto del Popolo to the Porte Mole.

PENTATEUCH, in *Sacred Literature*, the five books of Moſes at the head of the Old Teſtament; *viz.* Geneſis, Exodus, Leviticus, Numbers, and Deuteronomy. See each of theſe books under its reſpective title.

The word is formed from ϖεντατευχος, which ſignifies the ſame; compounded of ϖεντε, *five*, and τευχος, *volume*.

Pere Simon, in his Hiſt. Crit. du Vet. Teſt. produces a great number of paſſages to prove, that Moſes was not wholly the author of the Pentateuch, as we now have it.

Indeed, thoſe apparent interpolations at the end are ſufficient to determine that point; it being abſurd to ſuppoſe Moſes the author of the account of his own death and burial, and of the compariſon between him and the ſucceeding prophets in Iſrael.

Theſe interpolated paſſages are uſually attributed to Eſdras, or Ezra; who, on his return from the Babyloniſh captivity, is ſuppoſed to have publiſhed the Old Teſtament, or at leaſt a part of it, corrected and enlarged. See Bible and Canon.

There are two famous Pentateuchs, or editions of the Pentateuch, which have a long time diſputed the preference, both as to antiquity, and as to character; *viz.* that of the Jews, called the *Jewiſh*, or *Hebrew* Pentateuch, written in the Chaldean or Aſſyrian character; and that of the Samaritans, written in the Samaritan or Phœnician character. Each is maintained to be the ancient Hebrew; whereas both ſeem to be different copies of the ſame Hebrew original, written

written in different characters. The Samaritan Pentateuch was well known to many of the fathers, who have quoted it; and theſe quotations are all older than the year 600. From that time, for 1000 years, we find no mention of this Pentateuch until about the beginning of the 17th century; when Scaliger, having had notice that it was ſtill preſerved by thoſe of that ſect, and complaining that no perſon had taken care to procure a copy, archbiſhop Uſher, by means of Mr. Thomas Davis, then at Aleppo, probably chaplain to the factory there, obtained two or three copies of it out of the Eaſt. Not long after, Sancius Harley, a prieſt of the oratory at Paris, and afterwards biſhop of St. Malo's in Britanny, brought another copy into Europe, which he depoſited in the library belonging to that order in Paris; from which copy, Morinus, another prieſt of that order, publiſhed it in the Paris Polyglot. The Samaritans, beſide the Pentateuch in the original Hebrew, have alſo a tranſlation of it into the language which was vulgarly ſpoken among them. This is alſo publiſhed, together with the original, in the Paris Polyglot; and it is ſo exactly literal, that Morinus thought that one Latin tranſlation might ſerve for both. Biſhop Walton has followed the ſame method in his Polyglot; only when there are any variations, they are marked at the bottom of the page. This Samaritan Pentateuch has ſome additions, variations, and tranſpoſitions, by which it differs from the preſent Jewiſh copies. But it is leſs a matter of wonder, that there ſhould be ſome differences, than that there ſhould not be more; conſidering that thoſe who adhered to the one, and thoſe who adhered to the other, had not only broken off all manner of communication, but had conſtantly been at the bittereſt variance poſſible for more than 2000 years: for ſuch an interval had elapſed from the apoſtacy of Manaſſeh (ſee SAMARITANS) to the time when theſe copies were firſt brought into Europe. In ſo many ages, many differences might happen by the errors of tranſcribers; and moſt of thoſe that occur in theſe two copies are of this ſort. See the ſequel of this article.

But the grand difference is in the letter or character; the Jewiſh being in the Chaldean or Aſſyrian character, and the Samaritan in the Phœnician, *i. e.* the Canaanitiſh character: this latter ſeems to have an advantage over the vulgar Jewiſh Pentateuch. Yet Prideaux is of opinion, that the latter is only a tranſcript from the former out of the Chaldean into the old Hebrew character.

One great reaſon he gives is, that there are many variations in the Samaritan, manifeſtly occaſioned by miſtaking the ſimilar letters in the Hebrew alphabet; which letters having no ſimilitude in the Samaritan character, it is evident the variations muſt have ariſen in tranſcribing from the vulgar Hebrew into the Samaritan; and not the contrary way.

Add to this, that Simon, Allix, and many other learned men, take the Chaldean or Aſſyrian character to have been the character always in uſe among the Jews; and the Samaritan or Canaanitiſh, or, as it is alſo called, the *old Hebrew* character, to have never been uſed by the Jews before the captivity, in any manner, either on books or on medals.

Hence the Pentateuch muſt have been tranſcribed into that character; and that, probably, to render it legible to the inhabitants of Samaria, who, upon their introduction of the Pentateuch, might probably be verſed in no other character.

Uſher takes the Samaritan Pentateuch to have been compiled by Doſitheus, a Samaritan, mentioned by Origen to have adulterated the Pentateuch. Dupin ſuppoſes it the work of ſome modern Samaritan, whom he imagines to have compiled it chiefly out of the different copies of the Paleſtinian and Babylonian Jews, and the Septuagint, becauſe it ſometimes agrees with one, and ſometimes with another.

Although, as we have already ſaid, the Hebrew and the Samaritan copies of the Pentateuch agree in the main, they nevertheleſs differ in many places from one another; and as ſome of theſe differences are very conſiderable, in reſpect to particular letters and ſingle words, and beſides, as ſeveral whole verſes are now found in the latter, but not in the former, Dr. Kennicott has attempted to eſtabliſh, as to *ſome* of theſe differences, the ſuperior authority of the Samaritan Pentateuch. One text, in particular, (Deut. xxvii. 4.) has conſtantly been objected to the favourers of this Pentateuch; a text which the advocates for the Hebrew copies have inſiſted upon as deciſive againſt the Samaritans, and which has been almoſt invariably admitted to contain ſo ſhocking a corruption made voluntarily by the Samaritans, that even the more equitable judges have joined warmly with the Jews on this occaſion, and have manifeſted an inclination to give up the whole Samaritan Pentateuch as of no authority, on account of *this one* (as they apprehend) notorious and undeniable corruption. Among thoſe who have exclaimed loudly on this occaſion have been, not only Bootius and the younger Buxtorf, Carpzovius and Leuſden, with all their brother advocates for the integrity of the printed Hebrew text, but Hottinger and Lightfoot, Patrick and Calmet, Uſher and Du Pin, Prideaux and Watſon, father Simon and father Houbigant. To theſe names we may add that of Mr. Anthony Collins, in his "Grounds and Reaſons of the Chriſtian Religion." Againſt this hoſt of learned men, Dr. Kennicott has appeared as an able advocate for the cauſe of the Samaritans.

In order to underſtand the ground of this diſpute, we may obſerve, that God, by Moſes, commands the Iſraelites, when they ſhall have paſſed over Jordan into the land of Canaan, "to put the bleſſing upon Gerizim, and the curſe upon Ebal;" two mountains ſituated in the centre of the promiſed land between Dan and Beerſheba; two mountains near each other, and having between them (at the foot of Gerizim) a ſmall town, anciently called Sichem or Schechem, but afterwards Neapolis, and now Naploſe. The mount, which was to be dignified with the "law" and the "altar," (Deut. xxvii. 4.) is in the Hebrew text *Ebal*, and in the Samaritan *Gerizim*. About 1000 years afterwards, the Samaritans built a temple upon mount Gerizim, which was one of the principal cauſes of the inveterate hatred that ſubſiſted between the Jews and Samaritans. The text, it has been ſaid, has been wilfully corrupted, either by the Samaritans, who have, in their copies, put Gerizim, inſtead of Ebal, in order to recommend their temple, or by the Jews, who have, in their copies, put Ebal, inſtead of Gerizim, from oppoſition to it. That this corruption was made by the Samaritans, Walton, with whom join expreſsly Hottinger and Prideaux, affirms to be undeniable, for the following reaſons: "cum in omnibus codicibus Hebræis, omnibuſque verſionibus antiquis, legatur Ebal, non Gerizim." The learned Kennicott has examined theſe reaſons. "Ebal," it is ſaid, "is the word in all the Hebrew copies;" and therefore Ebal is the original word. But this is almoſt taking the point for granted: for it might as well be ſaid, Gerizim is the original word, becauſe it occurs in the preſent Samaritan copies. Moreover, "Ebal," it is alleged, "is the word in all the ancient verſions." But as the point in diſpute relates to a corruption, introduced about 400 years B.C., theſe verſions, being all too late, can be of no uſe: they can only ſerve as evidence for the ſtate of the

Hebrew copies from which they were tranſlated, and not for copies five, or ſix, or ſeven hundred years later. The Greek verſion of the Pentateuch was made about 280 years B.C.; but ſuch a verſion can be no proof, that this text of the Jews had not been altered by *themſelves*, 100 years before. This corruption was made, without doubt, either by the Samaritans in favour of their temple, or by the Jews in oppoſition to it, ſoon after that temple was built; and it was built, as Prideaux allows, during the reign of Darius Nothus, about 409 years B.C. Hence it is concluded, that all the ancient verſions, which have been made from the Hebrew text, being made after the corruption had been introduced, are too late to be admitted as evidences, that can acquit the Jews, or convict the Samaritans. But it is by no means true, that "all the ancient verſions read *Ebal* in the text under conſideration." For we have an ancient verſion of the Samaritan Pentateuch, expreſſed in Samaritan letters, and written in the Samaritan dialect, where is a mixture of Chaldee and Hebrew. This ancient verſion is of equal, nay, ſuperior, antiquity to the verſion of the LXX; and this very ancient verſion reads Gerizim, in the diſputed text. In ſome Arabic verſions from the Samaritan Pentateuch MSS. preſerved in the Bodleian library, the reading is the ſame. The authority of verſions may, therefore, be adduced to oppoſe the authority of verſions. Dr. Kennicott urges ſeveral preſumptive and poſitive arguments in vindication of the Samaritans. Gerizim, he alleges, is univerſally allowed to have been the mount of bleſſings; and it ſeems very improbable, that the ſacrificers of peace-offerings, which implied a ſtate of favour with God, ſhould by divine command ſacrifice upon Ebal, confeſſedly the mount of curſings. Moreover, when the Samaritans determined to erect a temple for themſelves, after being forbidden to join in rebuilding the temple of Jeruſalem, they would, without doubt, chooſe ſome place ſignally honoured by God or his prophets, the more effectually to oppoſe the fame of the Jewiſh temple, and the more eaſily to vindicate their ſeparate worſhip. Gerizim and Ebal were two mountains, on the former of which a form of bleſſings was to be pronounced, and on the latter a form of curſings: and one of theſe was to be honoured with the "Law of God," and "an altar for divine worſhip." This altar muſt have continued there for ſome hundred years, and the memory and fame of it continued in the country for many hundred years longer. But as both theſe mountains were near one another, both in the tribe of Ephraim, and both conſequently in the poſſeſſion of the Samaritans, ſo that either might be the object of their ſelection for the ſcite of the temple, it is natural to imagine, that they would prefer *that mountain*, which had been, of old and by God's command, the place of his worſhip. Hence it is inferred, with ſtrong probability, that Gerizim was the mountain of worſhip formerly, and not Ebal, which they rejected. Again, the different nature of theſe mountains furniſhes another ſtrong argument for the preference of Gerizim. For *this* mountain ſtanding on the ſouth, with its ſurface declining towards the north, is ſheltered from the heat of the ſun by its own ſhade; whereas Ebal, looking ſouthward, is more open to the ſun falling directly upon it: the former was therefore clothed with a beautiful verdure, while the latter was more ſcorched up and unfruitful. Beſides, about 240 years after one of theſe mountains had been thus conſecrated, when Jotham made that beautiful and ſolemn oration, recorded Judg. ix. 7, he muſt at that time know, which mountain had the law and the altar. Accordingly, he ſpoke from mount Gerizim, with a view of giving greater weight to his addreſs. It is added, that the Samaritans would have been leſs likely to have wilfully corrupted the law of Moſes, if it be allowed, as ample teſtimonies prove, that they had a great veneration for it. In the interview recorded in the 4th chapter of St. John's goſpel between our bleſſed Saviour and a Samaritan woman, near this mountain, he does not charge the Samaritans with having arrogated to mount Gerizim honours which did not belong to it: much leſs does he ſay, that Ebal had been the mount really honoured by God; and not Gerizim, as the fathers falſely pretended. We may alſo obſerve, that ſeveral inſtances occur in which our bleſſed Lord pays a general tribute of reſpect, either directly or indirectly, to the character of the Samaritans: as in the ſtory of the "Good Samaritan," and alſo in the fact recorded Luke, ch. xvii. But if the Samaritans, on account of their good diſpoſition and general character, be exculpated from the charge of wilful corruption, a charge of this kind againſt the Jews would not be the *firſt* that has been brought againſt them. Inſtances of this nature have been adduced by Dr. Kennicott, grounded upon the moſt unexceptionable teſtimonies. If we recur to the ſubſiſting hatred of the Samaritans with reſpect to the Jews, and conceive that they might be thus urged to commit any crime from oppoſition to them, it might be retorted that the hatred of the Jews is at leaſt equally notorious. It is further pleaded, that Joſephus, the Jewiſh hiſtorian, aſſerts that the altar to be erected was not to be upon Ebal, but between this mountain and Gerizim, and rather nearer to the latter; and as he was the declared enemy of the Samaritans, it is not likely that he would have expreſsly given up the honour of Ebal, if he could have ſupported it. As Joſephus does not charge the Samaritans with corrupting the text in queſtion, ſo neither did other ancient Jews. If then the Samaritans have not corrupted their Pentateuch, in this celebrated article, it muſt be admitted that the Jews have corrupted it, and corrupted not only this text in their Pentateuch, but the correſponding text in Joſhua, viii. 30. For other anſwers to the objections of Mr. Collins againſt the Pentateuch, we refer to Dr. Kennicott, *ubi infra*. Our author concludes a learned and elaborate diſſertation on the Samaritan Pentateuch with the following obſervation. "It is by no means here intended to recommend the adoption of the Samaritan, in the place of the Hebrew Pentateuch: or ſo to eſtabliſh the pretenſions of the former as to exclude the latter. *One* ancient copy has been received from the Jews; and we are truly thankful for it. *Another* ancient copy is offered by the Samaritans: let us thankfully accept that likewiſe. Both have been often tranſcribed; both therefore may contain errors. They differ in many inſtances; therefore the errors muſt be many. Let the two parties be heard without prejudice; let their evidences be weighed with impartiality; and let the genuine words of Moſes be aſcertained by their joint aſſiſtance. Let the variations of all the MSS. on each ſide be carefully collected; and then critically examined by the context, and the ancient verſion. If the Samaritan copy ſhall be found, in ſome places, to correct the Hebrew: yet with the Hebrew copy, in other places, correct the Samaritan. *Each copy* therefore is invaluable. *Each copy* therefore demands our pious veneration and attentive ſtudy. And I am firmly perſuaded, that the Pentateuch will never be underſtood perfectly, till we admit the authority of both." Kennicott's Second Diſſertation.

The Jews read the whole Pentateuch every year; and for this purpoſe they divide it into paragraphs or ſections, which they diſtinguiſh into great and ſmall. The great are thoſe which they read in a week, of which there are fifty-four (ſee PARASCHE); and the ſmall regard particular matters. Each greater ſection, which is denominated by the word with which it begins, is divided into ſeven parts, becauſe they are read by ſo many different perſons: the prieſt begins, afterwards a Levite; and in the choice of the other readers, reſpect is paid to the rank of the people. After the text of Moſes, they read a paragraph of the paraphraſe of Onkelos. The books of the prophets are alſo divided in the ſame manner.

PENTATHLON, πενταθλον, in *Antiqnity*, the five exerciſes performed at the Grecian games, and for which prizes were propoſed.

Theſe exerciſes were wreſtling, darting, leaping, running, and quoit-playing. He who bore away the prize in them all was called *pentathlus;* by the Latins, *quinquertio;* as the five exerciſes themſelves were by thoſe latter people called *quinquertium*.

Some have pretended that by the word pentathlon no more is to be underſtood than a game, or trial of ſkill, conſiſting of five, and of any five exerciſes; but however this be, the cæſtus was not of that nature. It is probable, that the pentathlon did not always conſiſt of the five exerciſes abovementioned, becauſe Pauſanias informs us (lib. v.), that the Elæans from time to time made frequent changes in the Olympic games. The race in the pentathlon was of the ſame length with the ſtadium or ſimple foot-race, and regulated by the ſame laws. (See Race and Running.) The wreſtling was ſubject to the ſame regulations with the ſimple palé, or wreſtling. (See Palé.) In the exerciſe of leaping, in which the competitors endeavour to leap beyond one another in length, the height of the leap not being taken into the account, the athletæ carried in their hands pieces of lead, or ſome other metal, made in the form of a half circle, not exactly round, but inclining to an oval. In theſe there was a place made for the fingers to paſs through, in the ſame manner as through the handle of a ſhield; and with thoſe weights, called Αλτηρες, Halteres, the athletæ were accuſtomed to poiſe their bodies, and ſwing themſelves forward in the leap. Some aſſiſtance of this kind ſeems to have been neceſſary to enable them to perform any thing like what is related of Phaulus of Crotona, whoſe leap is ſaid to have been 52 (or, as others ſay, 55) feet long. For the exerciſe of quoiting, ſee Discus and Quoiting. In the exerciſe of darting, the victory was awarded to him who threw his javelin farther than the reſt of his antagoniſts. However, there were certain limits preſcribed, beyond which it was a forfeiture of the prize for an athleta to caſt his javelin; and to this cuſtom Pindar himſelf has frequent alluſions. The javelin was ſometimes thrown with the bare hand, and ſometimes with the help of a thong, wound round the middle. The exerciſe of leaping in the pentathlon was accompanied by flutes playing Pythian airs, as we are informed by Pauſanias.

The candidates in the pentathlon, as well as thoſe in all the other gymnaſtic exerciſes, contended naked, and were alſo anointed with oil. Although ſome doubts have been ſuggeſted with regard to the conditions upon which the victory was awarded in the pentathlon, it is certain, that he who vanquiſhed his antagoniſt in every one of the five exerciſes was alone entitled to the crown. If all hopes of gaining the pentathletic crown were loſt to him who was vanquiſhed in any one trial, it has been queried why the vanquiſhed ſhould contend any longer? The reply to this queſtion is, that the pentathletes were probably obliged by the laws of the olympic games to go through all the five exerciſes. Although all the competitors, except one, muſt have deſpaired of gaining the crown, even from the firſt trial, yet they might ſtill be deſirous of carrying on the conteſt through the four remaining exerciſes, if they had not been required to do it by the olympic laws, either with a view of ſignalizing themſelves in ſome of the other conteſts, or the hopes of raviſhing the crown from him, by whoſe victory they had been excluded from the proſpect of obtaining it. Pindar, in his thirteenth Olympic ode, congratulates Xenophon of Corinth upon his having gained in one day two olympic crowns; one in the ſtadium, or ſimple foot-race, the other in the pentathlon, which, as he ſays, never happened to any man before. The reaſon is, that the regimen of a pentathlete, as we are informed by both Epictetus and Arrian, was very different from that of an athlete, who qualified himſelf for a ſingle exerciſe alone, as running, wreſtling, or any other, whence, as both Plato and Longinus aſſure us, it ſeldom happened that a pentathlete, though very eminent in his profeſſion, was able to contend with an athlete in that exerciſe, as, *e. g.* running, or wreſtling, to which alone he had applied himſelf altogether. The ſame obſervation is applicable to all the athletes in general; who differed from each other in their reſpective regimens and diets, as much or more than in the ſeveral exerciſes to which they peculiarly applied themſelves. Weſt's Pindar, vol. iii.

PENTATONON, in the *Ancient Muſic*, a concord, by us called the redundant ſixth.

It conſiſts of four tones, and a major and minor ſemi-tone; whence the name, *pentatonon*, q. d. *five tones*.

PENTAUREA, a name given by ſome fabulous authors to a ſtone ſaid to have been firſt found by Apollonius Tyaneus, and to poſſeſs the virtues of all the other ſtones, and to attract them all to it, as the magnet does iron.

PENTECONTARCHA, among the *Ancients*, the captain or commander of a galley, called *penteconteros*.

PENTECONTEROS, πεντηκοντερος, a veſſel with fifty oars.

PENTECOST, Πεντηκος, Whitſuntide; a ſolemn feaſt of the church, held in commemoration of the deſcent of the Holy Ghoſt on the Apoſtles; as deſcribed in the Acts See Whitsuntide.

It has its name from the Greek, πεντηκοστος, q. d. *quinquageſimus*, *fiftieth*, becauſe held on the fiftieth day after Eaſter.

In the ancient church, Pentecoſt finiſhed the Paſchal time, or Eaſter ſeaſon; wherein, as Tertullian, St. Jerom, &c. obſerve, Hallelujah was ſung every where, the office celebrated ſtanding, no faſting allowed, &c.

The Jews likewiſe had a feaſt they called *Pentecoſt*, or *Quinquageſimus*, ſolemnized in memory of the laws being given to Moſes, fifty days after their departure out of Egypt.

This was the ſecond of the three grand feſtivals in the eccleſiaſtical year, at which all the males were to appear before the Lord at the national altar. This feaſt laſted but one day, and was kept with great mirth and rejoicing. It is called by ſeveral names in the Old Teſtament; as the Feaſt of Weeks, becauſe it was celebrated ſeven weeks, or a week of weeks, after the Paſſover, or rather, after the firſt day of the feaſt of unleavened bread; the Feaſt of Harveſt, according to Mede and Bochart, becauſe, as the harveſt begun at the Paſſover, it ended at Pentecoſt: or, according to others, becauſe at this feaſt the firſt fruits of their wheat harveſt were brought and offered to God; and the Feaſt of Firſt Fruits.

PENTECOSTALS, Pentecostalia, anciently were pious oblations made at the feaſt of Pentecoſt, by the pariſhioners to their pariſh-prieſt; and ſometimes by inferior churches or pariſhes to the principal or mother church.

Theſe pariſh Pentecoſtals were alſo called *Whitſun-farthings*; and their ſum was divided into four parts, of which one went to the prieſt, one to the poor, one towards the repair of the church, and one to the biſhop of the dioceſe.

Theſe are paid ſtill in ſome few dioceſes; being now only a charge on particular churches, where by cuſtom they have been paid. And if they are denied where they are due, they are recoverable in the ſpiritual court.

PENTECOSTE, in *Geography*, a river of Canada, which runs into the river St. Lawrence, N. lat. 49° 45′. W. long. 66° 45′.

Pentecoste, or *Whitſunday Iſland*, a ſmall iſland in the South Pacific ocean, and one of the archipelago of the Great Cyclades, or New Hebrides diſcovered by M. Bougainville in 1768.

PENTEKILIS, or Pent Ekelis, a town of Aſiatic Turkey, on the S. coaſt of Natolia; 30 miles W.S.W. of Mecré.

PENTELASMIS, in the *Hiſtory of Shell-fiſh*, the name of the conchæ anatiferæ of ſome writers.

The pentelaſmis is a genus of animals, compoſed of a ſhelly body, affixed to a fleſhy and ſoft pedicle; the body is compoſed of five valves, and the pedicle is ſometimes ſhort, and ſometimes long. The animal itſelf belongs to the tritons.

PENTELICUM, Marmor, in the *Works of the Ancients*, a name given to a very beautiful and gloſſy ſpecies of white marble, of which many of the columns and ſtatues of larger ſize of the ancients were made: the Parian marble, from certain cracks and fiſſures in the ſtrata, ſeldom affording blocks of more than five feet in length.

PENTELICUS, in *Geography*, a mountain of Greece; ſix miles N.N.E. of Athens.

PENTESYRINGUS, in *Antiquity*, a ſort of pillory, with five holes; wherein were faſtened the legs, arms, and heads of criminals, to prevent their ſtirring.

PENTEXOCHE, a name given by authors to a ſpecies of echinites, reſembling the ripe fruit of the medlar, and thence called alſo *meſpileus lapis*.

PENTHEMIMERIS, πενθημιμερις, compounded of πεντε, *five*, ημισυς, *half*, and μερος, *part*, in the Greek and Latin *Poetry*, part of a verſe, conſiſting of two feet and one long ſyllable.

PENTHIER Point, in *Geography*, a cape on the W. coaſt of France; ſix miles S.E. of Point St. Matthew. N. lat. 48° 15′. W. long. 3° 17′.

PENTHIEVRE, a town of France, in the department of the Morbihan, ſituated on the peninſula of Quiberon, on the E. and W. ſides waſhed by the ſea; ſeven miles N. of Quiberon.

PENTHORUM, in *Botany*, appears to have been ſo called, by Gronovius, from πεντε, *five*, and ὀρος, *a column* or *poſt*, in alluſion to the figure of the fruit, which he ſays reſembles five turrets. Gron. Virg. 71. Linn. Gen. 230. Schreb. 310. Willd. Sp. Pl. v. 2. 770. Mart. Mill. Dict. v. 3. Ait. Hort. Kew. ed. 2. v. 3. 116. Juſſ. 308. Lamarck Illuſtr. t. 390. Michaux Boreal-Amer. v. 1. 278. Gærtn. t. 65.—Claſs and order, *Decandria Pentagynia*. Nat. Ord. *Succulentæ*, Linn. "*Sempervivis affine*," Juſſ.

Gen. Ch. *Cal.* Perianth inferior, of one leaf, in five or ten deep, acute, permanent ſegments. *Cor.* Petals five, rarely wanting, minute, linear, between the ſegments of the calyx. *Stam.* Filaments ten, awl-ſhaped, equal, twice as long as the calyx, permanent; anthers roundiſh, deciduous. *Piſt.* Germen roundiſh, with five furrows, coloured; ſtyles five, conical, erect, diſtant, the length of the ſtamens; ſtigmas obtuſe. *Peric.* Capſule ſimple, five-lobed, of five cells, crowned with the divaricated, nearly horizontal, ſtyles. *Seeds* numerous, minute, oblong, ſlightly compreſſed.

Eſſ. Ch. Calyx in five or ten ſegments. Petals five, minute. Capſule of five cells, with five points. Seeds numerous.

Linnæus ſays *Penthorum* is diſtinguiſhed from *Sedum*, by wanting the nectariferous ſcales proper to that genus. But the fruit alſo differs, though indeed only as that of ſome ſpecies of *Nigellæ* differs from others. Juſſieu has ſtrangely miſtaken the ſtructure of the fruit, whoſe cells, he ſays, ſplit horizontally; and thence he was led to doubt whether the genus could properly belong to his order of *Sempervivæ*. The ſeed-veſſel however opens exactly like thoſe of *Sedum*, *Sempervivum*, *Craſſula*, &c., nor can there be a queſtion of the genus before us belonging to the ſame natural order.

1. P. *ſedoides*. Linn. Sp. Pl. 620. (Penthorum; Linn. Act. Upſal. ann. 1744. 12. t. 2.—Native of moiſt ſhady ſituations, in North America; Michaux ſays from Canada to Carolina. It is a hardy perennial in our botanic gardens, flowering in July and Auguſt. *Root* fibrous, throwing out creeping ſcyons. *Stems* numerous, diffuſe, twelve or eighteen inches long, leafy, ſlightly branched; their oppoſite angles rough with minute briſtles. *Leaves* alternate, nearly ſeſſile, lanceolate, acute, ſerrated, ſmooth, ſcarcely ſucculent. *Spikes* ſeveral, terminal, recurved, collected into a ſort of corymb. *Petals* white, ſome or all of them frequently wanting, while the ſegments of the *calyx* are præternaturally multiplied. The plant has no ſmell, nor any thing more than an herbaceous taſte.

PENTICOTTA, in *Geography*, a town of Hindooſtan, in the circar of Cicacole; 32 miles S.W. of Coſſimcotta.

PENTIDATELO, a town of Naples, in Calabria Ultra; 12 miles S.E. of Reggio.

PENTIMA, a town of Naples, in Abruzzo Citra; five miles N.W. of Salmona.

PENTLAND Frith, the ſtrait which ſeparates the main land of Scotland from the Orkney iſlands. It is ſometimes called Pictland Frith; and indeed the latter is conſidered by many writers to be its proper and original appellation. This ſtrait is about twelve miles acroſs, and is remarkable for the impetuoſity and oppoſition of its currents, from the meeting tides of the Atlantic and Northern oceans. So ſtrong are theſe currents at times, that no veſſel can navigate againſt them, however favourable the wind may be. Hence the navigation of this frith is ſo peculiarly dangerous and difficult, that few veſſels attempt to paſs it without the aſſiſtance of an experienced pilot. Its dangers are alſo greatly augmented by ſeveral whirlpools, of which thoſe moſt uſually fatal are the "Wells of Swinna" and the "Swalchie of Stroma," near the northern ſide of that iſland. On its ſouthern ſhore is another very hazardous ſpot, called the "Merry Men of Mey," from the Mey, the name of a gentleman's reſidence on the oppoſite coaſt of Caithneſs. Here, from the concuſſion of the oppoſing tides, the ſea is agitated in a very awful manner, even in the fineſt weather. From theſe concurrent cauſes, it is impoſſible at any time to caſt anchor in any part of this frith; which, notwithſtanding, is annually entered by between three and four thouſand veſſels. The number, however, will no doubt rapidly decreaſe as ſoon as the Caledonian canal is opened for navigation. Many of the natives of the Caithneſs coaſt, and of the iſlands, are ſaid to derive their livelihood ſolely from the produce of the numerous ſhips which are foundered, or daſhed to pieces in their paſſage through this frith. Barry's Orkney Iſlands, 4to.

Pentland *Skerries*, three ſmall iſlets, or holms, at the eaſtern entrance to the Pentland frith; four miles N.E. from Dungſby head. Being from their ſituation extremely dangerous to mariners, a lighthouſe is placed upon the largeſt of them. It was erected in 1794.

Pentland *Hills*, a range or ridge of eminences, which extend from a place about four miles S.W. of Edinburgh, towards the confines of Peebles-ſhire and Lanarkſhire. Some of theſe hills are of conſiderable elevation; particularly the weſtern ſummits, two of which, called Capelaw and Caerketan-craig, riſe to the height of nearly fifteen hundred feet above the level of the ſea. Logan-houſe hill even exceeds ſeventeen hundred feet above the ſame level. The eaſtern diviſion, near Edinburgh, however, ſeldom reaches much above one-half that elevation; in ſome places it is nearly flat on the top, and affords excellent paſturage for large flocks of ſheep. Several ſtreams, noted in ſong, take their riſe among theſe hills; as the North Eſk, Glencroſs, and Logan water; the two latter of which diſpute the honour of being the ſcene of Allan Ramſay's "Gentle Shepherd." Each of theſe vales is accordingly diſtinguiſhed by the name of "Habby's Hough;" and both are frequently viſited by poetical parties from the Scottiſh metropolis during the ſummer months. The compoſition of the Pentland hills is principally granite, but on the north ſide of the Logan ſummit is a rock of a very ſingular character, which has obtained the appellation of "Petunſe Pentlandica," from its reſemblance to the ſubſtance employed in the manufacture of Chineſe porcelain. It is the only ſpecimen of the kind in Great Britain, and probably in Europe.

PENTODRYON, in *Botany*, a name given firſt by the Greek writers, and after that by the Romans, to a kind of *ſtrychnum* or *nightſhade*, which cauſed madneſs in thoſe who eat of it. This was called by others *manichum ſtrychnum*, and by ſome ſimply *manicum*.

PENTOPHTHALMOS, in *Ichthyology*, the name of an Eaſt Indian fiſh, approaching to the European *liparis*, or *butterfiſh*, but larger, and called by the Dutch there *viifoog*. It has theſe names from five round ſpots in the tail-fin, reſembling five eyes; it is of a yellowiſh colour, and is covered with a ſmooth ſkin, having no ſcales; its body is thick, its head ſmall, its beak long; it has two red fins, and its tail is blueiſh; it is an inhabitant of the freſh waters, and is a very well taſted fiſh.

PENTOROBOS, in *Botany*, a name recorded in Pliny as belonging to the Pæony. It is formed of πεντε, *five*, and οροβος, *a vetch* or *legume*, evidently alluding to the fruit of that plant, which, when perfect, conſiſts of five ſeed-veſſels, that have very much the appearance of legumes. See PÆONIA.

PENTOWEN POINT, in *Geography*, a cape on the S. coaſt of Wales, in the Briſtol channel. N. lat. 51° 45'. W. long. 4° 15'.

PENTSTEMON, in *Botany*, from πεντε, *five*, and ϛημα, *a ſtamen;* becauſe this genus is diſtinguiſhed from its allies in the *Didynamia Angioſpermia*, by having a fifth ſtamen, more or leſs perfect, in addition to the four unequal ones, which make the character of the claſs. Mitchell Ephem. Nat. Cur. v. 8. append. 214. Ait. Hort. Kew. ed. 1. v. 3. 511. Schreb. 808. Willd. Sp. Pl. v. 3. 227. Mart. Mill. Dict. v. 3. Michaux Boreal-Amer. v. 2. 21. (Chelone; Lamarck Illuſtr. t. 528.)—Claſs and order, *Didynamia Angioſpermia*. Nat. Ord. *Perſonatæ*, Linn. *Bignoniæ*, Juſſ.

Gen. Ch. *Cal.* Perianth inferior, of one leaf, in five deep, lanceolate, nearly equal, permanent ſegments. *Cor.* of one petal, two-lipped; tube longer than the calyx, gibbous at the baſe on the upper ſide, dilated upwards, and there moſt inflated at the lower ſide, or front; upper lip erect, in two ovate obtuſe ſegments; lower lip longeſt, in three deep, ovate, obtuſe, deflexed ſegments, ſhorter than the tube. *Stam.* Filaments four, thread-ſhaped, diverging at the ſummit, inſerted into the tube and not extending beyond it, the two inferior ones longeſt; anthers roundiſh, diſtant, incloſed within the tube, cloven, their lobes divaricated. The rudiment of a fifth filament is inſerted into the tube, between the two uppermoſt ſtamens, about equal to them in length, thread-ſhaped, ſtraight, bearded at the upper part. *Piſt.* Germen ſuperior, ovate; ſtyle thread-ſhaped, the length of the tube, deflexed at the top; ſtigma abrupt. *Peric.* Capſule ovate, acute, compreſſed, of two cells and two divided valves, with inflexed margins. *Seeds* numerous, orbicular, bordered. *Receptacle* large, flattiſh, meeting the inflexed margins of the valves.

Eſſ. Ch. Calyx in five deep ſegments. Corolla inflated, two-lipped. Rudiment of a fifth filament bearded above. Capſule of two cells; the partition from the inflexed margins of the valves. Receptacle parallel to the valves.

Obſ. We cannot perceive the neceſſity of ſeparating this genus from CHELONE, nor ſhould we here have done any thing more than refer to the labours of our learned and judicious predeceſſor, the late Rev. Mr. Wood, under that article, had not *Pentſtemon* been now ſo generally adopted. We muſt remark however, that Juſſieu, who hints at its eſtabliſhment under *Chelone*, Gen. 137, errs in attributing to the latter a capſule with partitions from the centre of each valve, and a receptacle contrary to the valves. There is no difference between the fruit of theſe genera in that reſpect, nor in any other, except the trivial circumſtance of the valves of *Pentſtemon* being ſplit vertically, which is not the caſe with *Chelone glabra* at leaſt, if we may rely on Gærtner, t. 54; for this plant does not, under our obſervation, perfect its fruit. The ſeeds are bordered in *Pentſtemon* as well as *Chelone*.

For the ſpecies of *Pentſtemon*, ſee CHELONE, ſection 2. To theſe we have only the following to add.

5. P. *ſerrulata*. Menz. MSS.—Stem ſmooth. Leaves all ſharply ſerrated, ſmooth; the upper ones ovate, ſomewhat haſtate. Panicle twice or thrice forked. Barren filament bearded half way down.—Gathered by Mr. A. Menzies, on the weſt coaſt of North America. It is moſt nearly related to *P. lævigata*, but differs in the copious acute ſerratures of its *leaves*, which are alſo broader, ſhorter, and more ovate; particularly thoſe on the middle and upper part of the *ſtem*. The *panicle* is alſo more compact. Barren *filament* linear, bearded on one ſide, from the ſummit more than half way down. *Capſule* like that of *lævigata*.

PENTSTEMON, in *Gardening*, contains plants of the hardy, herbaceous, flowering kind, of which the ſpecies cultivated is, the ſmooth pentſtemon (P. lævigata.)

Method of Culture.—This plant may be increaſed by ſowing the ſeeds either in the autumn or early ſpring in the places where they are to remain, or in beds, to be removed in the beginning of the ſummer to the borders or clumps of the pleaſure-grounds.

They afford variety among other plants of ſimilar growth in theſe ſituations.

PENTZIA, in *Botany*, ſo named by profeſſor Thunberg in honour of his pupil Charles John Pentz, at whoſe graduation at Upſal, in 1797, the learned profeſſor's diſſertation on *Dioſma* was publiſhed. Thunb. Prodr. (præf. n. 54.) 145. Willd. Sp. Pl. v. 3. 1808.—Claſs and order, *Syngeneſia Polygamia-æqualis*. Nat. Ord. *Compoſitæ diſcoideæ*, Linn. *Corymbiferæ*, Juſſ.

Gen. Ch. *Common calyx* hemiſpherical, of many imbricated, oblong, obtuſe, membranous-edged ſcales. *Cor.* compound, diſcoid. Florets all fertile, numerous, uniform, level-topped, tubular, funnel-ſhaped; the limb erect, in five ſlight ſegments. *Stam.* Filaments five, capillary; anthers united into a cylindrical tube. *Piſt.* Germen oblong; ſtyle thread-ſhaped, the length of the ſtamens; ſtigmas two, ſpreading. *Peric.* none, except the permanent calyx. *Seeds* ſolitary, abrupt, angular, ſtriated, each with a membranous, cup-ſhaped, angular *crown*, half its own length, in five unequal, rounded, ſhallow ſegments. *Recept.* naked.

Eſſ. Ch. Receptacle naked. Seeds crowned with a membranous, unequally lobed, border. Calyx imbricated, hemiſpherical. Florets all tubular, five-cleft.

1. P. *flabelliformis*. Willd. n. 1. (P. crenata; Thunb. Prodr. 145. Tanacetum flabelliforme; L'Herit. Sert. Angl. 21. t. 27. Ait. Hort. Kew. ed. 1. v. 3. 169. Gnaphalium dentatum; Linn. Sp. Pl. 1194 Coma aurea incana, foliis obtuſis tridentatis, capitulis oblongis; Burm. Afric. 185. t. 68. f. 3.)—Native of the Cape of Good Hope. Mr. Maſſon ſent it to Kew in 1774. This is a buſhy much branched *ſhrub*, altogether of a hoary ſilvery aſpect, remarkable for its little alternate, fan-ſhaped, long-ſtalked *leaves*, furniſhed with prominent longitudinal ribs, and ſtrongly toothed at their abrupt termination. *Corymbs* ſimple, terminal, but ſoon ſurmounted by young branches. *Flowers* the ſize of a pea, yellow, with a downy ſomewhat ſhining *calyx*. The plant is ſlightly aromatic. It might perhaps have been allowed to remain in *Tanacetum*, the very conſpicuous white *ſeed-crown* being little more than a dilatation, of what always exiſts, in ſome degree, in that genus, and the want of a few female three-cleft *florets*, juſtly termed obſolete, in the *radius*, being at beſt an obſcure, if not variable character.

PENUKONDA, in *Geography* a town of Hindooſtan, in Myſore; 65 miles N. of Bangalore.

PENULA. See Pænula.

PENULTIMA, or Penultimate, formed from *pene*, and *ultimus*, *almoſt laſt*, in *Grammar*, denotes the ſyllable, or foot, immediately before the laſt.

Hence antepenultimate is that before the penultimate, or the laſt but two.

PENULTIMATE, in *Muſic*. M. Broſſard will have it the ſame with what the Greeks call *paranete;* though others will not allow the paranete to be the penultimate chord, but the next to it.

Penultimate *of the Separate*, *paranete diazeugmenon*, is a name the ancients gave to one of the chords of their lyre or ſyſtem; correſponding to the *d*, *la*, *re*, of the third octave of the modern ſyſtem.

Penultimate *of the Acute*, *paranete hyperboleon*, a chord of the ancient ſyſtem, anſwering to the *g*, *re*, *ſol*, of the third octave of the modern ſyſtem.

PENUMBRA, in *Aſtronomy*, a faint or partial ſhade, obſerved between the perfect ſhadow and the full light in an eclipſe.

The penumbra ariſes from the magnitude of the ſun's body; were he only a luminous point, the ſhadow would be all perfect; but by reaſon of the diameter of the ſun, it happens that a place which is not illuminated by the whole body of the ſun, does yet receive rays from a part thereof.

Thus, ſuppoſe S the ſun (*Plate* XVIII. *Aſtron. fig.* 17.) and T the moon, and the ſhadow of the latter to be projected on a plane, as G H. The true proper ſhadow of T, *viz.* G H, will be encompaſſed with an imperfect ſhadow, or penumbra, H L and G E, each portion whereof is illuminated by an entire hemiſphere of the ſun.

The degree of light or ſhadow of the penumbra will be different in different parts, as thoſe parts lie open to the rays of a greater or leſſer part of the ſun's body; thus from L to H, and from E to G the light continually diminiſhes; and in the confines of G and H, the penumbra becomes loſt and confounded with the total ſhade; as, near E and L, it is confounded with the total light.

A penumbra muſt be found in all eclipſes, whether of the ſun, the moon, or the other planets, primary or ſecondary; but it is moſt conſiderable with us in eclipſes of the ſun; as in the caſe here referred to.

In eclipſes of the moon, the earth is encompaſſed indeed with a penumbra; but it is only ſenſible to us on the earth near the total ſhadow: an obſerver placed on a plane, whereon the ſhadow falls, might obſerve the whole penumbra, as in eclipſes of the ſun. Thus an eye placed at I or F, would only ſee the ſemidiameter of the ſun; the reſt being hid behind the moon. Going from I towards H, more and more of the ſun is hid, till it be loſt in the ſhadow itſelf, &c.

Hence we have eclipſes of the ſun when the ſhadow never touches the earth, provided the penumbra do but reach it: and hence there is a difference obſerved in eclipſes of the ſun, as the ſhadow itſelf, or a greater or leſs degree of the penumbra, paſſes over a place. But eclipſes of the moon appear the ſame in all places where they are viſible.

When the ſhadow itſelf falls on the earth, the eclipſe is ſaid to be total or central; when only the penumbra falls on it, the eclipſe is ſaid to be partial.

The penumbra extends infinitely in length, inaſmuch as to each point of the diameter of the ſun, there anſwers a ſpace infinite in length, into which no rays enter from that point, though there do from others. Two rays drawn from the two extremities of the earth's diameter, and which proceed ſtill diverging, form the two edges of the penumbra; which, of conſequence, is continually growing in width, and is infinite alſo in this ſenſe. All that infinite ſpace is the penumbra; except the triangle of the ſhadow included in it.

The figure of this ſpace comprehending the ſhadow, is a trapezium, one of whoſe ſides is the diameter of the earth; the oppoſite ſide parallel thereto is an infinite line, *i. e.* the width of the penumbra projected to infinity, and the two other ſides are two rays drawn from the two extremities of the diameter of the ſun, through thoſe of the diameter of the earth, and which, prolonged back beyond the ſun, will interſect in a certain point, making an angle equal to the apparent diameter of the ſun; which angle may be called the *angle of the penumbra*.

Now the penumbra will be the greater, as this angle, or, which is the ſame thing, as the ſtar is greater, the planet remaining the ſame; and if the diameter of the planet be increaſed, the ſtar remaining the ſame, it will be the ſame as if the diameter ſtill receded from the angle of the penumbra.

In order to determine how much of the ſurface of the earth can be involved in the penumbra, let us ſuppoſe the apparent ſemidiameter of the ſun to be the greateſt, or about $16' \, 23''$, which is when the earth is in her perihelion. Let A B D (*fig.* 18.) be the earth, L the moon, and A M B half the angle of the cone, which is equal to $16' \, 23''$; whence we ſhall find its height $LM = 58\frac{1}{2}$ ſemi-diameters of the earth. (See Shadow.) Let the moon be in her apogee, and, therefore, at her greateſt diſtance from the earth, which is 64 ſemi-diameters of the earth, and $TM = TL + LM = 122\frac{1}{2}$ ſemi-diameters. But $TB : TM ::$ ſine of TMB : ſine of MBN or MBT; and $TB : TM :: 1 : 122\frac{1}{2}$, and the angle $TMB = 16' \, 23''$, therefore the angle $MBN = 35 \; 42' = TMB + MTB$. Conſequently $MBN - TMB = (35^{\circ} \, 42' - 16' \, 23'' =)$ $MTB = 35^{\circ} \, 25\frac{1}{2}'$, which is the meaſure of the arc A B;

whoſe double 70° 51′ is equal to the arc C A B, or about 4900 Engliſh miles. See Eclipse.

M. de la Hire examines the different degrees of the penumbra, and repreſents them geometrically by the ordinates of a curve, which ſhall be among themſelves, as the ſeveral parts of the ſun's diſc, with which a body placed in the penumbra is enlightened.

PENURIE, in *Geography*, a town of Hindooſtan, in Bahar; 23 miles S. of Bahar.

PENUTURA, a town of Hindooſtan, in the circar of Cicacole; 25 miles N. of Cicacole.

PENY, a town of Hindooſtan, in Bahar; 24 miles S.W. of Rotaſgur.

PENYCUIK, is the name of a village and pariſh in the county of Mid-Lothian, or Edinburghſhire, Scotland. The village is ſituated nine miles S. from the northern metropolis, and is adorned with a very handſome church, the living of which was formerly a rectory. This edifice is placed on the ſcite of an older ſtructure, which was dedicated to Kentingern, popularly called St. Mungo. The pariſh is twelve miles in length and ſix in breadth. Its ſurface is extremely various, and exhibits almoſt every kind of ſoil, from clay and moſs to the pooreſt gravelly loam. A great number of ſheep are bred in this pariſh; but the greater proportion of it is under tillage. It is watered throughout its whole extent by the river North Eſk, and abounds with coal and peat. It alſo poſſeſſes ſeveral objects entitled to the attention of the topographer and the antiquary. Near the village is the elegant ſeat of ſir James Clerk, bart. M. P. for the county of Edinburgh. The ſituation of this manſion is delightful; and its proſpects are both pictureſque and extenſive. In the library here is an excellent collection of books and paintings; and in another room is a large aſſortment of Roman antiquities, principally from the wall of Antoninus, and the neighbouring encampments. Cloſe to the river, within the "policy," is Oſſian's Hall, the much admired work of Runciman; and behind the houſe is an exact model of the celebrated Roman temple, called by Buchanan *Templum Termini*, which formerly ſtood on the banks of the Carron, and which was known to the vulgar by the appellation of Arthur's-Oon. Here is likewiſe an obeliſk, in honour of Ramſay the poet, who frequently reſided at Penycuik, and is ſuppoſed to have laid the ſcene of "The Gentle Shepherd" on the confines of this pariſh and Glencroſs. About two miles from this ſeat, lower down the river, ſtood the ancient caſtle of Brunſtone, the baronial manſion of the Crichtounes, ſome ruins of which ſtill remain. New-Hall, another reſidence of the ſame family, ſtands three miles N.W. from the village. It is ſuppoſed to have derived its appellation of *New* from the circumſtance of its occupying the ſcite of an *old* religious houſe. The name of New-Houſe, an inn on the lands of Spittal here, boaſts a ſimilar derivation, having been erected to ſupply the place of an ancient hoſpitium, for the accommodation of travellers. Even at the preſent day the weary and benighted traveller is conſidered as entitled to ſhelter and protection; and accordingly one of the out-houſes, at the Old Spittal, is uſually appropriated to that purpoſe. Traces of ſeveral encampments of different forms and eras are yet viſible in this pariſh. Ravens-Nook-Caſtle, ſituated on the Eſk, belonged to the Sinclairs of Roſlyn. Government has lately converted the buildings of two large paper manufactories here into depots for priſoners of war.

According to the parliamentary returns of 1811, the houſes in this pariſh amount to 309 in number, and the inhabitants to 1827. Beauties of Scotland. Carliſle's Topographical Dictionary of Scotland, and of the Iſlands of the Britiſh Seas, 4to. 1813.

PENZA, a town of Ruſſia, and capital of a government, near the Sura; 644 miles S.E. of Peterſburg. N. lat. 53° 30′. E. long. 45° 42′.

PENZANCE, a ſea-port and market town in the weſt diviſion of the hundred of Penwith, county of Cornwall, and the moſt weſterly town in England, is ſituated on the N.W. ſide of Mount's bay, 287 miles W.S.W. from London, and 10 miles from the Land's End. It is particularly diſtinguiſhed for the cheapneſs of its fiſh market, the mildneſs of its climate, and the fertility of the neighbouring lands: theſe circumſtances have occaſioned a conſiderable increaſe of population, by the influx of inhabitants from the adjacent villages. In the year 1595, the Spaniards diſpatched four veſſels from Bretagne, (of which they were then maſters,) to invade the Engliſh coaſt. They landed near Mouſehole, which they burnt, together with the church of St. Paul. Meeting with little reſiſtance, the enemy proceeded to Penzance, and the inhabitants deſerting it, they entered the town in three places, and ſet it on fire, after which they returned to their gallies. The returning courage and increaſed numbers of the Corniſh, prevented the Spaniards from re-landing, and Penzance has ſince remained undiſturbed by foreign foes. The pariſh church is ſituated nearly at Madern, two miles from the town; but there is a chapel of eaſe nearer home, dedicated to St. Mary. There are various religious denominations reſiding here; Preſbyterians, Quakers, Methodiſts, and Jews, who have ſeparate places of worſhip. The government is veſted in a corporation, conſiſting of a mayor, recorder, twelve aldermen, and twenty-four common-councilmen. Penzance is one of the four Stannary towns of the Corniſh tin mines, and the petty ſeſſions for the weſt diviſion of the hundred of Penwith are holden here. There is a charity ſchool endowed by John Buller, eſq. of Morval, in 1711. The town is very pleaſant, many of the houſes large and reſpectable, and moſt of the ſtreets are paved. A new pier, which was erected by the corporation ſome years ſince, affords much convenience to the conſiderable trade carried on here, conſiſting chiefly of tin, and the pilchard fiſhery. The packets which form the principal mode of conveyance to the Scilly iſlands, ſail from Penzance. Thurſday is the market day, and there are three annual fairs. By the cenſus of 1811, Penzance contained 794 houſes, and a population of 4022 inhabitants.

At the diſtance of half a mile from Penzance, are ſome remains of the celebrated Wherry Mine. They are ſituated in a part of the bay, which is dry at low water, but covered by every returning tide to the depth of ſeveral feet. The peculiar ſituation of this mine rendered it an object of curioſity, although the ſhaft is filled up, and the frame-work nearly annihilated. When the works were in operation, the labour became extremely adventurous; the miners working at the depth of ſeventeen fathoms below the waves, nearly 120 fathoms from the ſhore, and momentarily menaced with an inundation of the ſea, which roared above them. The dangerous ſituation of the ſhaft, the injurious effect of ſtorms and tides, and a partial failure of the lode, induced the proprietors to diſcontinue its working in 1798. A large tract of marſh-land, adjacent to Penzance, ſubject to occaſional inundations of the ſea, has been partly reſcued from ſterility and waſte, through the laudable exertions of Dr. Samuel Moyle of Marazion. It was effected by means of an aqueduct or pipe, communicating with the ſea, which carried off all the drainage water from the marſh. Several crops of corn and potatoes have been obtained from the parts ſo ſaved, and it promiſes to reward the adventurer for his expence and perſeverance. In cutting one of the drains, an earthen pot was diſcovered, containing nearly one thouſand Roman copper coins, which the impreſſions ſhew to have been iſſued between the years A.D. 260 and 350.

Weſt of, and contiguous to, Penzance are ſeveral ſmall villages and antiquarian objects deſerving notice. Mouſehole, on the weſtern ſide of Mount's bay, is celebrated among antiquaries for having been the reſidence of Dolly Pentreath, one of the laſt perſons known to ſpeak the Corniſh language. She lived to the great age of 102, and was buried in the pariſh church-yard of St. Paul's. St. Burien is the name of a pariſh, which, though at preſent conſiſting only of a few wretched cottages, was formerly diſtinguiſhed by a college of Auguſtine canons, founded and endowed by Athelſtan about the year 930. It is now in the patronage of the prince of Wales. The deanery includes the pariſhes of Burien, Senner, and St. Levan. At the Norman conqueſt there were ſecular canons here, and in the 20th of Edward I. a dean and three prebends. The church is built on a high ſpot of ground; it conſiſts wholly of granite, and its tower forms a conſpicuous object from the Land's End, the Scilly iſlands, and the North and South channels. The greater part of the diſtrict round St. Burien, though wild and unſheltered, is intereſting to the antiquary, it being interſperſed with cairns, circles, cromlechs and other Druidical remains. In the pariſh of St. Paul is a circular incloſure of ſtones, called the "Roundago," fifty-two paces from north to ſouth, and thirty-four from eaſt to weſt. Some of the ſtones are erect, others piled in a wall-like form, but without mortar. In the pariſh of Senner is a circle of ſimilar ſhape and character, and at Tredineck another of the ſame kind. In the pariſh of Burien is a ſmall circle of nineteen upright ſtones, called the "Dance Maine" or the Merry Maidens. The ſtones are about four feet above the ground, and five feet diſtant from each other; the diameter of the circle is about twenty-five feet, and at ſome diſtance north-weſt from it are two taller upright ſtones, called the Pipers. Another of theſe Druidical circles is named Boſcawen-un, which alſo conſiſts of 19 upright ſtones, and is about 25 feet in diameter, having a ſingle leaning ſtone in the centre. In the pariſh of Gulval is Boſkednan-Circle, conſiſting alſo of 19 ſtones, but of ſmaller diameter than the two former. In the pariſh of St. Juſt is a conſiderable ſtructure of this kind, known by the name of the Botallach circles, compoſed of four circles of upright ſtones interſecting each other. Lanyon Quoit is a cromlech, conſiſting of four upright ſtones, three of which ſupport the other, a broad flat ſtone, 28 feet long, by 14 wide. In the pariſh of Morval is a cromlech, ſimilar to this laſt, but of ſmaller dimenſions, called Chûn Quoit; and half a mile eaſt of Senner church is another, the quoit of which is ſupported by a barrow heaped round it, 14 yards in diameter. In the pariſh of Madern ſtand three ſtones erect, on a triangular plane, the middle one of which is perforated with a large hole near the baſe, nine inches in diameter. Dr. Borlaſe conjectures that this perforation was appropriated to ſuperſtitious rites, in the days of Druidiſm.

The ſame antiquary deſcribed various logan or rocking-ſtoes, as formerly extant in this part of Cornwall; the moſt conſiderable and curious of which was at Treryn-Caſtle, in the pariſh of St. Levan. The chief ſtone is an immenſe granite block, ſuppoſed to weigh nearly 90 tons, poiſed on the top of a vaſt pile of rocks which project into the ſea. This enormous maſs, it is ſtated and believed, was once liable, from a peculiarity of poſition, to be moved to and fro. Treryn-Caſtle is a large piece of rocky ground, projecting into the ſea, and incloſed by two formidable ramparts and ditches, one within the other, ſtretching in a ſemicircular form from the ſides of the cliffs: the perpendicular rocks form three ſides of this fortification, and the land ſide is guarded by theſe thick and high embankments. About a mile and a half weſt of this, the cape, called Tolpedn-penwith, is divided from the main land by a ſtone wall. The caſtles, Karnijeck and Boſcagell, in the pariſh of St. Juſt, are alſo of the ſame kind, as well as many others on the ſea-coaſt.

The Land's End is the moſt weſterly promontory in England. It is a point of huge and ragged rocks, forming a barrier to the tumultuous ſea, of the moſt awful and wildly ſublime kind. It was called Bolerium by Ptolemy; by the Britiſh bards Penringhuaed, or the promontory of Blood; and by their hiſtorians Penwith, or the promontory to the left. Near this craggy cliff are three caverns, in which the agitated waters occaſionally roar with tremendous fury. Several maſſes of rock are ſeen above the ſurface of the ſea, more than two miles weſt of the Land's End, called the "Long Ships." On the largeſt a light-houſe was erected by Mr. Smith, in 1797, who obtained a grant for that purpoſe, and is rewarded by a certain rate on all ſhips that paſs the Land's End. Beauties of England and Wales, vol. ii. Borlaſe's Antiquities of Cornwall, folio. Hiſtory and Antiquities of Cornwall, by R. Polwhele, 4to.

PENZENSKOE, a government of Ruſſia, bounded on the north by Nizegorodſkoi, on the eaſt by Simberſkoe, on the ſouth by Saratovſkoe, and on the weſt by Tambovſkoe; about 172 miles from eaſt to weſt, and from 40 to 60 from north to ſouth. The capital is Penza. N. lat. 52° 40′ to 54° 36′. E. long. 42° to 47°.

PENZINSKAIA, a gulf of Ruſſia, at the north part of the Penzinſkoe ſea. N. lat. 61° to 62′. E. long. 162° 14′.

PENZINSKOE Sea, a large bay of the North Pacific ocean, between Ruſſia and Kamtſchatka, north-eaſt of the ſea of Ochotſk; about 320 miles in length, and from 120 to 160 broad. N. lat. 58° to 62°. E. long. 152° to 161°.

PENZLEIN, a town of the duchy of Mecklenburg; 37 miles S.E. of Guſtrow.

PEONY, or Piony, in *Botany*. See Pæonia.

PEORY, in *Geography*, a town of Hindooſtan, in Dowlatabad; 35 miles N.N.W. of Darore.

PEP, and Pepia. See Pip.

PEPASMUS, πεπασμος, in *Medicine*, the digeſting and ripening of morbid humours.

PEPASTIC, or Peptic, πεπαϛικος, or πεπτικος, formed from πεπαινειν, *to digeſt*, or *ripen*, a kind of medicament of the conſiſtence of a plaſter; proper to bring vitious and corrupt humours to a head, and diſpoſe them for ſuppuration.

Butter, roots of mallows, of fleurs-de-lys, onions, and leaves of oxylapathum, are eſteemed good pepaſtics, or maturatives.

The word is alſo uſed for ſuch medicines as promote the digeſtion of food in the ſtomach.

PEPECHAISSINIGAN, in *Geography*, a river of Canada, which runs into the St. Lawrence, N. lat. 48° 26′. W. long. 68° 55′.

PEPERAH, a town of Hindooſtan, in Gurry Mundela; 10 miles S. of Gurra.—Alſo, a fort of Hindooſtan, in Bahar; 48 miles E. of Durbungah. N. lat. 26° 8′. E. long. 86° 58′.

PEPERALLY, a town of Hindooſtan, in Bahar; 30 miles N. of Durbungah.

PEPERIA, a town of Hindooſtan, in Bahar; 54 miles E.S.E. of Hajypour.

PEPIN le Gros, in *Biography*, a celebrated perſon in

French hiſtory, who was ſurnamed *d'Heriſtal* from the place of his birth, on the river Meuſe, near Liege. He governed Auſtraſia after the death of Dagobert II. in 680, and was defeated in the following year by Ebroin, the powerful mayor of the palace of Neuſtria. He, however, levied new troops, and, after the death of Ebroin, defeated king Thierry, gained poſſeſſion of Paris, and became maſter of the king and kingdom, with the title of mayor of the palace of Neuſtria and Burgundy. He was a man of extraordinary qualities, extremely brave, prudent, and politic; and one who was able to conceal his ambition under the maſk of moderation, and a very mild and affable demeanour. When he had ſeized the reins of government, he employed himſelf with vigour and induſtry to correct abuſes, reſtore law and order, repair the finances, and ſecure the obedience of all ranks of the ſtate. He ſuffered Thierry to act the pageant of a king, and in public paid him all poſſible reſpect, while he excluded him from any ſhare in the adminiſtration. After the death of Thierry, he placed the crown ſucceſſively upon the heads of his ſons, Clovis and Childebert, and his grandſon Dagobert, who in French hiſtory are denominated, from their inſignificance, "Les Rois Faineans." In the mean time, Pepin was engaged in wars with the Friſons and Germans, over whom he was conſtantly victorious. His exceſſive power excited the envy of ſome lords, who, while he was labouring under a dangerous illneſs, took up arms and aſſaſſinated his ſon Grimoald. He, however, recovered, and took ſevere vengeance on his foes. Shortly after this he died, having had the adminiſtration of the government in his hands nearly 30 years. This was in the year 714, and he left his authority ſo well eſtabliſhed, that he nominated his young grandſon, Theobald, mayor of the palace, under the guardianſhip of his widow. Pepin was father of Charles Martel, the founder of the Carlovingian line of French kings. Univer. Hiſt. Hiſtory of France, 1790.

Pepin, ſurnamed *Le Bref*, firſt king of France of the ſecond race of kings, was the ſecond ſon of Charles Martel. (See France.) His father, in his laſt illneſs, divided his dominions between his ſons, Carloman and Pepin: aſſigning to the former Auſtraſia, to the latter Neuſtria and Burgundy. They united in ſuppreſſing an inſurrection, and afterwards turned their arms againſt Odilon, duke of Bavaria, and other German princes and nations, whom they reduced to ſubmiſſion. In the midſt of this proſperity, Carloman, diſguſted with the world, retired to a monaſtery in 746, and reſigned his poſſeſſions to Pepin. This prince had hitherto exerciſed the royal authority in the name of king Childeric; but finding himſelf perfectly eſtabliſhed in his power, beloved by his people, reſpected by the nobles, and favoured by the clergy, to whom he had reſtored part of the property which his father had taken from them, he reſolved, in the year 751, openly to aſſume the title, as well as the office, of king. The elder hiſtorians unanimouſly affirm, that the aſſembly of the ſtates ſent a deputation to pope Zachary, to aſk whether it were not right that he who exerciſed all the functions of royalty ſhould be king, rather than he who was ſo only in name; and that the pope pronounced in the affirmative. From this time it is probable that king Childeric was ſhaved, and ſhut up in a monaſtery, where he ſoon died; his queen was put into a convent; and their ſon, Thierri, paſſed his life in the character of a monk: and thus ended the race of Merovingian kings of France.

Pepin, ſoon after being proclaimed king, was conſecrated at Soiſſons by Boniface, biſhop of Mentz, the pope's legate, and is ſaid to have been the firſt French king on whom this ceremonial was performed. The ſolemnity was, without doubt, intended to give an additional ſanctity to his character. With the ſame view he undertook, on various occaſions, to be the champion of the church. He ſeverely chaſtiſed the heathen Saxons, who had taken up arms, and expelled the miſſionaries. He attacked the Saracens in the ſouthern provinces of France, and, after a long ſiege, made himſelf maſter of the important city of Narbonne. Of ſuch importance was Pepin now in the world, that pope Stephen III. implored his protection againſt the enemies that preſſed upon him, and even came in perſon to his court. He was received with all poſſible reſpect; and in return for his kindneſs, the holy pontiff crowned him and his queen in the church of St. Denis, beſtowed the royal unction upon his ſons Charles and Carloman, and conferred upon the father and his ſons the title of Roman patrician. Pepin reconducted the pope to Italy with an army, beſieged the king of the Lombards in Pavia, and obliged him to make a treaty, by which he relinquiſhed the ſovereignty of Rome, and all his conqueſts. As ſoon as Pepin had recroſſed the Alps, the Lombard monarch broke the treaty, and inveſted Rome. Pepin paſſed again into Italy, and conſtrained him to accept of peace a ſecond time, but on much harder conditions than before. He viſited Rome, where he was received with great honour as its deliverer, and cauſed the keys of Ravenna and the other cities of the exarchate to be offered on the ſhrine of St. Peter. As ſoon as he returned, he employed himſelf in regulating the internal affairs of his kingdom, and receiving the homage of the duke of Bavaria, and of the king of the Sclavonians. A general revolt of the Saracens again gave occaſion to him to exerciſe his arms, and he reduced them to ſubmiſſion. While he was thus engaged, the Lombards, under king Deſiderius, attacked the pope, who applied to Pepin for his aſſiſtance, which in this and other inſtances he readily afforded. Pepin died in 768, at the age of 53, after having reigned with glory and ſucceſs nearly 17 years. No author of a revolution ever met with leſs diſturbance in maintaining his power, which was owing to his great prudence, and the moderation with which he exerciſed his authority; conſulting the general aſſembly of the nation on all important occaſions, and paſſing his laws by the medium of their aſſent. In perſon Pepin was very ſhort, but he poſſeſſed extraordinary vigour and activity, as well as intrepidity. The fame of Pepin, like that of Philip of Macedon, has been in ſome degree impaired by the ſuperior renown of his ſon, Charlemagne; but his eminent qualities ſufficiently entitle him to a place among the great men of his age and nation. Univer. Hiſt. Hiſtory of France, 1790.

Pepin *Lake*, in *Geography*, an expanſion of the Miſſiſippi, where it receives the Chippeway from the north-eaſt, in N. lat. 44° 5′, and W. long. 93° 42′, below the Falls of St. Anthony.

PEPITA, in the *Materia Medica*, a name given by ſome authors to the faba ſancti Ignatii, or St. Ignatius's bean.

PEPLION, or Peplos, names given by the ancients to medicines which they uſed as briſk cathartics to purge off the bile and other humours.

PEPLIS, in *Botany*, a name borrowed from Dioſcorides, whoſe πεπλις, nevertheleſs, is evidently the Linnæan *Euphorbia Peplis*, and eſſentially different in characters and qualities from the genus of which we are about to treat. Linn. Gen. 176. Schreb. 235. Willd. Sp. Pl. v. 2. 243. Mart. Mill. Dict. v. 3. Sm. Fl. Brit. 389. Prodr. Fl. Græc. Sibth. v. 1. 244. Ait. Hort. Kew. ed. 2. v. 2. 316. Juſſ. 333. Lamarck Illuſtr. t. 262. Gærtn. t. 51.

(Portula; Dill. Giſſ. 120. append. 133. t. 7.)—Claſs and order, *Hexandria Monogynia*. Nat. Ord. *Calycanthemæ*, Linn. *Salicariæ*, Juſſ.

Gen. Ch. *Cal.* Perianth of one leaf, bell-ſhaped, plaited, permanent, large; its border in twelve ſmall ſegments, alternately reflexed. *Cor.* Petals ſix, ovate, very minute, inſerted into the border of the calyx, often wanting. *Stam.* Filaments ſix, ſometimes but four, awl-ſhaped, ſhort; anthers roundiſh. *Piſt.* Germen ovate, in the bottom of the calyx; ſtyle very ſhort; ſtigma orbicular. *Peric.* Capſule nearly globoſe, with two longitudinal furrows, membranous, not burſting, of two cells, the partition oppoſite to the furrows. *Seeds* numerous, minute, obovate. *Receptacle* rather compreſſed, in the middle of the partition.

Eſſ. Ch. Calyx bell-ſhaped; its border in twelve ſegments. Petals ſix, inſerted into the calyx. Capſule ſuperior, of two cells, not burſting.

1. P. *Portula*. Common Water-Purſlane. Linn. Sp. Pl. 474. Curt. Lond. faſc. 4. t. 27. Engl. Bot. t. 1211. Fl. Dan. t. 64.—Flowers axillary, ſolitary. Leaves ſtalked.—Native of watery places, in various parts of Europe; common in England, flowering in July and Auguſt. The modern Greeks call it ἀνδρακλέιδα, or ανδράχνη, and eat it in ſallads, or in ſoups. The *root* is annual. *Herb* ſmooth, pellucid and ſomewhat ſucculent. *Stems* proſtrate, or floating, weak, ſimple, leafy. *Leaves* oppoſite, ſtalked, obovate, obtuſe, entire, a quarter or half an inch long. *Flowers* axillary, ſolitary, ſeſſile, ſmall, reddiſh. *Petals* ſugacious, and often wanting. *Capſule* pellucid.

Willdenow ſays the *P. tetrandra* of Linnæus is a *Hedyotis*, of which indeed it has all the appearance. He adds, in its ſtead, the following new ſpecies, for the genus of which we muſt depend on him, not having ſeen the plant ourſelves.

2. P. *indica*. Willd. n. 2.—Flowers ſpiked, bracteated. Leaves ſeſſile.—Native of the Eaſt Indies. "*Stem* aſcending, ſquare, ſmooth, ſix inches or more in height. *Leaves* oppoſite, oblong-obovate, abrupt, entire, veiny, ſmooth. *Spikes* axillary, ſimple, longer than the leaves. *Flowers* ſeſſile, oppoſite, each accompanied by a lanceolate *bractea*, twice its own length. *Calyx* with only eight teeth. *Petals* wanting. *Stamens* four." *Willd.*

PEPLIUM, a name given by the ancient Greek writers to a ſhrub which had pinnated leaves and papilionaceous flowers. It is tranſlated by many *ſena*; but this does not appear certainly to be right: the ſeveral ſpecies of *colutea* agree as well with this deſcription as the *ſena*, and they have indeed been called *ſena* by many; probably it was one of theſe.

PEPLOUD, in *Geography*, a town of Hindooſtan, in the Candeiſh country; 80 miles S. of Indore. N. lat. 21° 42′. E. long. 76° 45′.

PEPLUS, ϖεπλος, among the ancients, a kind of garment worn by women.

The peplus was a long robe that reached to the feet, without any ſleeves, and ſo exceeding fine, that the ſhape of the body could eaſily be diſcovered through it.

The peplus of Minerva is very famous among ancient mythologiſts. The Athenians uſed a great deal of ceremony in making the peplus, and dreſſing the ſtatue of the goddeſs with it.

The peplus was worked over with gold, on which were repreſented the combats and grand achievements of Minerva, Jupiter, and the Hermes. On the feaſt of the *Panathenæa*, (which ſee,) this was carried about in proceſſion, formed of perſons of all ſexes, ages, and ranks; the young bringing up the rear, and the aged bearing an olive branch in their hands, the young virgins baſkets, and the blooming boys crowned with millets, and ſinging hymns known by the name of "Pæans," while thoſe who were called "Rhapſodiſts" recited verſes of Homer. The proceſſion advanced from the Ceramicus to the temple of Ceres Eleuſina. The peplus was faſtened to a barge, which was moved along by machinery.

Peplus, in *Botany*, πεπλος of Dioſcorides, appears by his deſcription to be ſome kind of Spurge, or *Euphorbia*. Linnæus believed it the common European weed, which he denominated, for that reaſon, *E. Peplus*. Dr. Sibthorp was induced to think the *E. falcata* of Linnæus was rather the plant of Dioſcorides; not only "becauſe it is frequent in vineyards and other cultivated ground, in Greece and the Greek iſlands; but becauſe the procumbent mode of growth of this ſpecies, and the thick buſh it forms, anſwer much better to the deſcription of that ancient author, than the more upright growth of *E. Peplus*."

PEPO, a Gourd or Pumpkin. See Cucurbita.

Pepo, in *Vegetable Phyſiology*, is adopted, as a technical term, by Gærtner and Willdenow, for a particular kind of ſucculent fruit, exemplified in the natural order of *Cucurbitaceæ*, in which the ſeeds are attached to the inner ſurface of the rind. This ſort of fruit differs, in different plants, with reſpect to the thickneſs or hardneſs of the rind, and the more or leſs pulpy nature of the internal ſubſtance, as well as the number of cells into which that ſubſtance, at an early period, is uſually divided. The writer of this article, as well as Gærtner, conſiders the *Pepo* as no other than one of the numerous forms of a *Bacca*, the inſertion of the ſeeds differing in no reſpect from thoſe of a Gooſeberry. Willdenow alone has deſcribed it as a diſtinct kind of fruit, ranging after the *Pomum*, or Apple, with which laſt Linnæus has, very unaccountably, confounded it, in his generic deſcriptions of *Trichoſanthes*, *Momordica*, *Cucurbita*, and *Cucumis*.

PEPPER, or *Lizard's Tail*, in *Botany*. See Piper.

Pepper, *Black*, *Piper nigrum*, is an aromatic fruit, obtained from a ſpecies of piper, which grows ſpontaneouſly in the Eaſt Indies, but does not arrive at perfection without the aid of culture. It is cultivated with ſuch ſucceſs at Malacca, Java, and eſpecially at Sumatra, that from theſe iſlands pepper is exported to every part of the world, where a regular commerce has been eſtabliſhed. According to Mr. Marſden, (Hiſt. of Sumatra,) the ground choſen by the Sumatrans for a pepper garden, is marked out into regular ſquares of ſix feet, the intended diſtance of the plants, of which there are uſually a thouſand in each garden. The next buſineſs is to plant the chinkareens, which ſerve as props to the pepper vines, and are cuttings of a tree of that name, which is of quick growth. When the chinkareen has been ſome months planted, the moſt promiſing perpendicular ſhoot is reſerved for growth, and the others lopped off; this ſhoot, after it has acquired two fathoms in height, is deemed ſufficiently high, and its top is cut off. Two pepper vines are uſually planted to one chinkareen, round which the vines twiſt for ſupport; and after being ſuffered to grow three years (by which time they acquire eight or twelve feet in height) they are cut off about three feet from the ground, and being looſened from the prop, are bent into the earth in ſuch a manner that the upper end is returned to the root. This operation gives freſh vigour to the plants, and they bear fruit plentifully the enſuing ſeaſon. The fruit, which is produced in long ſpikes, is four or five months in coming to maturity: the berries are at firſt green, turn to a bright red when ripe and in perfection, and ſoon fall off if not gathered in proper time. As the whole cluſter does not ripen at the ſame time, part of the berries would be loſt in waiting for the latter ones; the Sumatrans therefore pluck the bunches as ſoon as any of the berries ripen, and ſpread them to dry upon mats, or upon the ground. By drying they become black, and more or leſs ſhrivelled, according to their degree of maturity. Theſe are imported here under the name of *black pepper*.

Pepper is alſo cultivated to a conſiderable extent in India. Dr. Roxburgh began the cultivation of black pepper in the circars in 1787; uſing for prop trees the Moochy woodtree, or Erythrina corallodendron. One thouſand plants yield from 500lbs. to 1000lbs. of pepper.

Pepper, *White*, *Piper album*, is the fruit of the ſame plant with the black, though ſome have erroneouſly thought it to be a different ſpecies. Accordingly it has been ſold at the ſales of the Eaſt India company, who have the monopoly of the Sumatran pepper trade, for treble the price of the black. Whereas white pepper is the ripe and perfect berries of the ſame ſpecies ſtripped of their outer coats. For this purpoſe the berries are ſteeped for about a fortnight in water, till by ſwelling their outer coverings burſt; after which they are eaſily ſeparated, and the pepper is carefully dried by expoſure to the ſun. Or, the berries are freed from their outer coats by means of a preparation of lime and muſtard oil, called "Chinam," applied before it is dried. Pepper which has fallen to the ground over-ripe loſes its outer coat, and is ſold as an inferior ſort of white pepper.

Of theſe pungent hot ſpices the black ſort is the hotteſt and ſtrongeſt, and moſt commonly made uſe of for medicinal as well as culinary purpoſes. Its virtues are entirely extracted by ether and alcohol, and partially by water. The aqueous infuſion has a brown colour, and reddens vegetable blues; and the decoction of the ground pepper forms a precipitate with infuſion of galls, which diſſolves again when the fluid is heated to 1[illegible]0. When the alcoholic infuſion is diſtilled, a green, reſinous, oily matter is left, which appears to be the ſource of the odour and taſte of the pepper. Its principal conſtituents are ſuppoſed to be ſtarch, the above oily matter, and extractive. Ether digeſted on powdered pepper takes up three parts in ten; and when evaporated on water, depoſits an intenſely hot, biting, yellowiſh reſin, with the odour of the pepper, and an almoſt inſipid extractive matter. It has been ſaid, that theſe ſpices differ from moſt others in this, that their pungency reſides not in the volatile parts, or eſſential oil, but in a ſubſtance of a more fixed kind, which does not riſe in the heat of boiling water; and that this fixed ſubſtance is probably the reſinous part; the aromatic odorous matter ſeeming to depend upon the eſſential oil. The diſtilled oil has a ſtrong ſmell of the pepper, with little acrimony; the remaining decoction, inſpiſſated, yields an extract of conſiderable pungency. The quantity of extract from both kinds of pepper is nearly the ſame; that by rectified ſpirit amounting to about one-eighth, and the watery to nearly one-half their weight; but thoſe of the white are weaker than the other ſort. A tincture made in rectified ſpirit is extremely hot and fiery; a few drops of it ſet the mouth, as it were, in a flame.

Black pepper is ſtimulant and carminative: its uſe as a condiment is well known, and though, in general, it is not hurtful, but is uſeful to thoſe whoſe digeſtion is weak, yet, even in ſmall quantities, it proves injurious, where the inflammatory diatheſis is preſent, and to thoſe who are ſubject to piles. Some have ſuppoſed pepper to be leſs heating to the ſyſtem than other aromatics; and Gaubius aſſerts that, when taken in large quantities, he never found it to warm his ſtomach, nor to increaſe the frequency of his pulſe. Whereas Dr. Cullen affirms, that when he took this ſpice, even in a ſmall quantity, it felt warm in his ſtomach, and heated his whole body; and he ſuppoſes, that Gaubius did not feel its effects from the frequent uſe of it. As a medicine, pepper is ſometimes found ſerviceable in checking nauſea and vomiting, and removing hiccough. It has been alſo ſucceſsfully employed in ſome caſes of vertigo, and in paralytic and arthritic diſorders. In large doſes it has been found a remedy for intermittents; but ſuch uſe of it has, in ſome inſtances, produced fatal conſequences. The watery infuſion forms an uſeful gargle in relaxation of the uvula. The doſe of black pepper may be from x gr. to ℈j. The officinal preparations are the "Emplaſtrum meloes veſicatorii compoſitum" of Edinb., and the "Unguentum piperis nigri" of Dubl. Woodville. Thomſon.

Pepper that is ſold ground is very apt to be ſophiſticated; the black with burnt cruſt of bread, &c., and the white with beaten rice.

Pepper, *Long*, *Piper longum*, is thus denominated from its form, which is cylindrical, and about an inch and a half in length; it conſiſts of an aſſemblage of grains, or ſeeds, joined cloſe to one another, of a browniſh colour, bordering without on red, and within on black; and grows by a long pedicle to a plant, like that of the black pepper, and of the ſame genus, but lower, and its leaves ſmaller and greener. It is a native of the Eaſt Indies, eſpecially Java, Malabar, and Bengal. The berries, or grains, are very ſmall, and lodged in a pulpy matter; like thoſe of the black pepper, they are firſt green, and become red when ripe. This fruit is hotteſt to the taſte in its immature ſtate, and is therefore gathered while green, and dried by the heat of the ſun, when it changes to a blackiſh or dark grey colour. Dr. Cullen obſerves, that long pepper has preciſely the ſame qualities with thoſe of black, but in a weaker degree; and Bergius ſays that black pepper is hotter than this ſpecies, whereas the contrary is the fact, and is aſſerted both by Lewis and Murray. Its conſtituent parts appear to be ſimilar to thoſe of black pepper. Ether digeſted on powdered long pepper takes up $2\frac{1}{2}$ parts in 10, and when evaporated on water depoſits a reſin leſs hot than that of black pepper, but more permanent; and a ſmaller proportion of extractive. Its officinal preparations are "Confectio opii" Lond., "Pulvis cinnamomia comp." L. D., "Pulvis cretæ comp." L., and "Tinctura cinnamomi compoſita," L.E.D. Woodville. Thomſon.

Some have mentioned three kinds of this pepper, that of the Eaſt Indies, that of America, and that of Ethiopia, called alſo grain of Zelim; though the firſt alone is the proper long pepper, the reſt reſembling it but little.

Pepper, *Barbary*, *Bell*, *Bird*, *Bonnet*, and *Cayenne*. See Capsicum.

Pepper, *Guinea*, *piper Indicum*, obtained from a ſpecies of the capſicum, is a reddiſh pod, of a coral colour, much eſteemed by the Americans, from among whom it is brought, and by them called *chile*, and by the French, *garden coral*. See Capsicum.

Under the article Capsicum we have mentioned the dietetic and medicinal uſe of the fruit of the capſicum, or of Cayenne pepper. We ſhall here add ſome other particulars. It has been found beneficial in lethargic affections; in dropſies, and other cachectic complaints, when chalybeates are indicated, a ſmall portion of powdered capſicum is recommended as an excellent addition by Dr. Wright; and in the diſeaſes cynanche maligna, and ſcarlatina maligna, it has been found highly uſeful, both given internally, and uſed as a gargle. Cataplaſms of capſicum operate as a powerful rubefacient without bliſtering the ſkin, and are uſed in the Weſt Indies to relieve the coma and delirium, which almoſt conſtantly attend tropical fevers. The diluted juice of the fruit is ſaid to be a ſovereign remedy in ophthalmia from relaxation. Capſicum may be given in the form of pills in doſes from grs. vj to grs. x; or fʒj to fʒij, in a glaſs of water, of a tincture made with ʒiv of capſicum and f℥viij of alcohol. The gargle uſually employed is made by beating into a paſte ℥j of Cayenne pepper and ℈j of common ſalt; then adding f℥vj of boiling water; and to the ſolution, ſtrained when cold, fʒiv of vinegar. But a ſimple infuſion in the proportion of gr. j of the pepper to f℥j of boiling water, anſwers equally well. Thomſon.

PEPPER, *Jamaica*, called by the Dutch *amomi*, by the Spaniards *pimienta de Jamaica*, is the fruit of a tree, the *myrtus foliis alternis* of Linnæus, growing plentifully in Jamaica, and other American iſlands.

It is a real aromatic, and may ſupply the defect of cloves, nutmeg, and cinnamon; whence it is called alſo by the Engliſh, *all-ſpice*. The French call it the *round clove*, from its round ſhape, and its taſte reſembling that ſpice. See MYRTUS and PIMENTA.

PEPPER, *Ciapa*, *pimienta de Ciapa*, a name given by the Spaniards to a ſort of ſpice which they diſcovered in Ciapa, a province of Guatimala, in New Spain, and of which they were at firſt very fond, both in food and medicine.

In medicine it is a very good cephalic and ſtomachic. It is recommended very ſtrongly alſo by ſome of the Spaniſh writers, as a cure for the epilepſy and gutta ſerena; but thoſe who tried it in theſe caſes do not confirm ſuch accounts.

The deſcriptions we have of it are, that it has the taſte of cloves, pepper, cinnamon, and ginger, all blended together; and Redi is of opinion, that it is no other than our pimenta, or Jamaica pepper.

PEPPER, *Indian*. See *Guinea* PEPPER and CAPSICUM.

PEPPER, *Poor man's*, a name ſometimes given to the *dittander*, or *lepidium*; which ſee.

PEPPER, *Wall*, a name ſometimes given to a ſpecies of ſedum, or leſſer houſe-leek. See SEDUM.

PEPPER, *Water*, a ſpecies of *polygonum*; which ſee. Miller and others make it a ſpecies of the *perſicaria*; which ſee.

PEPPER-*graſs*. See PILULARIA.

PEPPER-*mint*, the name of a ſpecies of mint. See MENTHA.

PEPPER-*wort*, a name by which ſome call the *lepidium*; which ſee.

PEPPER-*bird*, in *Ornithology*, the Engliſh name of the rhamphaſtos with a yellow rump, otherwiſe called *toucan*.

PEPPER-*muſhroom*, in *Botany*, a name given by Dr. Liſter to a new ſpecies of fungus, diſcovered by him in the woods of Yorkſhire, whoſe juice is acrid and hot as pepper. This is ſomewhat larger than the common eſculent muſhroom, but of the ſame ſhape with that, having a round head and open gills underneath. The head is very fleſhy, and the pedicle alſo is ſolid, not hollow, as in moſt other of the large funguſes: any part of this muſhroom being cut or broken, it bleeds very freely a white milky juice, like that of the tithymals. This juice taſtes like pepper, only that it is much hotter. It is not viſcous or clammy to the touch, and the air does not much diſcolour it; nor does it render the blade of the knife, with which it is cut, black, as moſt other vegetable juices do. When let out of the plant it very ſoon concretes into a firm and dry maſs, making a ſort of cake; and when thus dried into a ſolid ſubſtance, it retains its white colour and pungent taſte. It is very remarkable, that this muſhroom, though ſo hot to our tongues as not to be endured, yet is ſo well ſuited to the palates and nature of certain inſects, that they can not only feed on it, but live comfortably in the midſt of it. The yellow naked ſnail feeds greedily on the plant while growing, and the ſtalks of it at ſuch times as the juice is ſharpeſt of all, that is, while it is growing to the full ſize, are full of the maggots and worms hatched from the eggs of flies, depoſited there for a nidus and food for them in that ſtate. The juice has a great affinity with euphorbium, and may be brought into medicinal uſe, perhaps, to very good purpoſe.

John Bauhine deſcribes a muſhroom much reſembling this, but ſmaller and leſs fleſhy; and the Pruſſians and Polanders have a ſort of great muſhroon, which they call *groozdiſhys*, which agrees with this in many particulars; but it is larger and thicker. Phil. Tranſ. N° 89.

PEPPER-*water*, a liquor prepared by the curious for examination by the microſcope, as always affording a great number of ſmall animals.

The method of preparing it is this: put common black pepper, groſsly powdered, into an open veſſel, ſo as to cover the bottom of it half an inch thick, and put to it rain or river water, till it covers it an inch; ſhake or ſtir the whole well together, at firſt mixing, but never diſturb it afterwards: let the veſſel be expoſed to the air, uncovered; and in a few days there will be ſeen a pellicle or thin ſkin ſwimming on the ſurface of the liquor, appearing of ſeveral colours.

This is a congeries of multitudes of ſmall animals; and being examined by the microſcope, will be ſeen all in motion: the animals, at firſt ſight, are ſo ſmall as not to be diſtinguiſhable, unleſs to the greateſt magnifiers; but they grow daily till they arrive at their full ſize. Their numbers are alſo continually increaſing, till the whole ſurface of the liquor is full of them, to a conſiderable depth. When diſturbed, they will ſometimes all dart down to the bottom, but they ſoon after come up to the ſurface again. The ſkin appears ſooneſt in warm weather, and the animals grow the quickeſt; but in the ſevereſt cold it will ſucceed, unleſs the water freezes. Baker's Microſcope, p. 71.

About the quantity of a pin's head of this ſcum, taken upon the nib of a new pen, or the tip of a hair-pencil, is to be laid on a plate of clear glaſs; and if firſt applied to the third magnifier, then to a ſecond, and finally to the firſt, will ſhew the different animalcules it contains, of ſeveral kinds and ſhapes, as well as ſizes. Phil. Tranſ. N° 284.

The animalcules diſcoverable in this liquor are principally of ſix kinds. 1. The largeſt kind of all is in length about the diameter of a hair, and ſcarcely a fourth part of that meaſure in breadth; they are very thin and tranſparent, but their back is darker than their belly; they turn about very frequently and nimbly in the water: their ſides are fringed with a great number of minute feet, which are ſeen principally at the two ends; and at one end there are alſo ſome briſtles longer than the feet, which make a ſort of tail. They are very nimble, and walk as well as ſwim, and will climb up a hair, if put in among them.

2. There is a ſmaller ſort, whoſe length is about the third of a hair's breadth; but their tail is five or ſix times as long as their body. This they either carry ſtraight, or in a ſpiral form; and at the other end they thruſt out a ſort of bearded tongue: theſe make a conſtant current of water towards them.

3. There is a ſmaller ſort than theſe, which are ſometimes ſeen of an oval figure, and ſometimes long and flat, like a flounder: theſe alſo have feet, which are plainly ſeen when the water is evaporating.

4. A fourth may appear like ſlender worms, fifty times as long as broad: their thickneſs is not above the hundredth part of a hair's breadth; and they move with equal eaſe either forward or backward.

5. There is a fifth ſort extremely minute and round; and
6. A ſixth kind, which are longer than theſe, but not larger; and probably there may be yet many kinds not diſcovered. Theſe ſmall animals are eaſily deſtroyed; a little diſſolved ſalt or ſugar, or ſpirit of vitriol, or even ſpittle, will kill them; and in the drying away of the waters many of them burſt. Phil. Tranſ. N° 203.

PEPPER *Bay*, in *Geography*, a bay on the W. coaſt of the iſland of Java; 30 miles S.S.W. of Bantam. S. lat. 6° 24′. E. long. 105° 40′.

PEPPERBERG, a town of the iſland of Java, on the S. coaſt; 75 miles S. of Batavia.

PEPPERELBOROUGH, a townſhip of America, in York county, and ſtate of Maine, on the N. ſide of Saco river, near the mouth, which ſeparates it from Biddeford to the ſouth. A bank by the name of "Saco Bank" was eſtabliſhed here in 1803; about 12 miles S.W. of Portland. It was incorporated in 1772, and contains 1842 inhabitants.

PEPPERELL, a townſhip of Maſſachuſetts, on the E. branch of Naſhaway river, and on the N. line of Middleſex county; 40 miles N. by W. of Boſton; incorporated in 1753, and containing 1198 inhabitants.

PEPSIQUIACH POINT lies on the northern ſide of Chaleur bay, now called "Paſpibiac Point;" about three leagues W.N.W. of Eaſt Nouvelle. It is a barren plain, nearly a league long, where is carried on a very extenſive fiſhery.

PEPTIC, in *Medicine*. See PEPASTIC.

PEPUNG, in *Geography*, two ſmall iſlands of the Eaſt Indian ſea, near the coaſt of China. N. lat. 23° 22′. E. long. 107°.

PEPUSCH, JOHN CHRISTOPHER, in *Biography*, doctor in muſic, Oxon., a very learned muſician, who was born at Berlin in 1667, and had made ſo great a progreſs in muſic at the age of fourteen, that he was ſent for to court, where he gave ſuch proofs of his abilities that he was appointed to teach the prince, father of the late king of Pruſſia. He remained at Berlin till he was about twenty, when he went into Holland, where he firſt began to publiſh his compoſitions; but after continuing there about a year, he came to England ſoon after the Revolution. His firſt employment in London was playing the tenor in the band at Drury-lane play-houſe; but having convinced the managers that he deſerved a better place, he was advanced to the harpſichord about 1700. In 1707 he had acquired Engliſh ſufficient to adapt Motteaux's tranſlation of the Italian opera of "Thomyris" to airs of Scarlatti and Bononcini, and to new-ſet the recitatives. In 1709 and 1710, ſeveral of his works were advertiſed in the firſt edition of the Tatlers, particularly a ſet of ſonatas for a flute and baſe, and his firſt book of cantatas. In 1713 he obtained, at the ſame time as Crofts, the degree of doctor of muſic at the univerſity of Oxford. And ſoon after this, upon the eſtabliſhment of a choral chapel at Cannons, he was employed by the duke of Chandos as maeſtro di capella; in which capacity he compoſed anthems and morning and evening ſervices, which are ſtill preſerved in the Academy of Ancient Muſic. In 1715 he compoſed the maſque of "Venus and Adonis," written by Cibber; and in 1716 "The Death of Dido," by Booth, both for Drury-lane. Theſe pieces, though not very ſucceſsful, were more frequently performed than any of his original dramatic compoſitions. In 1723 he publiſhed an ode for St. Cecilia's day, which he had ſet for the concert in York-buildings. And about the year 1724, Dr. Berkeley, dean of Londonderry, afterwards biſhop of Cloyne, having formed a plan for erecting a college in one of the Summer iſles, or Bermudas, among the ſeveral perſons of diſtinguiſhed abilities whom he had engaged to accompany him thither, fixed on Dr. Pepuſch. But having embarked with his aſſociates for the intended ſettlement, the ſhip was wrecked, and the undertaking fruſtrated.

Being returned to England after this accident, Dr. Pepuſch married Margarita de l'Epine, who had quitted the ſtage, where ſhe had acquired a fortune that was eſtimated at 10,000*l.* Theſe poſſeſſions, however, did not incline the doctor to relax in his muſical ſtudies or purſuits. He had always been a diligent collector of ancient muſic and muſical tracts, and he was now enabled to gratify this paſſion without imprudence. He ſtill continued to compoſe for the play-houſe in Lincolns-Inn-Fields, and had the "Squire of Alſatia" for his benefit there in 1726, "with ſinging by Mrs. Chambers, alſo ſinging in Italian and Engliſh by Mrs. Forſyth, Mrs. Davies, and Mrs. Grimaldi, being the firſt time of their reſpective appearances on the ſtage." Soon after he was very judiciouſly choſen by Gay, to help him to ſelect the tunes for the "Beggar's Opera," for which he compoſed an original overture upon the ſubject of one of the tunes (I'm like a ſkiff), and furniſhed the wild, rude, and often vulgar melodies, with baſes ſo ſimple and excellent, that no judicious contrapuntiſt will ever attempt to alter them for the theatrical purpoſe for which they were originally deſigned. It would be eaſy to multiply notes, and make the baſe more important than the treble, at the expence of the ſinger, the vocal part, and of propriety; and we will venture to ſay that the inſtrument or accompaniment that robs the ſinger of the attention of the audience by being too loud, or too buſy (if the ſinger is worth hearing), is much more deſerving of cenſure than praiſe.

After this period, he compoſed but little, applying himſelf chiefly to the theory of muſic, and explaining the myſteries of compoſition to young profeſſors. He had always been extremely anxious for the proſperity of the Academy of Ancient Muſic, of which he was one of the firſt founders, and continued very active in its ſervice to the time of his death. As a conſequence of his muſical erudition and zeal for the advancement of his art, he publiſhed, in 1731, a correct edition of a ſhort "Treatiſe on Harmony," which the late earl of Abercorn is ſuppoſed to have aſſiſted him in putting into Engliſh. This nobleman had ſo long ſtudied compoſition under Dr. Pepuſch, and ſo frequently converſed with him on the ſubject, that he was ſuppoſed more able to explain his principles in Engliſh than the doctor himſelf. The firſt edition of this ſmall tract appeared without the plates or the conſent of the author. This work contains many elementary rules for compoſition that are practical and uſeful; but it likewiſe contains many prejudices and exploded doctrines, which, to revive, would ſhackle genius and throw the art back into Gothic times.

In 1737 he was appointed organiſt of the Charter-houſe, which afforded him a tranquil retreat well ſuited to his time of life and love of ſtudy; and he was viſited and conſulted as an oracle, not only by young muſical ſtudents, to whom he was always kind and communicative, but by every maſter who modeſtly ſuppoſed he had ſtill ſomething to learn. Here he greatly augmented his library, which conſiſted of muſical curioſities, theoretical and practical, of all kinds.

In 1739 he loſt a ſon, his only child, upon whoſe genius and diſpoſition there was every reaſon to found the greateſt expectations; and in 1740 Mrs Pepuſch died; after which, his time ſeems to have been chiefly devoted to the ſtudy of the genera and ſyſtems of the ancient Greek muſic, concerning which he preſented a paper to the Royal Society in

1746, N° 481, and Martin's Abridg. vol. x. and was ſoon after elected a member of that learned body.

From this period till the year 1752, when he died at the age of eighty-five, he perſiſted in the ſtudy of Greek muſic; and having diſpatched the "Genera," was trying to illuſtrate the doctrines and prejudices of Iſaac Voſſius concerning the "Rhythmus" of the ancients, but left no papers behind him on the ſubject, that were either uſeful or intelligible to thoſe who had the poſſeſſion of them after his deceaſe.

This profound muſician was buried in the chapel of the Charter-houſe, where a tablet was placed, and inſcribed to his memory, by his friends and aſſociates of the Academy of Ancient Muſic.

As a practical muſician, though ſo excellent a harmoniſt, he was poſſeſſed of ſo little invention, that few of his compoſitions were ever in general uſe and favour, except one of his twelve cantatas, "Alexis," and his airs for two flutes or violins, conſiſting of ſimple eaſy themes or grounds with variations, each part echoing the other in common diviſions for the improvement of the hand. Indeed, though only one cantata of the two books he publiſhed was ever much noticed, there is conſiderable harmonical merit in them all; the recitatives are in general good, and the counterpoint perfectly correct and maſterly. The fifth cantata of the ſecond book ſeems much ſuperior to the reſt: the firſt air would admit of modern taſte and expreſſion, the harmony is rich, and the parts are well arranged; and the ſecond air, with a trumpet accompaniment, is ſpirited, and if ſung by a powerful and cultivated voice, would have a good effect. But theſe cantatas are by no means in the ſtyle of Aleſ. Scarlatti, as has been ſuggeſted; they rather reſemble the cantatas of Gaſparini, whoſe melodies were ſimple and modulation timid, than the original cantilena and extraneous modulation of Scarlatti. Among all the publications of Pepuſch, the moſt uſeful to muſical ſtudents was, perhaps, his correct edition of Corelli's ſonatas and concertos in ſcore, publiſhed in 1732.

He treated all other muſic in which there was fancy or invention with ſovereign contempt. Nor is it true, as has been aſſerted, that "he readily acquieſced in Handel's ſuperior merit." Handel deſpiſed the pedantry of Pepuſch, and Pepuſch, in return, conſtantly refuſed to join in the general chorus of Handel's praiſe.

The ſole ambition of Pepuſch, during the laſt years of his life, ſeems to have been the obtaining the reputation of a profound theoriſt, perfectly ſkilled in the muſic of the ancients; and attaching himſelf to the mathematician De Moivre and Geo. Lewis Scot, who helped him to calculate ratios, and to conſtrue the Greek writers on muſic, he bewildered himſelf and ſome of his ſcholars with the Greek genera, ſcales, diagrams, geometrical, arithmetical, and harmonical proportions, ſurd quantities, apotomes, lemmas, and every thing concerning ancient harmonics, that was dark, unintelligible, and foreign to common and uſeful practice. But with all his pedantry and ideal admiration of the muſic of the ancients, he certainly had read more books on the theory of modern muſic, and examined more curious compoſitions, than any of the muſicians of his time; and though totally devoid of fancy and invention, he was able to correct the productions of his contemporaries, and to aſſign reaſons for whatever had been done by the greateſt maſters who preceded him. But when he is called the moſt learned muſician of his time, it ſhould be ſaid, in the muſic of the 16th century. Indeed, he had at laſt ſuch a partiality for muſical myſteries, and a ſpirit ſo truly antiquarian, that he allowed no compoſition to be muſic but what was old and obſcure. Yet, though he fettered the genius of his ſcholars by antiquated rules, he knew the mechanical laws of harmony ſo well, that in glancing his eye over a ſcore, he could by a ſtroke of his pen ſmooth the wildeſt and moſt incoherent notes into melody, and make them ſubmiſſive to harmony; inſtantly ſeeing the ſuperfluous or deficient notes, and ſuggeſting a baſe from which there was no appeal.

His admirable library, the moſt curious and complete in ſcarce muſical authors, theoretical and practical, was diſperſed after his death. He bequeathed a conſiderable part of his beſt books and manuſcripts to Kelner, an old German friend, who played the double-baſe in the theatres and concerts of the time; ſome to Travers, and theſe and the reſt were at laſt ſold, diſperſed, and embezzled, in a manner difficult to deſcribe or underſtand. For an analyſis of Dr. Pepuſch's "Treatiſe on Harmony," ſee COUNTERPOINT.

There never was a great man in any art or ſcience who had not his opponents: and there have always been two opinions concerning the merit of Pepuſch. He was reſpected and revered by the excluſive lovers of old muſic, and ſtudents in harmony, for his profound erudition and knowledge in harmony; while the admirers of Handel, and of modern Italian compoſition, regarded him as a pedant totally devoid of genius. It ſeemed, therefore, but juſt and equitable, after the deceaſe of his friends and his foes, to point out, with the utmoſt truth and candour, the real merit and deficiencies in this little valuable work.

PEPUZA, in *Ancient Geography*, a town of Aſia, in Phrygia Pacatiana.

PEPUZIANS, in *Eccleſiaſtical Hiſtory*, a ſect of ancient heretics; otherwiſe called Phrygians, or Cataphrygians.

They had their name Pepuzians, from a pretence that Jeſus Chriſt appeared to one of their propheteſſes in the city of Pepuza in Phrygia, which was their holy city. See QUINTILIANS.

PEPYLYCHNUS, in *Ancient Geography*, a river which bounded Macedonia.

PEPYS's ISLANDS, in *Geography*. See FALKLAND *Iſlands*.

PEQUANACK, a townſhip of America, in Morris county, New Jerſey, ſeparated from Bergen county N. by Pegunnock river.

PEQUANNOCK *Point* or *River*. The *river* is a ſmall ſtream which runs S. through the towns of Huntington and Stratford in Fairfield county, Connecticut, and diſcharges itſelf into a bay in the ſound, where veſſels may anchor. The *point* forms the weſtern extremity of the bay, near which are ſome rocks; 5 miles S.W. of Stratford river.

PEQUEA CREEK, a river of Pennſylvania, which runs into the Suſquehannah, N. lat. 39° 54′. W. long. 76° 22′.

PEQUESIGEHAUGEM, or BEAR *Lake*, the ſource of a river of the ſame name, which is the north-eaſterly branch of Maggakadawa river: it is of an irregular form, about three miles long, and two wide.

PEQUEST CREEK, a river of New Jerſey, which runs into the Delaware, N. lat. 40° 47′. W. long. 75° 10′.

PER, a Latin prepoſition often uſed before the two words *Arſis* and *Theſis*. *Per theſin* means, in beating time, the firſt note or portion of a bar, when the hand or foot is beaten *down*. *Per arſin* implies the ſecond or fourth portion of a bar, when the hand or foot is lifted *up*. It is alſo ſaid of a melody, counterpoint, or fugue, &c. that the notes move *per theſin*, when they deſcend from the acute to the grave; and that their motion is *per arſin*, when, on the contrary, the notes mount from the grave to the acute.

Per is alſo an Italian prepoſition which has many acceptations in the muſical compoſitions of Italy.

1. Before the name of authors, when it is meant to ſignify *by* in Engliſh; but this is bad Italian.

2. It is conſtantly found in tables of contents to motets, indicating the occaſion, the ſubject, and day of feſtivals, on which it was intended to be ſung: and then it means *for*. *Per la Beata Virgine*, or the initials B. M. Y. for, or in honour of, the bleſſed Virgin. *Per li*, or *gli defunti*; for the dead, &c.

3. *Per* alſo often ſignifies A, or *per diritto*, ſtraight on. *Per roveſcio*, by inverſion, &c.

Per *Accidens*. See Accidens.

PERA, in *Botany*. See Perula.

Pera, in *Ancient Geography*, a place near mount Hymettus in Attica; where was a temple of Venus, with a fountain, which procured a happy delivery for the females who drank of it, according to the relation of Suidas.

Pera, in *Geography*, a ſuburb of Conſtantinople, in which the ambaſſadors, the agents of foreign courts, and almoſt all foreigners reſide, with the exception of the merchants who are eſtabliſhed at Galata, another ſuburb, being that nearer to the harbour, and more conveniently ſituated for their commercial affairs. Pera is one of the moſt populous quarters of the city, notwithſtanding its diſtance from the port and the centre of buſineſs; and the lodgings are extremely dear, ſince the rich Armenians came to ſettle there, in order to be leſs expoſed to exactions and the inſults of the Turks, and to enjoy a little more liberty under the protection of the Europeans. See Constantinople.

Pera, a town of Portugal, in Algarva; 8 miles E. of Villa Nova de Portimao.—Alſo, a ſea-port and capital of a kingdom, on the W. coaſt of Malacca, on a river of the ſame name; 170 miles N.W. of Malacca. N. lat. 4° 23′. E. long. 101° 15′.

Pera, or *Pulo Pera*, a ſmall iſland in the Eaſt Indian ſea, at the entrance of the ſtraits of Malacca. N. lat. 5° 54′. E. long. 98° 36′.

PERACUTUM Menstruum. See Menstruum.

PERÆA, in *Ancient Geography*, a province of Aſia Minor, which commenced on the frontiers of the Doride, towards mount Phœnix, N.E. of the iſle of Rhodes, and terminated at Dædala. The firſt writer who mentions this province is Polybius. It was for a long time ſubject to the Rhodians, and a town called Cryaſſus was ſituated in it. —Alſo, a country on the other ſide of Jordan, which was one of the diviſions of Paleſtina. According to Joſephus, in his "Wars of the Jews," Peræa had for its limits on the E. Rabba or Philadelphia, on the W. the Jordan, on the S. Macherontes, and on the N. Pella.—Alſo, a ſmall country of Aſia, on the banks of the Tigris.—Alſo, a canton of Greece, in the territory of Corinth, the inhabitants of which were called "Peræi."

PERÆQUATORES, among the Romans, aſſeſſors appointed to regulate the cenſus according to every man's circumſtances, by eaſing thoſe that were overcharged, and raiſing the taxation if too low.

PERÆTHUS, in *Ancient Geography*, a town of the Peloponneſus, in Arcadia. Pauſanias ſays, that among the ruins of this town, there was viſible a temple of the god Pan.

PERAFTA, in *Geography*, a town of Spain, in Catalonia; 10 miles N.N.W. of Vique.

PERALADA, a town of Spain, in Catalonia; 22 miles N.N.E. of Gerona.

PERALES, a town of Portugal, on the left bank of the Tagus, oppoſite to Abrantes.

PERALTA, a town of Spain, in Navarre, celebrated for its wine; ſeven miles S.S.W. of Olite.

PERAM, a ſmall iſland in the gulf of Cambay. N. lat. 21° 30′. E. long. 72° 3′.

PERAMA, in *Botany*. See Mattuschkæa.

PERAMBULATION *of the Foreſt*, the ſurveying, or walking about a foreſt, or the limits of it, by juſtices or other officers appointed for this purpoſe, to ſet down the metes and bounds thereof, and what is within the foreſt, and what without.

Perambulation *of Pariſhes* is annually performed in order to preſerve thoſe bounds of pariſhes, which have been long ſettled by cuſtom; and becauſe theſe perambulations were performed in the rogation week, the rogation days were anciently called *gange*-days, from the Saxon *gan*, or *gangen*, *to go*.

In the perambulation of a pariſh, no refreſhments can be claimed by the pariſhioners, as due of right from any houſes or lands in virtue of cuſtom.

Theſe perambulations were, in the times of popery, accompanied with great abuſes, *viz.* with feaſtings and ſuperſtition; being performed in the nature of proceſſions, with banners, hand-bells, lights, ſtaying at croſſes, and the like; and, therefore, when proceſſions were forbidden, in the reign of queen Elizabeth, it was required, that, for the retaining of the perambulations of the circuits of pariſhes, the people ſhould, once a-year, at the uſual time, with the curate and the ſubſtantial men of the pariſh, walk about the pariſhes, and at their return to church make their common prayers, &c.

PERAMBULATIONE Faciendo, is a writ commanding the ſheriff to make perambulation, and ſet down the bounds of two or more manors, whoſe limits are not ſo well known.

The writ de perambulatione facienda is only iſſued, where the lords of both manors agree to have ſuch perambulation. If one of them refuſe, the other muſt ſeek his remedy by a writ de rationabilibus diviſis.

PERAMBULATOR, in *Surveying*, an inſtrument for the meaſuring of diſtances; called alſo *pedometer*, *way-wiſer*, and *ſurveying-wheel*.

Its advantages are its handineſs and expedition: its contrivance is ſuch, that it may be fitted to the wheel of a coach; in which ſtate it performs its office, and meaſures the road without any trouble at all.

There is ſome difference in its make; that now moſt uſual, and moſt convenient, is as follows.

Perambulator, or *Way-wiſer*, *conſtruction of the*. The perambulator (repreſented *Plate* VI. *Surveying*, *fig.* 9.) conſiſts of a wheel two feet ſeven inches and a half in diameter; conſequently half a pole, or eight feet and three inches in circumference. On one end of the axis is a nut, three quarters of an inch in diameter, divided into eight teeth, which, upon moving the wheel round, fall into the eight teeth of another nut *c*, fixed on one end of an iron rod Q, and thus turn the rod once round, in the time the wheel makes one revolution. This rod lying along a groove, in the ſide of a carriage of the inſtrument, has at its other end a ſquare hole, into which fits the end *b* of the little cylinder P. This cylinder is diſpoſed under the dial-plate of a movement, at the end of the carriage B, in ſuch manner as to be moveable about its axis. Its end *a* is cut into a perpetual ſcrew; which falling into the thirty-two teeth of a wheel perpendicular to it, upon driving the inſtrument forward, that wheel makes a revolution, each ſixteen poles. On the axis of this wheel is a pinion with ſix teeth, which, falling into the teeth of another wheel of ſixty teeth, carries it round every hundred and ſixtieth pole, or half a mile.

This laſt wheel then carrying a hand or index round with it, over the diviſions of the dial-plate, whoſe outer limb is divided into one hundred and ſixty parts, correſponding to the one hundred and ſixty poles, points out the number of poles paſſed over. Again, on the axis of this laſt wheel is a pinion containing twenty teeth, which, falling into the teeth of a third wheel, that has forty teeth, drives it once round in three hundred and twenty poles, or a mile. On the axis of this wheel is a pinion of twelve teeth, which, falling into the teeth of a fourth wheel, that has ſeventy-two teeth, drives it once round in twelve miles.

This fourth wheel carrying another index over the inner limb of the dial-plate, divided into twelve, for miles, and each mile ſubdivided into halves, quarters, and furlongs, ſerves to regiſter the revolutions of the other hand, and to keep account of the half-miles and miles paſſed over, as far as twelve miles.

Perambulator, or *Way-wiſer, uſe of the.* The application of this inſtrument is obvious from its conſtruction. Its proper office is in the ſurveying of roads, and large diſtances, where a great deal of expedition, and not much accuracy, is required. It is evident, that driving it along, and obſerving the hands, has the ſame effect as dragging the chain, and taking account of the chains and links. See Chain.

Long diſtances, ſays major Rennell, may be accurately meaſured by a perambulator; and he ſays, that during the Bengal ſurvey, he meaſured a meridian line of three degrees with this inſtrument; and found it to agree minutely with the obſervations of latitude. An allowance, however, was made for the irregularities of the ground, whenever they occurred.

PERAMES, in *Geography*, a town of America, in Bergen county, New Jerſey, lying on the point of land formed by the branches of Saddle river, a N. branch of the Paſſaik; about 18 miles N. of Bergen.

PERAMI, a town of the iſland of Cuba; 25 miles S.E. of Villa del Principe.

PERANEMA, in *Ichthyology*, the name of a Braſilian fiſh, of the ſize of the pearch, being ten or eleven fingers in length, and about three fingers broad in the broadeſt part.

Its mouth is large and round, and has no teeth, but ſeveral very rough and ſharp prominences; its eyes are large, and it has one long fin running down the back, which is ſupported by rigid and prickly rays; its tail is not forked; its whole body is a ſilvery white, with a faint bluſh of red; its ſcales are extremely ſmall, and of a triangular figure, and its belly is very white: it is a ſea-fiſh, and is wholeſome and well-taſted.

PERANITES, the name of a ſtone mentioned with many idle ſtories of its origin, by the writers of the middle ages.

It ſeems originally to have been only a corruption of the word *peantides*, a name by which the ancients ſeem to have called our *ſtalactites* or *dropſtone*.

PERARALO, in *Geography*, a town of Italy, in the Cadorin; two miles S. of Cadora.

PERAROOR, a town of Hindooſtan, in the Carnatic; 10 miles S. of Tiagar.

PER ARSIN, and Thesin, in *Muſic*. See Per, &c.

PERASEMAJOKI, in *Geography*, a town of Sweden, in the province of Waſa; 50 miles E.N.E. of Chriſtineſtadt.

PERASHACOTTA, a town of Hindooſtan; 13 miles W.N.W. of Coimbetore.

PERASTA, a town of Albania, on the Cattaro.—Alſo, a town of European Turkey, in Romania, on the coaſt of the ſea of Marmora; 12 miles N.E. of Gallipoli.

PERASTORFF, a town of Auſtria; five miles S.S.W. of Ips.

PERAY, St., a town of France, in the department of the Ardêche, and chief place of a canton, in the diſtrict of Tournon. The place contains 1652, and the canton 7492 inhabitants, on a territory of 165 kiliometres, in 10 communes.

PERBIGA, a town of Hindooſtan, in Bahar; 45 miles S.S.W. of Patna.

PERBUTPOUR, a town of Hindooſtan, in Allahabad; 40 miles N.E. of Gazypour.

PERCA, *the Perch*, in *Ichthyology*, a genus of fiſhes of the order Thoracici, of which the generic character is, jaws unequal; teeth ſharp, incurved; gill-covers ſcaly, of three laminæ, the upper ſerrate; gill-membrane ſeven rayed; lateral line arched with the back; ſcales hard, rough; fins ſpinous; vent nearer the head than the tail. The name *perca* is of Greek origin, and is derived from the word περκος, which ſignifies variegated with black or duſky ſpots; a character common to moſt of the ſpecies of this fiſh. About ſixty ſpecies are enumerated in Gmelin's laſt edition of Linnæus; theſe are divided into three ſections according as they have one dorſal fin or two.

A. *Dorſal Fins two, diſtinct.*

Species.

* Fluviatilis, or Common Pearch. The ſecond dorſal fin has ſixteen ſoft rays; the eyes are large; the iris blueiſh, edged within with yellow; the noſtrils are double, near the eyes, with four pores before them; the mouth is large; jaws nearly equal; teeth ſmall, in the jaws and on the roof; the tongue is ſmooth and ſhort; aperture of the gills large; dorſal fins violet, the firſt with ſpinous rays and a black ſpot at the end; pectoral reddiſh, the reſt are red; the tail is a little forked. This well-known fiſh meaſures from eight or ten inches to nearly two feet in length. It inhabits the clear ſtreams of Europe and Siberia; the back, and part of the ſides, are of a deep green, with five broad black bars, which are ſometimes dark green or blue, and very rarely wanting; belly white tinged with red; it ſwims with great ſwiftneſs at a certain height in the water. It is tenacious of life, and may be carried ſixty miles in ſtraw, and yet ſurvive the journey; eagerly takes a bait: it feeds on aquatic inſects and ſmaller fiſh, ſpawns in May and June, and is very prolific: it has no real air-bladder. Its fleſh is firm and delicate, and was held in high repute at the table of the ancient Romans. In ſome of the northern countries, a ſort of iſinglaſs is made from the ſkin. It is preyed upon by the pike, eel, &c.

Americanus. Red; ſecond dorſal fin with thirteen rays. It is found in the brackiſh waters of North America; the lower lip, chin, gill-membrane, and upper edge of the covers red.

Lucioperca. Second dorſal fin with twenty-three rays. This ſpecies inhabits the clear waters of Europe and northern Perſia. It grows to four feet long; is very voracious, feeds on other fiſh, even of its own tribe; ſpawns in May, and is extremely prolific; the fleſh is tender and good.

Volgensis. Green-gold; ſecond dorſal fin with twenty-three rays. It is found chiefly in the Volga and neighbouring rivers, and is an intermediate ſpecies between the fluviatilis and the lucioperca.

ASPER. Yellowiſh, with three or four tranſverſe bands; ſecond dorſal fin with thirteen rays. This ſpecies inhabits the clear waters of ſouthern Europe, is from ſix to eight inches long. The body above is blackiſh, but it is whitiſh beneath; it feeds on inſects and worms; the fleſh is delicious.

ZINGEL. Second dorſal fin with nineteen rays; the lower jaw is by much the ſhorter of the two. It is found in the rivers of Germany. It reſembles the laſt, except that it is much larger; the head more pointed; the gape large; the colour leſs duſky, and the tail longer, truncate, and ſomewhat rounded.

* LABRAX; the Baſſe. Second dorſal fin with fourteen rays; the back is duſky, tinged with blue; the belly is white. It inhabits Europe and Egypt. It ſometimes grows to the weight of twelve or fourteen pounds; is ſtrong, active, and voracious; the body is ſhaped like a ſalmon.

ALBURNUS. Dorſal fins unarmed; the gill-membrane is three-rayed; the tail entire. It inhabits Carolina: the body is oblong, with numerous oblique brown bands.

PUSILLA. Body oval, compreſſed, rough. It inhabits the Mediterranean, is only an inch and a half long; the body is of a reddiſh-ſilvery hue, covered with very minute prickles. The head is armed with prickles; the lower jaw a little longer, very rough beneath; the iris is white; the ventral fins with a ſtrong ſpine, and ſerrate on the anterior edge.

LOPHAR. Silvery; ventral fins connected. It inhabits Conſtantinople; it is about the ſize and ſhape of a herring; the back is greeniſh-brown: it is thought by ſome naturaliſts not to be of the perca tribe.

ARABICA. Body ſilvery, with longitudinal black lines; tail with a golden ſpot, and black in the middle. It inhabits Arabia, the body is oblong-lanceolate, truncate, beneath without ſpots or lines; the ſcales are lax, broad, deciduous, denticulate, diſpoſed in ten rows; it has ſixteen or ſeventeen black lines on each ſide.

NILOTICA. Dorſal fins hardly diſtinct; tail entire. It is found in the river Nile, and alſo in the Caſpian ſea.

B. *Dorſal Fins ſingle; Tail undivided.*

Species.

UNDULATA. Dorſal fins ſub-united; body brown, waved, a brown ſpot at the pectoral fins. It inhabits Carolina, and is there called the croker. The anterior gill-covers have five ſhort teeth; the tail is entire.

OCELLATA. Dorſal fins ſub-united; tail with a black ocellate ſpot at the baſe. It inhabits Carolina, and is there called the baſſe. The firſt ray of the dorſal fin very ſhort, the firſt of the ventral is ſhorter and unarmed; the ſpot on the tail is encircled with white.

ARGUS. Silvery-blueiſh, with numerous ocellate brown ſpots. It grows to about a foot in length, and is reckoned a very beautiful fiſh. The ſpots on the body have white centres; thoſe on the head, pectoral and ventral fins, are ſmaller and without white centres.

* MARINA; Sea Pearch. This ſpecies is red, with duſky lines on the ſides; gill-covers with a black ſpot; it has fifteen dorſal ſpines. It is found in many parts of Europe, is about a foot long, and the fleſh is very good. The head is large and deformed; the eyes are large; the teeth are ſmall, numerous, and on the head and gill-covers are ſtrong ſpines.

SCANDENS. The dorſal fin of this ſpecies has ſeventeen ſpinous and eight ſoft rays; the ſcales are rough, with a whitiſh denticulate edge. It inhabits rivulets in Tranquebar; is about four inches long; has the very ſingular habit of crawling up trees, whence it takes its ſpecific name, which it effects by means of the ſpines on the gill-covers, and ſpinous rays of the other fins. It is deſcribed in the Linnæan Tranſactions. The body is covered with a black ſlimy mucus; above it is of duſky-green, lighter on the ſides, and beneath it is of a pale golden colour.

NOBILIS. Body ſilvery, with eight brown bands. It inhabits North America. The ſpinous rays of the dorſal fin are ſilvery at the ſides.

POLYMNA. Body black, with three white bands. It inhabits South America and ſome parts of India. The middle band paſſes through the hind part of the dorſal fin.

MERRA. Body white, with numerous ſub-hexagonal brown ſpots. It inhabits Japan, and is about a foot long. The lower jaw longer; poſterior gill-cover ſpiny, tail rounded.

COTTOIDES. All the fins of the fiſh of this ſpecies are marked with two dotted lines. It is found in India.

PHILADELPHIA. The dorſal fin has a black ſpot in the middle; the ſcales and gill-covers are ciliate. It inhabits South America.

PALPEBROSA. The eyelids of this ſpecies are marked with a brown ſpot; the lateral line is curved. It is a ſmall fiſh, and inhabits America.

ATRARIA. The body of this ſpecies is black, the fins are ſpotted with white. It is found in Carolina.

CHRYSOPTERA. The lower fins are yellow, ſpotted with brown. It inhabits Carolina. The gill-covers are very finely toothed; the lateral line is ſtraight.

MEDITERRANEA. All the fins of this ſpecies, except the dorſal, are tawny; the pectoral is marked with a pectoral black ſpot. It inhabits the Mediterranean. The body is green, with duſky lines parallel with a lateral line on the upper part; thoſe on the lower part are broader, and of a fine blue; about a ſpan long; compreſſed, oblong.

VITTATA. The body with five white and brown tranſverſe lines: there is a variety of this ſpecies, in which the lines are widened into bands; the firſt inhabits America; the ſecond Japan. They are about eight inches long.

GUTTATA. Body ſprinkled with bloody coloured dots. This and the next are natives of America.

PUNCTATA. Body dotted with blue.

SCRIBA. Pectoral and caudal fins yellow; the head with irregular zigzag marks.

GIGAS. Body clouded; gill-covers three-ſpined; eleven dorſal ſpines. It inhabits the Mediterranean, and is about three feet long. The body is oval, compreſſed at the ſides, whitiſh-yellow, with duſky-brown waves.

ROGAA. Reddiſh-black; tail equal; fins black; gill-membrane duſky-red. It is found in divers parts of Arabia.

LUNARIA. Ruſty black; pectoral fins black, behind yellow; dorſal and caudal behind of a paliſh hyaline. It inhabits Arabia, and is a good deal like the laſt.

TAUVINA. Body oblong linear, brown, with ruſty black dots; the tail is rounded. It inhabits Arabia. The ſcales are ſmall and denticulate.

FASCIATA. This is red, with broad whitiſh tranſverſe bands. It inhabits the Red ſea: is above a yard long, and the ſcales are ſmall.

MINIATA. This ſpecies is ſcarlet, covered with blue dots; the tail is rounded; there are two varieties: 1. Brown, with ocellate blue ſpots. 2. Red, with blue dots. It inhabits

bits Arabia, and feeds on fiſh; the ſcales are very ſmall, round, ſtriate; the fleſh is very good.

SUMMARIA. Of this ſpecies there are three varieties.

1. Tail rounded; body aſhy-brown, covered with white ſpots.

2. Body blueiſh, with brown dots.

3. Whitiſh-aſh, with yellowiſh-brown dots. Theſe are natives of Arabia.

SINENSIS. Yellowiſh; tail oval; lower jaw ſhorter. It inhabits China, and reſembles the P. fluviatilis, but is ſmaller.

C. *Dorſal Fin ſingle; Tail forked.*

Species.

ASCENSIONIS. Above reddiſh, beneath whitiſh. It is found in Aſcenſion iſle. The body is narrower, covered with oblong narrow ſcales, denticulate on the fore-part.

LOUTI. Oblong-lanceolate, carmine, with pale violet dots; hind edge of all the fins yellow. It inhabits Arabia, and is about three feet long.

VENENOSA. Pectoral fins tipt with yellow; the tail is lunate; the body is marked with blood-red dots. It is a native of America, and ſuſpected of being poiſonous.

MELANURA. Tail black, edged with white; the body is marked with yellow lines. It inhabits America, as does the next.

SECTATRIX. Tail forked, red on the hind-part; the belly is of a pale yellow, with grey lines.

STIGMA. Dorſal fin filamentous; gill-covers banded. It is a native of India.

DIAGRAMMA. The body of this fiſh is white, with longitudinal ſtripes; it has eleven dorſal ſpines. It inhabits India, in freſh waters; grows to ten inches long, and preys on ſmaller fiſhes.

STRIATA. The body of this ſpecies is ſtriate. It inhabits North America, and differs from the P. melanura, chiefly in not having the tail black.

LINEATA. Dorſal fin filamentous; the body with five alternate white and brown lines.

* CERNUA, or Ruffe. The dorſal fin of this ſpecies is twenty-ſeven-rayed; the ſpines are fifteen. It inhabits the clear ſtreams of Europe, and is from ſix to eight inches long; the body is round, mucous, ſides yellowiſh, dirty-green, ſpotted with black, breaſt white, nape and back blackiſh; it feeds on leſſer fiſhes, and is the prey of larger, and alſo of various aquatic birds; it is a very fertile fiſh, and ſpawns in March or April; the fleſh is reckoned very good.

* NIGRA; Black Fiſh. The body of this is narrow, with ſmall thin ſcales. It is found in Cornwall, and is a very indiſtinct ſpecies.

ACERRINA. The dorſal fin of this ſpecies has thirty-one rays and ſeventeen ſpines. It inhabits the Euxine ſea, and the rivers running into it; it reſembles, in its figure, colour, and habits, the P. cernua, but its head is longer.

SCHRÆTFER. Body with longitudinal black lines on each ſide. It is found in many parts of the ſouth of Europe; the head is aculeate.

ARGENTEA. Noſtrils tubular; a black ſpot on the ſpinous part of the dorſal fin. It inhabits America.

CABRILLA. Body marked with four longitudinal blood-red ſtripes. A variety of this ſpecies is varied with yellow and violet blotches. It inhabits the Mediterranean.

RADULA. Body with white dots diſpoſed in lines. It is found in India.

FORMOSA; Squirrel Fiſh. Tail lunate; head marked with blue lines, and blotches. It inhabits Carolina. The gill-covers are toothed; the anterior part of the dorſal fin abbreviate towards the hind part.

SACER. Body roſe-coloured; ſecondary of the dorſal fin very long. It inhabits the Mediterranean, and is about a foot long. The poſterior gill-cover ends in a ſpine; the tail is lunate.

LUNULATA. Reddiſh; tail with a black lunule at the baſe. It inhabits Sumatra.

AURATA. Whitiſh, with a longitudinal yellow ſtripe. It inhabits Sumatra, as does the next.

SUMATRENSIS. Body dark-ſilvery; fins longitudinally ſtriate. It inhabits in ſhoals the coaſts of Sumatra; it is about three inches long; ſcales ſmall, denticulate, and dotted with brown. It is deſcribed in the Linnæan Tranſactions.

TRIFURCA. The tail is trifid; and the body has ſeven blue bands. It inhabits Carolina, and is very finely variegated.

The common pearch, or perca fluviatilis of Linnæus, is much admired as a firm and delicate fiſh; and the Dutch are particularly fond of it when made into a diſh called *water-ſouchy*.

Mr. Pennant mentions a ſingular variety of the pearch, the back of which is quite hunched, and the lower part of the back bone, next the tail, ſtrangely diſtorted: in colour and other reſpects it reſembles the common kind. It is found in a lake called *Lhyn Raithlyn*, in Merionethſhire, and alſo in the Thames near Marlow.

The common pearch affords good ſport for the angler. The beſt time for their biting is, when the ſpring is over, and before the heats of ſummer come on. At this time they are very greedy, and the angler, with good management, may take at one ſtanding all that are in the hole, be they ever ſo many.

The pearch will bite all day long, if the weather be cloudy; but the beſt time is from eight to ten in the morning, and from three to ſix in the afternoon. The pearch is very abſtemious in winter, and will ſeldom bite in this ſeaſon of the year; if he does at all, it is in the middle of the day: at which time indeed all fiſh bite beſt at that ſeaſon. See FISHING.

PERCA *Amboinenſis*, the name of a freſh water fiſh, ſomewhat reſembling our pearch, but differing in that it is of a brown colour, and has ſeveral blue lines under its ſnout, and ſome blueneſs in the adjoining fins, but its back and belly fins are green. It is caught in the lakes and rivers of freſh water, at Amboyna, and is a very delicately taſted fiſh. See SCORPÆNA *Volitans*.

PERCA *Rhomboides*. See SPARUS *Rhomboides*. See alſo SPARUS *Mormyrus*.

PERCEE, L'ISLE, in *Geography*, a ſmall but remarkable iſland on the W. ſide of the gulf of St. Laurence, being a perpendicular rock, pierced with two natural arches, through which the ſea flows. One of theſe arches is large enough to admit a large boat to paſs through it; 15 miles S. of Cape Gaſpee.

PERCEIANA, in *Ancient Geography*, a town of Spain, in the route from the mouth of the river Anas to Emerita, according to the Itinerary of Antonine.

PERCEPIER, in *Botany*, a name attributed by Lobel, in his Adverſaria 324, to the *Aphanes* of Linnæus, *Alchemilla arvenſis*, Engl. Bot. t. 1011; ſee APHANES. From the manner in which Lobel is always quoted, it would ſeem that he conſidered the above *name* as Engliſh; but he merely declares the plant was very commonly uſed about Briſtol for promoting the urinary ſecretion. Gerarde ſays "our herbe women in Cheapſide know it by the name of Parſley breakeſtone."

ſtone." Lobel's word ſeems a French corruption of the latter, which expreſſes the appearance of the plant, and its reputed lithontriptic virtues. Purſley-Piert, its Engliſh appellation in Ray's Synopſis, is but a little further corruption, partly typographical, in the third edition. Bauhin, in his Pinax 153, has Perchepier Anglorum, and he explains it by *Saxifraga*, or Break-ſtone. One would ſuppoſe, that amid all this jumble of nomenclature, there might be ſome foundation for the reputed qualities of this plant. Ray ſays "it is believed violently and ſuddenly to promote urine, and to break down the calculus. It is eaten raw, as a ſallad, or preſerved with ſalt, and a diſtilled water is extracted from it for the above purpoſes." All this we fear is illuſive, and has certainly not been confirmed by experience. The herb in queſtion is indeed ſlightly aſtringent, and more ſlightly mucilaginous; qualities uſeful in the diſeaſe alluded to. But we cannot help ſuſpecting it came into uſe, in times of ignorance, from its partial reſemblance to ſome of thoſe various diminutive herbs, that have obtained the name of *Saxifraga*, Saxifrage or Break-ſtone, from their growing on ſtones or walls, which their roots, by the force of vegetation, penetrate and break down. Hence ſuch herbs were preſumed likely to have an effect on the ſtone in the bladder; for if the old writers do not expreſsly declare this, the manner in which they ſpeak of the quality of the plants, and of their places of growth, tacitly implies ſuch an opinion. By tracing theſe hypothetical properties of plants to their ſources, the Materia Medica is diſencumbered from much traſh, and implicit faith in the aſſertions of herbaliſts is conſiderably weakened. Perhaps we may be able to diſcuſs the ſubject to a greater extent hereafter, in treating of the VIRTUES *of* PLANTS.

PERCEPTION, PERCEPTIO, in *Logic*, the act of *perceiving*, or apprehending a thing, without making any affirmation or negation. See APPREHENSION and CONCEPTION.

Some writers have confounded idea and perception, whereas theſe are clearly diſtinguiſhable as the cauſe and effect: the one is an operation of the mind, and the other the reſult of that operation. See IDEA.

The faculty or power of perception conſtitutes what we call the underſtanding.

The faculty of perception ſeems to be that which conſtitutes the diſtinction between the animate and inanimate parts of the creation. Vegetables, ſome of them, have ſome degree of motion, and, upon different applications of other bodies, alter their figures and motions; ſo as hence to obtain the name of *ſenſitive* plants; which, however, is the reſult of mere mechaniſm, and no otherwiſe produced than the ſhortening of a rope by the effuſion of water. But perception is a metaphyſical principle, and is found in ſome degree in all animals; and in them alone.

Perception is a principle or power, the exiſtence of which can only be known by conſciouſneſs, or the experience which every man has of what paſſes within himſelf: and it has been long ago obſerved (ſee Cic. Tuſc. Quæſt. lib. i. § 28.), that the mind is as incapable of comprehending the nature of perception, as the eye is of ſeeing itſelf. Nevertheleſs of all the operations of our minds, the perception of external objects is the moſt familiar. It is one main link of that myſterious chain which connects the material world with the intellectual. In this operation, many things are unaccountable; and theſe are ſufficient to convince us, that we know but little of our own frame, and that a perfect comprehenſion of our mental powers, and of the manner of their operation, is beyond the reach of our underſtanding. In perception there are impreſſions upon the organs of ſenſe, the nerves, and brain, which, by the laws of our nature, are followed by certain operations of the mind. Theſe two things, though apt to be confounded, ought to be carefully diſtinguiſhed. Some philoſophers have, without ſound reaſon, concluded, that the impreſſions made upon the body are the proper efficient cauſe of perception; whilſt others have, with as little reaſon, concluded, that impreſſions are made on the mind ſimilar to thoſe made on the body. It is univerſally allowed, that we perceive no external object but by means of certain bodily organs which God has given us for that purpoſe. This is ſo well known from experience, that it needs no proof; and, indeed, we can give no reaſon for it, but that ſuch is the will of our maker. But, as we have reaſon to believe that the Supreme Being perceives every thing in a much more perfect manner than we can do, without bodily organs, and that there are other created beings endowed with powers of perception more perfect and extenſive than ours, without ſuch organs, we ought not to conclude, that ſuch bodily organs are, in their own nature, neceſſary to perception; but rather that, by the will of God, our power of perceiving external objects is limited and circumſcribed by our organs of ſenſe; ſo that we perceive objects in a certain manner, and in certain circumſtances, and in no other. We ought alſo to be cautioned againſt confounding the organs of perception with the being that perceives. Perception muſt be the act of ſome being that perceives. It is another law of our nature, that we perceive no object, unleſs ſome impreſſion is made upon the organ of ſenſe, either by the immediate application of the object, or by ſome medium which paſſes between the object and the organ: and in conſequence of this law, well known and capable of the moſt familiar illuſtration, our powers of perceiving external objects are further limited and circumſcribed. It is likewiſe a law of our nature, that, in order to our perception of objects, the impreſſions made upon the organs of ſenſe muſt be communicated to the nerves, and by them to the brain. From ſuch impreſſions ſome philoſophers, both ancient and modern, have deduced concluſions, that are very doubtful, if not abſolutely erroneous. Hence ſome have inferred, that man is nothing but a piece of matter ſo curiouſly organized, that the impreſſions of external objects produce in it ſenſation, perception, remembrance, and all the other operations of which we are conſcious; or, becauſe the Author of nature has eſtabliſhed a conſtant connection between certain impreſſions on our ſenſes and our perception of the objects by which the impreſſion is made, that theſe impreſſions were the proper efficient cauſes of the correſponding perception. But this kind of reaſoning ſuppoſes, that becauſe two things are always conjoined, one muſt therefore be the cauſe of another (ſee CAUSE); and it ſuppoſes alſo that matter, by any motion or modification of which it is capable, may produce thought. Another concluſion, very generally deduced by philoſophers from the facts above ſtated, is, that in perception an impreſſion is made upon the mind, as well as upon the organ, nerves, and brain. They ſeem to think, that the object perceived acts upon the mind in ſome way ſimilar to that in which one body acts upon another, by making an impreſſion upon it; and this impreſſion upon the mind is conceived to be ſomething with regard to which the mind is altogether paſſive, and has ſome effect produced on it by the object. But this, ſays Dr. Reid, is an hypotheſis which contradicts the common ſenſe of mankind, and which ought not to be admitted without proof. Another concluſion drawn from the impreſſions made upon the brain in perception, which the author juſt named conceives to have no ſolid foundation, though it has been very generally adopted by philoſophers, is this; that by the impreſſions made on the brain, images are formed of the object perceived; and that the mind, being ſeated in the brain as its chamber of preſence, immediately perceives thoſe images only, and has no perception of the external object but by them. (See IDEA and SOUL.) But whether the brain be the ſeat of the ſoul or not, it is alleged by our author, that there is no proof nor probability of the opinion that images of all the objects of ſenſe are formed in the brain, with regard to any of them; and that with regard to the greater part of them, theſe are words without any meaning. Although it be allowed, that external objects make ſome impreſſion on the organs of ſenſe, and by them on the nerves and brain; yet it is moſt improbable, that theſe impreſſions reſemble the objects by which they are made, ſo as that they may be called images of the objects: not to add, that the brain itſelf, being a ſoft, moiſt, medullary ſubſtance, is altogether improper for receiving and retaining ſuch images. It is added, that the word "image," when applied to all objects of ſenſe, except figure and colour, has abſolutely no meaning. Our author further obſerves, with reſpect to another part of the hypotheſis juſt ſtated, *viz.* that the mind perceives the images in the brain, and external objects only by means of them; that this is as improbable as that there are ſuch images to be perceived. If our powers of perception, he ſays, be not altogether fallacious, the objects we perceive are not in our brain, but without us. Dr. Reid ſums up what he has ſaid, with regard to the organs of perception, and the impreſſions made upon our nerves and brain, in the following manner. "It is a law of our nature, eſtabliſhed by the will of the Supreme Being, that we perceive no external object but by means of the organs given us for that purpoſe. But theſe organs do not perceive. The eye is the organ of ſight, but it ſees not. A teleſcope is an artificial organ of ſight; the eye is a natural organ of ſight, but it ſees as little as the teleſcope. We know how the eye forms a picture of the viſible object upon the retina; but how this picture makes us ſee the object we know not: and if experience had not informed us that ſuch a picture is neceſſary to viſion, we ſhould never have known it. We can give no reaſon why the picture on the retina ſhould be followed by viſion, while a like picture on any other part of the body produces nothing like viſion."

"It is likewiſe a law of our nature, that we perceive not external objects, unleſs certain impreſſions be made by the object upon the organ, and by means of the organ on the nerves and brain. But of the nature of theſe impreſſions we are perfectly ignorant; and though they are conjoined by the will of our Maker, yet it does not appear that they have any neceſſary connection with it in their own nature, far leſs that they can be the proper efficient cauſe of it. We perceive, becauſe God has given us the power of perceiving, and not becauſe we have impreſſions from objects. We perceive nothing without thoſe impreſſions, becauſe our Maker has limited and circumſcribed our powers of perception by ſuch laws of nature as to his wiſdom ſeemed meet, and ſuch as ſuited our rank in his creation."

Dr. Reid, having diſcarded the old ideal ſyſtem, proceeds to the inveſtigation of that act of the mind, of which we are all conſcious, and which is denominated perception. If we attend to it, we ſhall find in it, he ſays, theſe three things: 1ſt, ſome conception or notion of the object perceived; 2dly, a ſtrong and irreſiſtible conviction and belief of its preſent exiſtence; and, 3dly, that this conviction and belief are immediate, and not the effect of reaſoning. After the illuſtration of theſe circumſtances attending perception, and obſerving that thus he intended the account which he has given of our perception of external objects as a faithful delineation of what every man come to years of underſtanding, and capable of giving attention to what paſſes in his own mind, may feel in himſelf, our author acknowledges that he is not able to ſhew, nor does he pretend to ſhew, in what manner the notion of external objects, and the immediate belief of their exiſtence, are produced by means of our ſenſes. "If the power of perceiving external objects, in certain circumſtances, be a part of the original conſtitution of the human mind, all attempts to account for it will be vain. No other account can be given of the conſtitution of things but the will of him that made them: as we can give no reaſon why matter is extended and inert, why the mind thinks and is conſcious of its thoughts, but the will of him who made both; ſo I ſuſpect, we can give no other reaſon why, in certain circumſtances, we perceive external objects, and in others do not." As to the manner in which the mind exerciſes its powers of perception, our author profeſſes to give no theory of his own, though he has ſtruck at the root of all the commonly received theories on this ſubject. Plato conceived that by our ſenſes we perceived the ſhadows of things only, and not things themſelves. He ſeems to have borrowed his notions on this ſubject from the Pythagoreans, as they probably derived theirs from Pythagoras himſelf. Allowing for Plato's allegorical genius, his ſentiments correſpond very well with thoſe of his ſcholar Ariſtotle, and of the Peripatetics. The ſhadows of Plato may repreſent the ſpecies and phantaſms of the Peripatetic ſchool, and the ideas and impreſſions of modern philoſophers. Two thouſand years after Plato, Mr. Locke, who ſtudied the operations of the human mind ſo much, and with ſo great ſucceſs, repreſents our manner of perceiving external objects by a ſimilitude very much reſembling Plato's cave; and both the ſubterraneous cave of the ancient philoſopher, and the dark cloſet of Mr. Locke, may be eaſily applied to all the ſyſtems of perception that have been invented. "For," as Dr. Reid ſtates the matter, "they all ſuppoſe that we perceive not external objects immediately, and that the immediate objects of perception are only certain ſhadows of the external objects. Thoſe ſhadows or images, which we immediately perceive, were by the ancients called *ſpecies, forms, phantaſms.* Since the time of Des Cartes, they have commonly been called *ideas*, and by Mr Hume *impreſſions.* But all philoſophers, from Plato to Mr. Hume, agree in this, that we do not perceive external objects immediately, and that the immediate object of perception muſt be ſome image preſent to the mind. So far there appears an unanimity rarely to be found among philoſophers on ſuch abſtruſe points."

Philoſophers, Berkeley and Hume excepted, believe the exiſtence of external objects of ſenſe, and call them objects of perception, though not immediate objects. But what they mean by a mediate object of perception they have not clearly explained. It ſeems to be their opinion, that we do not really perceive the external object, but the internal only; and that when they ſpeak of perceiving external objects, they mean to expreſs themſelves in a popular or in a figurative ſenſe; intimating that we perceive ſuch objects as we perceive an abſent friend when we look on his picture.

Beſides what is common to philoſophers in accounting for our perception of external objects, as above ſtated, ſome differences ſubſiſt among them. The ideas by which we perceive external objects are ſaid by ſome to be the ideas of the Deity; but it has been more generally thought, that every man's ideas are proper to himſelf, and are either in his mind, or in his ſenſorium, where the mind is immediately preſent. The firſt is the theory of Malebranche; the ſecond may be called the common theory. (See CARTESIAN *Philoſophy*, LEIBNITZIANISM, MALEBRANCHISM, PERIPATETICS, PLATONISTS, and PYTHAGOREANS. See alſo CONCEPTION, IDEA, QUALITY, REFLECTION, and SENSATION.) Dr. Reid, after giving a long account of the different theories advanced by philoſophers, in order to account for our perception of external objects, cloſes with obſerving "that neither Ariſtotle's theory of ſenſible ſpecies, nor Malebranche's of our ſeeing things in God, nor the common theory of our perceiving ideas in our own mind, nor Leibnitz's theory of monads, and a pre-eſtabliſhed harmony, give any ſatisfactory account of the power of the mind, or make it more intelligible than it is without their aid. They are conjectures, and if they were true, would ſolve no difficulty, but raiſe many new ones. It is therefore more agreeable to good ſenſe, and to ſound philoſophy, to reſt ſatisfied with what our own conſciouſneſs and attentive reflection diſcover to us of the nature of perception, than, by inventing hypotheſes, to attempt to explain things which are above the reach of human underſtanding. I believe no man is able to explain how we perceive external objects, any more than how we are conſcious of thoſe that are internal. Perception, conſciouſneſs, memory, and imagination, are all original and ſimple powers of the mind, and parts of its conſtitution. For this reaſon, though I have endeavoured to ſhew that the theories of philoſophers on this ſubject are ill grounded and inſufficient, I do not attempt to ſubſtitute any other theory in their place. Every man feels that perception gives him an invincible belief of the exiſtence of that which he perceives; and that this belief is not the effect of reaſoning, but the immediate conſequence of perception. When philoſophers have wearied themſelves and their readers with their ſpeculations upon this ſubject, they can neither ſtrengthen this belief nor weaken it; nor can they ſhew how it is produced. It puts the philoſopher and the peaſant upon a level; and neither of them can give any other reaſon for believing his ſenſes, than that he finds it impoſſible for him to do otherwiſe." The objects of perception are the primary and ſecondary qualities of bodies (ſee QUALITY); and beſides theſe, certain ſtates and conditions of our own bodies; mechanical powers or forces; chemical powers; medical powers or virtues; and vegetable and animal powers; to one or other of which claſſes all the objects of perception may be referred. Reid's Eſſays on the Intellectual Powers of Man. Stewart's Elements of the Philoſophy of the Human Mind.

PERCEVAL, SPENCER, in *Biography*, born Nov. 1, 1762, was ſon of John, the late earl of Egmont, by Catharine Compton, ſiſter to Spencer, earl of Northampton, from whom he took the Chriſtian name of Spencer. His mother was, in the year 1770, created a peereſs of Ireland, in her own right, with the title of baroneſs Arden, and dying in 1784, ſhe was ſucceeded by her eldeſt ſon Charles George, who, in July 1808, was raiſed to the peerage of England. Mr. Perceval's infancy was ſpent at Charlton, in Kent, the ſeat of his family, where he received the elements of his education. After this he went to Harrow ſchool, where he was diſtinguiſhed for the gentleneſs of his manners, the benevolence of his diſpoſition, and the goodneſs of his heart. Thoſe who knew him in early life were not ſurprized at the good fortune which diſtinguiſhed him in his future proſpects, nor at the warm attachment which his political and perſonal friends felt for him. At Harrow he was contemporary with ſir William Jones: after having paſſed the uſual time at this ſchool, he was ſent to Trinity college, Cambridge, where he formed ſome of the moſt valuable connections of his future life. As ſoon as he had completed his collegiate ſtudies, he entered himſelf a member of Lincoln's Inn, and purſued the ſtudy of the law as a profeſſion. He was remarkable for cloſe and regular application: he was aware that eminence was not to be obtained in the law without induſtry and perſeverance, and in theſe he ſtudied to excel. While employed as a barriſter, he was particularly noticed for his mild and gentlemanly behaviour, which he diſplayed in an high degree when he became prime miniſter, and which in the ſenate called forth the well-merited encomiums of his warmeſt political opponents.

At an early period he was appointed counſel to the admiralty: in the year 1799 he was honoured with a ſilk gown, and about this time he was elected counſel for the univerſity of Cambridge. In conſequence of his uncle's death a vacancy was created in the borough of Northampton, which introduced Mr. Perceval into parliamentary life. He immediately gave his ſupport to Mr. Pitt, and purſued the ſame line of politics regularly and conſiſtently through the remainder of his life.

Mr. Perceval had not been long in parliament before he attracted the marked attention of the miniſter, who it is ſaid, being aſked by his *ſecond*, Mr. Ryder, now lord Harrowby, when about to engage in a duel with Mr. Tierney, who was the fitteſt perſon to ſucceed him if he ſhould fall in the conteſt, replied Mr. Perceval is that man. At this period he endeavoured to become thoroughly maſter of every branch of policy, dedicating his time and talents to the ſtudy of finance. In 1801, at the formation of the Addington adminiſtration, Mr. Perceval, then in his 39th year, was appointed ſolicitor-general, and in 1802 he was promoted to the ſituation of attorney-general, become vacant by the elevation of ſir Edward Law, now lord Ellenborough, to the chief-juſticeſhip of the court of king's bench. The only proſecution inſtituted by Mr. Perceval, in his character of attorney-general, worthy of notice, was that againſt Peltier, the editor of a French journal, printed in London, for a libel on Bonaparte.

Mr. Perceval retained his ſituation when Mr. Pitt reſumed the reins of government, and continued to diſtinguiſh himſelf as a ready and ſtaunch ſupporter of his meaſures. On the death of Mr. Pitt, Mr. Perceval, for the firſt time, appeared in the ranks of oppoſition, and it has been aſſumed, by thoſe who were the witneſſes of his parliamentary career at that period, that his talents were moſt conſpicuous and marked when he roſe as an oppoſition-ſpeaker: in this character he was animated without aſperity, earneſt without oſtentation, attached to his own party, without an indiſcriminate contention with his adverſaries.

When the Fox adminiſtration quitted office, towards the beginning of the year 1807, Mr. Perceval was appointed chancellor of the exchequer; but as the duke of Portland, who was firſt lord of the treaſury, was very old and infirm, and ſeldom took an active or decided part in the adminiſtration of public affairs, Mr. Perceval was unqueſtionably, even then, the prime-miniſter of Great Britain, and upon the death of that nobleman he became ſo nominally as well as virtually. The ſituation of the country and of Europe at this period was very difficult: it required great talents, exerciſed with uncommon delicacy, as well as deciſion and vigour. The talents of Mr. Perceval can hardly be ſaid to be of the firſt order; and it cannot be denied that the deciſion and vigour which he undoubtedly poſſeſſed, were not unfrequently mixed with ſomething like precipitation and obſtinacy. He ſeemed to have imbibed and acted upon a moſt dangerous idea, which a prime miniſter ſhould never admit into his thoughts; *viz.* that a meaſure once openly avowed, ought, on no account, and under no circumſtances, to be abandoned. The relative circumſtances of Great Britain and of Europe moſt undoubtedly required political bravery:

they required that the prime miniſter of this country ſhould have a mind above fear and embarraſſing ſcruples: in ſhort, that he ſhould be able to take a comprehenſive, profound, and cool view of the ſtate of the world, and of the means which Britain poſſeſſed of preſerving her honour and independence in Europe. When this view was once taken, then decided, firm, and prompt conduct correſponding to it was equally requiſite. But it is obvious, that if deciſion, firmneſs, and promptitude are not preceded by thorough political knowledge, as well as the ſoundeſt political principles and views, they are capable of much miſchief. This ſort of knowledge Mr. Perceval did not poſſeſs in a degree which either the ſtate of Europe required, or which could juſtify the pertinacity with which he adhered to meaſures that he had once adopted. The events of his adminiſtration are too near to render it neceſſary to refer to them ſeriatim. He was avowedly an enemy to thoſe conceſſions to the Roman Catholics, which many ſtateſmen, at leaſt as wiſe, and poſſeſſing more powerful talents, regard as eſſential to the ſafety of the ſtate. To his unyielding and unconciliatory temper, the American war in which we have been plunged has been imputed. His death was occaſioned by the hand of an aſſaſſin, who was unqueſtionably mad. On Monday the 11th of May, 1812, about five o'clock in the evening, Mr. Perceval having walked from his houſe in Downing-ſtreet, was entering the lobby of the houſe of commons, where a number of perſons were ſtanding; he was ſhot by a perſon named Bellingham, formerly a merchant, but whoſe diſtreſſes had probably deranged his mind. Having committed the deed, he made no effort to eſcape. Being aſked if he were the villain who had ſhot the miniſter, he replied, "I am, indeed, the unhappy man:" and at the bar of the houſe, during a ſhort examination, being cautioned not to criminate himſelf, he ſaid "I have admitted the fact: I do admit it: I have been denied the redreſs of my grievances by government: I have been ill treated. They all know who I am, and what I am; through the ſecretary of ſtate and Mr. Becket, with whom I have had frequent communications. They knew of my intention ſix weeks ago, through the Bow-ſtreet magiſtrates. I have ſought redreſs in vain. I am a moſt unfortunate man, and feel here," pointing to his heart, "ſufficient juſtification for what I have done." No ſerious attempt was, however, made on his trial to prove inſanity: indeed time was not allowed for his friends, who reſided at Liverpool, to appear in his behalf. The deed was committed on Monday evening; he was tried and convicted on the following Friday, which was as ſoon as it could be known in Liverpool that his trial would come on at the ſeſſions then in its courſe. Ample proviſion was made for Mr. Perceval's family by parliament.

As a public ſpeaker, Mr. Perceval roſe much in reputation and excellence, after he became miniſter: as the leading man in the houſe of commons, it was neceſſary that he ſhould be able to explain and defend all his meaſures; and this duty, arduous under all circumſtances, was particularly ſo in his caſe, as there was ſcarcely any other member of adminiſtration, in that houſe, competent to the taſk of relieving or ſupporting him. He, in a ſhort time, proved that he ſtood in need of no aſſiſtance: he made himſelf ſo completely acquainted with every topic that was likely to be regularly diſcuſſed, that he was never taken unawares or at a loſs. In the ſtatement of his meaſures, he was remarkably methodical and perſpicuous. By many perſons he was deemed particularly to excel in his replies; in rebutting any ſevere remark that came unexpectedly upon him, and in turning the fact adduced, or the argument uſed, againſt his opponent. "His ſpeeches," ſays one of his biographers, "if carefully examined, will let us completely into the nature and extent of his talents: they diſplay no large and comprehenſive views; the arguments and illuſtrations that they contain do not proceed on any philoſophical and luminous principles: but they are diſtinguiſhed by their detail, by taking up a detached argument, and grounding it on the particular circumſtances of the caſe, rather than upon any general maxim. This ſpecies of public ſpeaking, however, was well adapted to his audience, for in a mixed and numerous aſſembly, ſuch as the houſe of commons, there will always be found many more perſons who can comprehend particular arguments, than general reaſoning, and who will deem the ſpecial pleader a man of much greater abilities, than a comprehenſive and philoſophical ſtateſman." In domeſtic life, few men were more amiable and more reſpected than Mr. Perceval, and few men, even in the private walks of ſociety, can paſs a greater portion of time with their family, than did this prime miniſter of England. Gent. Mag. Month. Mag. New Ann. Regiſter for the year 1812.

PERCH, Pole, or *Rod*, a long meaſure, much uſed in ſurveying and meaſuring of land.

Among the old Romans, and ſtill among geometricians, the *pertica*, *perch*, is ten feet; and they otherwiſe call it the *catena*, *funis*, and *decempeda*.

In England, the ſtatute perch contains five yards and a half, or ſixteen feet and a half; and for coppice-woods, &c. eighteen feet. A ſquare perch is thirty ſquare yards and a quarter. Forty ſquare perches make a rood, and one hundred and ſixty an acre.

The cuſtomary perch is various in various counties: in Staffordſhire it is twenty-four feet; in the foreſt of Sherwood twenty-one, the foot there being eighteen inches, the meaſure of which is marked in the chancel wall of Edwyndſtow, and in the church of St. Mary in Nottingham.

In Herefordſhire, a perch of walling is ſixteen feet and a half; a perch of ditching twenty-one feet, &c. In France, according to the old ſyſtem, the perch is from eighteen to twenty-three, and even twenty-ſeven, of their feet.

The arpent, or acre, of land contains, in general, 100 ſquare perches, but the perch varies in different parts of the country. The arpent of wood-land, however, is the ſame all over France, the perch being 22 feet long; this arpent, therefore, contains 48,400 French ſquare feet = 6108 Engliſh ſquare yards, or 1 acre, 1 rood, 1 perch. The arpent for cultivated land, in the neighbourhood of Paris, contains 900 ſquare toiſes, or 4088 Engliſh yards; hence, 45 ſuch arpents equal 38 Engliſh acres nearly. See Measure.

Perch, or *Pole*, of a wheel carriage, is faſtened to the middle of the hind axle-tree, and paſſes between the fore axle-tree and its bolſter, being ſecured by the pole-pin, ſo as to move about it, and connecting the fore and hind carriages together. Thus A B (*Plate* XXIII. *Miſcellany*, *fig.* 7.) repreſents the perch paſſing under the body of a coach, and faſtened to the hinder axle at C. D E repreſents the fore axle, and W, W, the ſections of the wheels. It is plain, that in turning a carriage of this conſtruction, the larger the wheel, the ſooner it will ſtrike againſt the perch; and in the caſe repreſented in the figure, the wheel ſtrikes againſt the perch when the axle makes the angle deſcribed by the dotted lines D, D. On this account, the fore wheels are uſually made ſmaller than the hind ones; and notwithſtanding this diminution of ſize, the turning of ſuch carriages is attended with great inconvenience. In order to remedy this, many expedients have been adopted, particularly in coaches, chariots, and other light vehicles, to which the crane-necked perch could be conveniently applied.

plied. But as this could not be adapted to the heavier kinds of carriages, and is, beſides, attended with a very conſiderable expence, Mr. Jacob has contrived a more ſimple and leſs expenſive method of attaining the propoſed end. For this purpoſe, inſtead of fixing the pin, paſſing through the perch at F, in the centre of the axle, he brings a projection backwards from it, as in *fig.* 8, and makes the axle with the wheels turn round the pin paſſing through that projection at P; in which caſe the angle, which the wheel makes with the perch, becomes conſiderably leſs, before the wheel ſtrikes againſt it. So that a larger wheel, in a carriage of this conſtruction, will not touch the perch ſo ſoon as a ſmaller wheel in a carriage of the ordinary conſtruction; and whatever be the ſize of the wheels, the carriage will turn ſhorter than if it were conſtructed in the former method, with the centre-pin in the centre of the axle. This conſtruction is attended with no additional expence, is applicable to all kinds of carriages, and is ſtronger than the uſual mode of conſtruction. Jacob's Obſ. on the Structure and Draught of Wheel Carriages, 4to. 1773, p. 79.

PERCHANT, among *Fowlers*, a decoy-bird, which the fowler has faſtened by the foot, and which flutters about the place where it is tied, to draw other birds to it, and give the fowler an occaſion of catching them. See DECOY.

PERCHE, in *Geography*, a country of France, before the revolution, which had formerly courts of its own, and enjoyed its own laws, ſubject to the parliament of Paris. It at preſent forms the department of the Orne.

PERCIPANY, a town, or rather village, of America, in Morris county, New Jerſey, on a branch of Paſſaik river; ſix miles N. of Morriſtown.

PERCIS, in *Ichthyology*. See COTTUS *Gobio*.

PERCIVAL THOMAS, M.D., in *Biography*, an eminent phyſician, was born at Warrington, in September 1740. Having loſt both his parents in one day, he was placed at the age of four years under the protection of his uncle, Dr. Thomas Percival, a learned and reſpectable phyſician, reſident at the ſame place; but of his parental guidance he was alſo deprived at the age of ten, after which his education was directed with the moſt kind and judicious attention by his eldeſt ſiſter. His literary purſuits commenced at a private ſchool in the neighbourhood of Warrington, whence he was removed, at the age of eleven, to the free grammar-ſchool of that town, where he exhibited great promiſe of talent, and much induſtry. On the inſtitution of the Warrington academy in 1757, under the direction of the Rev. Dr. Aikin, the Rev. John Holt, and the venerable Dr. Taylor, he was enrolled the firſt ſtudent of that well-known ſeminary. After proſecuting his ſtudies there with diligence and reputation for the ſpace of upwards of three years, he removed to the univerſity of Edinburgh, at which place he employed the winters of 1761, and the two following years, in cloſe application to the ſtudy of phyſic. In farther purſuit of medical improvement, he viſited London in the winter of 1764; and, during his reſidence in the metropolis, he had the opportunity of purſuing with greater intimacy a connection, which had ſubſiſted ſome time, with Hugh lord Willoughby of Parham. Having, through the medium of their common friend, the Rev. John Seddon of Warrington, been honoured with the friendſhip of that excellent and accompliſhed nobleman, he became the conſtant companion of his walks, and the familiar partaker of his ſocial and literary entertainments. The warm attachment of his noble patron, the uncommon advantages he derived from his freedom of acceſs to a manſion, which was the reſort of the moſt celebrated literati of the day, and the occaſions thereby offered of conciliating the eſteem and confidence of perſons of the firſt conſequence and rank, all conſpired to ſuggeſt to him the reſolution of fixing his reſidence in the metropolis. This project, however, was relinquiſhed on the ſudden death of his highly valued friend; an event, which, to his laſt moments, he never recollected, but with the tendereſt expreſſions of regret. During the courſe of this winter, he was elected a fellow of the Royal Society.

The following year, 1765, he ſpent in viſiting Paris, Hamburgh, and various other places on the continent; and having graduated at Leyden, he returned to his native town, where he reſided a few months; and in March 1766 he married the only daughter of Nathaniel Baſſnet, eſq. a merchant in London. He now determined to make Mancheſter the theatre of his profeſſional practice, and ſettled there in the year 1767, where he continued until his death, which happened in Auguſt 1804, in the unremitting exerciſe of his medical duties.

The character of Dr. Percival was in every way calculated to ſecure for him that eminence in his profeſſion, and that general reſpect, eſteem, and attachment, which he every where obtained. A quick penetration, a diſcriminating judgment, a patient attention, a comprehenſive knowledge, and, above all, a ſolemn ſenſe of reſponſibility, were the endowments which ſo conſpicuouſly fitted him at once to diſcharge the duties, and to extend the boundaries, of the healing art; and his external accompliſhments and manners were alike happily adapted to the offices of his profeſſion. In ſocial diſcuſſion, he poſſeſſed powers of a very uncommon ſtamp, combining the accuracy of ſcience, and the ſtricteſt preciſion of method, with the graces of a copious and unſtudied elocution; and to theſe was ſuperadded the poliſh of a refined urbanity, the joint reſult of innate benevolence, and of early and habitual intercourſe with the moſt improved claſſes of ſociety. In few words, he was an author without vanity, a philoſopher without pride, a ſcholar without pedantry, and a Chriſtian without guile. Affable in his manners, courteous in his converſation, dignified in his deportment, cheerful in his temper, warm in his affections, ſteady in his friendſhips, mild in his reſentments, and unſhaken in his principles; the grand object of his life was uſefulneſs, and the grand ſpring of all his actions was religion.

As a literary character, Dr. Percival held a diſtinguiſhed rank. His earlier publications were devoted to medical, chemical, and philoſophical inquiries, which he purſued extenſively, combining the cautious but aſſiduous employment of experiment, with ſcientific obſervation, and much literary reſearch. His papers were publiſhed collectively, under the title of "Eſſays Medical and Experimental," of which the firſt volume appeared in 1771, the ſecond in 1773, and a third was ſubſequently added. Theſe volumes obtained for the author a conſiderable reputation in the philoſophical world, and have gone through many editions. The ſubjects which occupied his pen, in later years, were of a nature moſt congenial to his feelings; and in the ſeveral volumes of "A Father's Inſtructions to his Children," and of "Moral Diſſertations," which appeared at different periods, through a ſpace of twenty-five years, and which were originally conceived with the deſign of exciting in the hearts of his children a deſire of knowledge and a love of virtue; there is to be found as much of pure ſtyle, genuine feeling, refined taſte, apt illuſtration, and pious reflection, as can eaſily be diſcovered, in the ſame compaſs, in any didactic compoſition. His laſt work, which he expreſsly dedicated as a "parental legacy" to a much-loved ſon, under the title of "Medical Ethics, or a Code of Inſtitutes and Precepts, adapted to the profeſſional conduct of Phyſicians and Surgeons," publiſhed in 1803, is a monument of his profeſſional integrity, in which, while he depicted thoſe excellencies of the medical character which he approved in theory, he unconſciouſly drew the portrait of himſelf, and deſcribed thoſe which he every day exemplified in practice.

In addition to the works already mentioned, numerous papers on various ſubjects, all having the impreſs of the cleareſt underſtanding, and the moſt perſpicuous ſtyle, are to be found in the publications of the Literary and Philoſophical Society of Mancheſter, an inſtitution to the eſtabliſhment and reputation of which, he eminently contributed, and which did not ceaſe to manifeſt its grateful ſenſe of his merits, by the continued appointment of him to the preſidency, from the date of its incorporation. See Monthly Magazine, September 1804. Duncan's Annals of Medicine, vol. viii., and Percival's Eſſays.

PERCKAM, in *Geography*, a town of Auſtria; 18 miles S.W. of Freyſtadt.

PERCOLATION. See FILTRATION.

Many have attempted the condenſing of wines by percolation, or ſeparating from them that ſuperfluous moiſture or water, which dilutes them below the true ſtandard of vinous liquors, in order to make them richer, and fitter for keeping; but it does not appear that ſuch attempts have as yet ſucceeded.

PERCOTE, in *Ancient Geography*, a town which belonged to Dardania, at a ſmall diſtance S.W. of Lampſacus.

PERCUNOS, the name of an ancient Pruſſian idol. See POTRIMPOS.

PERCUSSION, in *Phyſics*, the impreſſion a body makes in falling or ſtriking upon another; or the ſhock or colliſion of the two moving bodies; which meeting, alter each other's motion. See MOTION.

Percuſſion is either *direct* or *oblique*.

In bodies either perfectly hard, or perfectly ſoft, and ſo void of all elaſticity, the laws of percuſſion are eaſily determined; but ſince even the hardeſt bodies have their ſhare of elaſticity, and in elaſtic bodies the laws are very different, and much more intricate, having been firſt aſcertained in the Philoſophical Tranſactions, by ſir Chriſtopher Wren, Dr. Wallis, and Mr. Huygens, we ſhall lay down each apart; referring for another mode of illuſtrating the ſame ſubject to the article COLLISION.

PERCUSSION, *Laws of, in Bodies not Elaſtic*. 1. If a body in motion, as A (*Plate* XXXIV. *Mechanics*, *fig.* 12.) ſtrike directly againſt another at reſt, B, the firſt will loſe juſt as much of its motion as it communicates to the ſecond; ſo that the two will proceed thence with an equal velocity, as if collected into one maſs.

If A therefore be triple of B, A will loſe one-fourth of its motion; ſo that if before it moved through a line of twenty-four feet in a minute, it will now only move eighteen.

2. If a moving body, A, ſtrike againſt another already in motion, B; the firſt will increaſe the velocity of the latter, but will loſe leſs of its own motion than if the latter had been at reſt; ſince all here required is, that ſome degrees of motion be added to thoſe the latter already had, to make them both proceed with an equal velocity.

Suppoſe, *e. gr.* the body A, with twelve degrees of motion, to ſtrike againſt the other B, leſs by half, and at reſt, the firſt will transfer four degrees of its motion to the latter, and retain eight to itſelf: but if it ſtrike with twelve degrees of motion on the other already moving with three degrees, it will only communicate two degrees; for A being double of B, this needs only half the motion to make it proceed with the ſame velocity.

3. If a moving body, A, ſtrike on another, B, either at reſt, or moving more ſlowly, and either in the ſame direction or in a contrary one; the ſum of the momenta, if the bodies move in the ſame direction, or their difference, if they move in a contrary one, will be the ſame after the percuſſion as before.

4. If two equal bodies, A and B, meet each other with equal velocities; after the congreſs, they will both remain at reſt.

5. If a body, A, ſtrike directly on another at reſt, B; its celerity after the ſtroke is to its celerity before it, as the weight of A is to the ſum of the weights of A and B: if, therefore, the weights were equal, the celerity after the ſhock will be half of what it was before it.

Thus if $A = Q$, and its velocity before the ſtroke be denominated C, and $B = q$, then QC will expreſs the whole quantity of motion before and after the ſtroke, and $\frac{QC}{Q + q}$, or, the quantity of motion divided by the weights or quantities of matter, will be equal to V, the common velocity: hence we ſhall have $QC = V \times \overline{Q + q}$; and, therefore, $C : V :: Q + q : Q$. If $Q = q$, it will be $C : V\ (:: 2Q : Q) :: 2 : 1$.

6. If a body in motion, A, ſtrike directly on another moving more ſlowly, but in the ſame direction; the velocity, after the ſhock, will be equal to the ſum of the momenta, divided by the ſum of the weights.

For the ſum of the momenta both before and after the ſtroke is $QC + qc$, c being the velocity of q or B; therefore $V = \frac{QC + qc}{Q + q}$. Hence if $Q = q$, $V = \frac{Q \times \overline{C + c}}{Q \times 2} = \frac{C + c}{2}$, or half the ſum of the former velocities.

7. If two equal bodies, moving with different velocities, ſtrike directly againſt each other; after the conflict, they will proceed with the ſemi-difference of the velocities with which they were moved before it.

For the quantity of motion is $QC - qc$, and, therefore, $V = \frac{QC - qc}{Q + q}$: and if $Q = q$, $V = \frac{QC - Qc}{2Q} = \frac{C - c}{2}$. And if C alſo $= c$, $V = 0$, and, therefore, the quantity of motion is not always the ſame, as the Carteſians maintain.

8. If two bodies, A and B, meet directly with velocities that are reciprocally as their weights; after the conflict, they will both remain at reſt: *i. e.* if $Q : q :: c : C$, $QC = qc$, and $V = \frac{QC - qc}{Q + q} = 0$.

9. If two bodies, A and B, meet directly with the ſame velocity; the celerity, after the impulſe, will be to that before it, as the difference of the weights to their ſum. For $QC - qC = V \times \overline{Q + q}$; therefore, $V : C :: \overline{Q - q} : \overline{Q + q}$.

10. If two bodies meet directly, with any velocity whatever; the celerity after the ſtroke will be equal to the difference of the momenta, divided by the ſum of the weights. For $V = \frac{QC - qc}{Q + q}$.

To determine the momentum loſt by the conflict: multiply the celerity which the body had before the conflict, into its maſs; thus you have the momentum before the conflict. In like manner, multiply the celerity after the conflict into the maſs; thus have you the momentum after the conflict. The latter momentum, therefore, being ſubtracted from the former,

mer, leaves the loſs. And hence may the magnitudes of the ſtrokes be eſtimated.

Thus in the three caſes already recited, the momentum before the conflict is Q C, Q C + qc, and Q C − qc; and V, or the celerity after the conflict, will be reſpectively $\frac{QC}{Q+q}$, $\frac{QC+qc}{Q+q}$, and $\frac{QC-qc}{Q+q}$, and the momenta of Q in the ſeveral caſes $\frac{Q^2C}{Q+q}$, $\frac{Q^2C+Qqc}{Q+q}$, and $\frac{Q^2C-Qqc}{Q+q}$: therefore the quantities of motion loſt by Q will be reſpectively $QC-\frac{Q^2C}{Q+q}=\frac{QqC}{Q+q}$, $QC-\frac{\overline{Q^2C+Qqc}}{Q+q}=\frac{QCq-Qcq}{Q+q}$; and $QC-\frac{\overline{Q^2C-Qqc}}{Q+q}=\frac{QqC+Qqc}{Q+q}$.

Hence it appears, in the firſt caſe, that the magnitude of the ſtroke, which is as the motion loſt, will be as the celerity of the ſtriking body; for if its celerity were C, the motion loſt would be $\frac{QCq}{Q+q}$; but if it were c, the motion loſt would be $\frac{Qcq}{Q+q}$; and $\frac{QCq}{Q+q}:\frac{Qcq}{Q+q}::C:c$.

In the ſecond caſe, the magnitude of the ſtroke will be the ſame as if q had been at reſt, and Q had ſtruck it with the difference of their celerities; for the motion loſt is $\frac{QCq-Qcq}{Q+q}$; but in the caſe now ſuppoſed, the motion loſt would be $\frac{Qq\times\overline{C-c}}{Q+q}=\frac{QCq-Qcq}{Q+q}$.

In the third caſe, the magnitude of the ſtroke will be the ſame as if either body, as q, had been at reſt, and the other, as Q, had ſtruck it with the ſum of their celerities: for the motion loſt is $\frac{QqC+Qqc}{Q+q}$, and in the caſe now ſuppoſed it would be $\frac{Qq\times\overline{C+c}}{Q+q}$ equal to the former. Hence it appears, that the magnitude of the ſtroke between two given bodies is always proportional to their relative, and not to their abſolute celerities.

11. A direct or perpendicular ſtroke is to an oblique one as the whole ſine is to the ſine of the angle of incidence. For let B C (*fig.* 13.) be the body ſtruck, A the ſtriking body, A C the oblique ſtroke, a C the perpendicular ſtroke; and the magnitude of the perpendicular ſtroke a C will be to that of the oblique ſtroke in the direction A C as aC to A B, or as A C : A B. For reſolving the force in A C into A B perpendicular to B C and A D parallel to it; and it is evident that the force in the direction A B is the only part of A C that ſtrikes B C, the other part A D being parallel to it. But the magnitude of a perpendicular ſtroke of the ſame body moving with the ſame force is to be meaſured by the line a C = A C; and therefore it is to the magnitude of the oblique ſtroke as a C to A B, *i. e.* as A C to A B, or as radius to the ſine of the angle of incidence.

Percussion, *Laws of, in Elaſtic Bodies.* In bodies perfectly elaſtic, the force of elaſticity is equal to the force with which they are compreſſed; that is, the colliſion of two ſuch bodies on each other is equivalent to the motion which either of them would acquire, or loſe, by mere ſimple impulſe. This force exerting itſelf contrary ways, a motion equivalent to it muſt be ſubtracted from the motion in the impelling body, and added to that in the body impelled by mere impulſe, to find their velocities after percuſſion. See Elasticity.

12. If a body ſtrike directly on an immoveable obſtacle, either one or both of them being elaſtic; the body will be reflected with the ſame velocity with which it ſtruck, and in the ſame line. For if the elaſticity were away, the whole force of the ſtriking body would be ſpent in overcoming the reſiſtance of the obſtacle; and conſequently all the motion would ceaſe: it follows, that the whole force is employed in compreſſing the elaſtic body; by which means it acquires an elaſtic force equal thereto: ſince then the elaſticity, when the compreſſing force is ſpent, reduces the body into its former ſtate, it repels the other with the ſame force with which it ſtruck; conſequently, it will rebound with the ſame velocity. And becauſe an elaſtic body reſtores itſelf in the ſame direction in which it was compreſſed (there being no reaſon why it ſhould change its direction) the body will rebound in the ſame right line.

13. If an elaſtic body ſtrike obliquely on an immoveable obſtacle, it will rebound in ſuch manner as to make the angle of reflection equal to the angle of incidence. See this demonſtrated with regard to light, by a method which applies to all impinging elaſtic bodies, under Reflection.

14. If an elaſtic body, A, ſtrike directly againſt another at reſt, B, equal to it; after percuſſion A will remain at reſt, and B will proceed with the ſame velocity which A had before the ſhock, and in the ſame direction.

For if the bodies were not elaſtic, each would proceed, after the ſtroke, in the ſame direction, and with half the velocity; but ſince the elaſtic force acts in the ſame direction in which the compreſſion is made, and is equal to the compreſſing force; it repels A with half its velocity, and therefore ſtops its motion: but it drives B farther with half its velocity, and therefore accelerates its motion. It is therefore carried after the ſhock, with the whole celerity with which A was carried before it, and A remains at reſt. The quantity of motion before the ſtroke is Q C, and the motion loſt by percuſſion, being the double of that loſt between non-elaſtic bodies, is $\frac{2CQq}{Q+q}$; therefore the momentum after the ſtroke will be $QC-\frac{2CQq}{Q+q}=\frac{Q^2C-QCq}{Q+q}$; and $V=\frac{QC-Cq}{Q-q}$; and the velocity of q, whoſe motion is equal to that loſt by Q, is equal to $\frac{2QCq}{Q+q}\div q=\frac{2QC}{Q+q}$. If $Q=q$, $V=\frac{QC-CQ}{Q+q}=0$; and $v=C$.

Hence, ſince A (*fig.* 14.) transfers all its force to B; B, in like manner, will transfer it to C, C again to D, and D to E. Wherefore, if there be ſeveral equal elaſtic bodies, mutually touching each other, and A be ſtruck againſt B, all the intermediate ones remaining at reſt, the laſt alone, E, will be moved, and that with the velocity with which A ſtruck againſt B.

15. If an elaſtic body, A, ſtrike directly on another at reſt, B; its velocity, after percuſſion, will be to its velocity before it, as the difference of weights is to their ſum: but the velocity it communicates to B, is to the ſame, as double the weight of A to the ſum of the weights.

After percuſſion, therefore, the velocity of A is to the velocity of B, as the difference of weights to the double of A.

Thus, $V = \frac{QC - Cq}{Q + q} = \frac{Q - q \times C}{Q + q}$; therefore, $V \times \overline{Q + q} = \overline{Q - q} \times C$; conſequently, $V : C :: Q - q : Q + q$. And becauſe $v = \frac{2\,QC}{Q + q}$, $v : C :: 2\,Q : Q + q$. Conſequently $V : v :: Q - q : 2\,Q$.

16. If a greater body ſtrike a leſs body at reſt, the velocity given to it will be leſs than the double of its own velocity. If $Q > q$, let $Q = mq$, then $v = \frac{2\,QC}{Q + q}$ will be equal to $\frac{2\,mqC}{mq + q} = \frac{2\,C}{1 + \frac{1}{m}} < 2\,C$.

17. The velocity which a greater body gives to a leſs body at reſt, is to that which the leſs body moved with the ſame velocity would communicate to the greater body at reſt, as the magnitude of the greater to the magnitude of the leſs body. If $Q > q$ is ſuppoſed to be at reſt, then $v = \frac{2\,QC}{Q + q}$; but if Q be at reſt, and q ſtrike it with the celerity C, the velocity of Q after the ſtroke would be $\frac{2\,qC}{q + Q}$; therefore the velocity given by the greater body is to that given by the leſs as $\frac{2\,QC}{Q + q} : \frac{2\,qC}{q + Q} :: Q : q$.

18. If a greater body ſtrikes againſt a leſs, the greater body will not come to reſt, but move more ſlowly: for ſince $Q > q$, $Q - q$ will be poſitive, and therefore, in the proportion $Q + q : Q - q :: C : V$, V will be poſitive but leſs than C, becauſe $Q - q < Q + q$.

19. Again, if an elaſtic body ſtrike a larger elaſtic body at reſt, the ſmaller body will always rebound, and move in a contrary direction to what it did at firſt, and alſo give the larger body a greater quantity of motion than what was originally in the ſmaller body. For as $q > Q$, $Q - q$ will be a negative quantity, and, therefore, V will be negative, or Q will move backwards. And this quantity of motion communicated, may be greater than the original motion in any ratio leſs than that of 2 to 1. For ſuppoſing the ſmall body and its velocity to be denoted by unity, and the larger body at reſt by x, the velocity of x after the ſhock will be $\frac{2}{1 + x}$, and its quantity of motion will be $\frac{2\,x}{1 + x}$. But though the proportion of $2\,x$ to $1 + x$ increaſes when x increaſes, yet its limit will be the proportion of 2 to 1; which is the limit to which the motion of x may approach indefinitely near.

Hence it follows, that if the force of moving bodies be meaſured by their quantity of motion, a body may, by percuſſion, immediately communicate a greater force than itſelf has to another, and this in any proportion leſs than double.

But if other elaſtic bodies be interpoſed, a body may mediately communicate a greater force than its own to another larger body x, in any proportion leſs than that of $x\sqrt{x}$ to 1. Thus, if $x = 1000000$, the body 1, with the velocity 1, may, by the means of intermediate bodies, give it the force 999000000; and the ſum of the abſolute forces of all theſe bodies taken together, ariſing from the percuſſion, may exceed the force of the firſt or unity, in any ratio leſs than $2\,x\sqrt{x}$ to 1, or 2000000000 to 1, although the relative force in all caſes remains as at firſt = 1.

Theſe are paradoxes which cannot be urged againſt thoſe who maintain the forces of bodies to be meaſured by their maſſes and the ſquares of their velocities.

It is alſo to be obſerved, that thoſe who meaſure force by the quantity of motion, muſt deny that there is any force loſt by the impreſſions, made on ſoft bodies, or by the bending of elaſtic bodies; for if any were loſt from ſuch cauſes, the ſum of the quantities of motion of bodies moving the ſame way, could not remain the ſame before, during, and after the ſhock, which is an univerſal rule admitted by the Newtonians. But they admit that a ſpring bent between two bodies may, by unbending itſelf, generate motion in theſe bodies. Hence it follows that, according to this doctrine, though a ſpring may give motion to bodies, it cannot, by a contrary action, take it away; which ſeems no ſmall paradox. See FORCE.

20. If a body, A, moves towards the body C, at reſt, and an intermediate body, B, of a mean magnitude, be placed at reſt between them, ſo that A firſt impels B, and then B impels C, a greater motion will be given to C than if A had ſtruck it directly. And if B be a mean proportional between A and C, the velocity communicated to C will be the greateſt that can be. Huygens, de Mot. Corp. ex Percuſſ. prop. 12.

In the preceding ſeries of proportional magnitudes, $B + \frac{AC}{B} < A + C$. For $A : B :: B : C$, therefore $A - B : B :: B - C : C$, and $A - B : B - C :: B : C$; but $C < B$, therefore $B - C < A - B$; and therefore $B < A - B + C$, and $2\,B < A + C$; but $B = \frac{AC}{B}$; therefore $B + \frac{AC}{B} < A + C$. The ſame propoſition might be demonſtrated, if C were the greateſt body, and A the leaſt.

Now it is plain, that the velocity of the body C, ſtruck only by A, would be $\frac{2\,Aa}{A + C} = \frac{4\,Aa}{2\,A + 2\,C}$, a denoting the velocity of A: the velocity of B, ſtruck immediately by A, would be $\frac{2\,Aa}{A + B} = b$, b denoting the velocity of B: and, therefore, the velocity of C, ſtruck by B, moved with the velocity b, would be $\frac{2\,Bb}{B + C} = \frac{2\,B \times 2\,Aa}{\overline{B + C} \times \overline{A + B}}$ $= \frac{4\,BAa}{BA + BB + CA + CB} = \frac{4\,Aa}{A + B + \frac{CA}{B} + C}$.

But $\frac{4\,Aa}{A + B + \frac{CA}{B} + C} : \frac{4\,Aa}{2\,A + 2\,C} :: 2\,A + 2\,C : A + B + \frac{CA}{B} + C$. And the ſecond antecedent is evidently greater than the ſecond conſequent; therefore the firſt antecedent is greater than the firſt conſequent. But if B were a mean a mean proportional between A and C, $B + \frac{A\,C}{B}$ would be leſs than in any other caſe. For if $B = m$ the mean proportional, $B + \frac{A\,C}{B} = m + \frac{m^2}{m} = 2\,m$; but if $B = m \pm D$, then $B + \frac{A\,C}{B} = m \pm D + \frac{A\,C}{m \pm D}$; *i.e.* $m^2 \pm 2m\,D + D^2 + A\,C\,(= m^2) > 2\,m^2 \pm 2\,m\,D$.

If more bodies be interpoſed between A and C, the motion of C will be greater; and it will be the greateſt when the bodies interpoſed conſtitute a ſeries of mean proportionals between A and C. Ibid. prop. 13.

21. If there be a ſeries of a hundred bodies in the proportion of 1, 2, 4, 8, 16, &c. and the motion begins by the greateſt body, the velocity communicated to the ſmalleſt will be to that with which the greateſt moved nearly as 2,338,500,000,000 to 1. And, if the motion begins by the leaſt body, the quantity of motion will be increaſed on the whole nearly as 1 to 4,677,000,000,000. But it is to be obſerved, that there is a miſtake in the impreſſion of Huygens's book, as to the firſt number, which is there printed 14,760,000,000, inſtead of 2,338, &c. ſo that the velocity thus given to the ſmalleſt body is 150 times greater than what the printed copy of Huygens aſſigns. Bernoulli, Diſc. ſur le Mouv. Oper. tom. iii. p. 34. and s'Graveſande, Pref. ad Huygen. Oper. Poſt. tom. ii. Amſt. 1728.

This ſtupendous augmentation of the quantity of motion is a remarkable inſtance of the falſity of the Carteſian principle, that the ſame quantity of motion is always preſerved in the world.

Some have thought this augmentation no ſmall difficulty againſt thoſe who maintain the moving force or power of action in bodies, to be proportional to their quantities of motion. This difficulty does not preſs the Leibnitzians; for it is to be obſerved, that notwithſtanding the prodigious increaſe of motion here aſſigned, yet there is no increment of the ***vis viva*** of this ſyſtem of bodies. See FORCE and VIS *Viva*.

A learned author has urged, that if the force of bodies were in proportion to their quantities of motion, the increaſe in the motion here mentioned might be employed to reſtore the motion of the firſt body, and hence make a perpetual motion. But it is anſwered, that as the motion of the laſt is increaſed in the ſame direction with the firſt, the motion of all the reſt will be in the contrary direction, and equal to that of the laſt diminiſhed by unity: hence the ſum of the motions in the ſame direction remains as it did, equal to that of the firſt and ſmalleſt body, which we ſuppoſe unity. See Maclaurin's Demonſtrat. de Loix du Choc des Corps, p. 21, Paris, 1724; and s'Graveſande, Rem. ſur la Poſſibilité du Mouvement perpetuel, in Journ. Liter.

It is to be obſerved, that there is a limit which the velocity communicated to the laſt body never amounts to, (ſuppoſing the firſt and laſt bodies, and the velocity of the firſt before the ſtroke, to be given,) but to which it approaches continually, while the number of ſuch bodies interpoſed between the firſt and laſt is always increaſed. And this limit is to the velocity of the firſt body before the ſtroke, in the ſubduplicate ratio of the firſt body to the laſt.

Mr. Huygens has not mentioned this limit, but the curious may ſee the determination of it in Mr. Maclaurin's Fluxions, art. 514.

22. If two equal elaſtic bodies, A and B, meet directly, and with equal force; each will rebound with the ſame velocity with which it ſtruck, and alſo in the ſame direction.

For ſetting aſide the elaſticity, both would remain at reſt: their whole force, therefore, is ſpent in the compreſſion; but their elaſtic force, whereby they rebound in the former direction, is equal thereto. This force, therefore, acting equally on each body, A and B, will produce the ſame celerity in each; and that equal to the former. So that they will rebound with the celerity with which they ſtruck.

23. If two equal elaſtic bodies, A and B, ſtrike directly againſt each other with unequal velocities: after the ſhock, they will rebound with interchanged velocities.

For ſuppoſe the bodies to concur with the velocities $C + c$ and C: if they meet with the ſame velocity C, after the ſhock, they would both move with the ſame velocity C.

If B were at reſt, and A ſhould ſtrike upon it with the celerity c; after the ſhock, A would remain at reſt, and B be moved with the celerity c. Therefore the exceſs of the celerity c, with which A is carried, is transferred wholly by the conflict to B: A, therefore, is moved with the celerity C, and B with the celerity $C + c$.

Hence, after percuſſion, they recede from each other with the ſame velocity as before they concurred.

The two propoſitions in theſe two laſt articles may be proved otherwiſe, thus: the momentum of Q before the ſtroke is $Q\,C$; the motion loſt by it is $\frac{2\,Q\,C\,q + 2\,Q\,c\,q}{Q + q}$; therefore, its quantity of motion after the ſtroke will be $Q\,C - \frac{\overline{2\,Q\,C\,q + 2\,Q\,c\,q}}{Q + q} = \frac{Q^2\,C - Q\,C\,q - 2\,Q\,c\,q}{Q + q}$. Conſequently $V = \frac{Q\,C - C\,q - 2\,q\,c}{Q + q}$.

The quantity of motion in q before the ſtroke is $-\,q\,c$, and that loſt by Q and acquired by q is $\frac{2\,Q\,C\,q + 2\,Q\,c\,q}{Q + q}$; and, therefore, its momentum after the ſtroke will be $-\,q\,c + \frac{2\,Q\,C\,q + 2\,Q\,c\,q}{Q + q} = \frac{2\,Q\,C\,q - q^2\,c + Q\,c\,q}{Q + q}$: and $v = \frac{2\,Q\,C - q\,c + Q\,c}{Q + q}$. But when $Q = q$, $V = \frac{Q\,C - Q\,C - 2\,Q\,c}{2\,Q} = -\,c$, and $v = \frac{2\,Q\,C - Q\,c + Q\,c}{2\,Q} = C$.

24. If two elaſtic bodies, A and B, ſtrike directly on each other with velocities that are reciprocally proportional to their weights: after colliſion, they will rebound with the ſame velocity with which they met.

For $Q : q :: c : C$, therefore $C\,Q = c\,q$; and $V = \frac{Q\,C - 2\,Q\,C - C\,q}{Q + q} = -\,\frac{Q\,C - C\,q}{Q + q} = \frac{\overline{Q + q} \times -\,C}{Q + q} = -\,C$; and $v = \frac{2\,q\,c - q\,c + Q\,c}{Q + q} = \frac{q\,c + Q\,c}{Q + q} = +\,c$.

25. If an elaſtic body, A, ſtrike on another equal one indued with a leſs degree of motion B; after percuſſion, both will proceed in the ſame, *viz.* in the former direction, and with interchanged velocities.

For ſuppoſe A to ſtrike with the velocity $C + c$, upon B moving with the velocity C. Since by reaſon of the equal velocities C and C, there ariſes no impulſe; it is the ſame thing as if A ſtruck on B, with the ſole celerity c, on B at reſt. But in that caſe A would remain at reſt, and B would move with the velocity c: therefore, after percuſſion, A will move with the ſole celerity C, and B with the celerity $C + c$, both according to the former direction, there being nothing to change that direction.

For in this caſe, the quantity of motion in Q before the ſtroke is Q C, the motion loſt by it is $\frac{2\,QCq - 2\,Qcq}{Q + q}$, and the quantity of motion after the ſtroke will be $QC - \frac{2\,QCq - 2\,Qcq}{Q + q} = \frac{Q^2C + 2\,Qcq - QCq}{Q + q}$: and therefore $V = \frac{QC + 2\,cq - Cq}{Q + q}$.

The momentum of q before the ſtroke is qc, that loſt by Q and acquired by q is $\frac{2\,QCq - 2\,Qqc}{Q + q}$; therefore the momentum of q after the ſtroke will be $qc + \frac{2\,QCq - 2\,Qqc}{Q + q} = \frac{q^2c + 2\,QCq - Qqc}{Q + q}$; and $v = \frac{2\,QC + qc - Qc}{Q + q}$.

In the caſe here ſuppoſed $Q = q$, therefore $V = \frac{QC + 2\,Qc - CQ}{2\,Q} = c$, and $v = \frac{2\,QC + Qc - Qc}{2\,Q} = C$.

26. If a moving body, A, ſtrike on another, B; the ſtroke will be the ſame as would be made by the body A ſtriking on B at reſt, with the difference of their velocities.

Hence, ſince the elaſtic force is equal to the percuſſion; it acts on the bodies A and B with the difference of the velocities they had before the congreſs.

27. *To determine the velocities of any two elaſtic bodies,* A *and* B, *after ſtriking directly on each other with any velocities.*—If the elaſtic body A ſtrike on B, either at reſt, or moving faſter than A; the velocity, *v. gr.* of A after percuſſion is found thus: as the ſum of the weights is to double of either of them, ſuppoſe, in this caſe, of B, ſo is the difference of the velocities before the congreſs, to a velocity, which ſubtracted from the velocity of A before the impulſe (in the other caſe added to it) leaves the velocity of A after the congreſs.

If the two elaſtic bodies, A and B, meet each other; the velocity of A, after the impulſe, is found thus: as the ſum of the weights is to the double of either of them, ſuppoſe of B, ſo is the ſum of the velocities before colliſion, to a velocity which, ſubtracted from the velocity of A before colliſion, leaves its celerity after colliſion.

28. In the direct colliſion of bodies the ſame reſpective velocity is preſerved, *i. e* in a direct concurrence, the difference of velocities is the ſame before and after the ſhock; and in a direct mutual encounter, the difference of velocities after the ſhock is the ſame with their ſum before it.

Hence they retire from each other, after the impulſe, with the ſame velocity with which they met.

Thus $v - V = C \mp c$. For $v = \frac{2\,QC \pm qc \mp Qc}{Q + q}$, and $V = \frac{QC \pm 2\,qc - Cq}{Q + q}$; therefore $v - V = \frac{2\,QC \pm qc \mp Qc - QC \mp 2\,qC + Cq}{Q + q} = \frac{QC \mp qc \mp QC + Cq}{Q + q} = \frac{\overline{Q + q} \times \overline{C \mp c}}{Q + q} = C \mp c$.

29. In the colliſion of elaſtic bodies there is not always preſerved the ſame momentum, or, as the Carteſians expreſs it, the ſame quantity of motion; but this is ſometimes increaſed, and ſometimes diminiſhed.

It is a miſtake, therefore, of Deſcartes, and his followers, that the ſame quantity of motion is ſtill preſerved in the world.

Thus, let q at reſt be greater than the impinging body Q; and the quantity of motion will be increaſed by colliſion: let $q = Q + x$, and C the velocity of Q: the velocity of the body q after the ſtroke will be $\frac{2\,QC}{Q + q} = \frac{2\,QC}{2\,Q + x} = C - \frac{xC}{2\,Q + x}$; but the velocity of the body Q will be $\frac{QC - Cq}{Q + q} = \frac{-x}{2\,Q + x}$; therefore the abſolute momentum of q after the ſtroke will be $= q \times C - \frac{xC}{2\,Q + x} = \overline{Q + x} \times C - \frac{xC}{2\,Q + x}$.

But the momentum of the body Q is $= Q \times - \frac{xC}{2\,Q + x}$; and the quantity of motion in both bodies will be $= \frac{2\,Q^2C + 2\,QxC + QxC}{2\,Q + x} = \frac{2\,Q^2C + 3\,QxC}{2\,Q + x} = QC + xC - \frac{x^2C}{2\,Q + x}$; but the quantity of motion before the ſtroke was Q C, which is leſs than the former quantity, becauſe $\frac{x^2C}{2\,Q + x} < xC$; for $\frac{x^2C}{x} = xC$. If the bodies return to a ſecond ſtroke with the velocities acquired by the firſt, they will recover their firſt velocities, in which caſe the quantity of motion will be diminiſhed.

30. If two elaſtic bodies, A and B, meet or overtake each other directly; the ſum of the factums of the maſſes into the ſquares of the velocities remains the ſame, before and after the congreſs; hence the ſame quantity of force is likewiſe preſerved in the congreſs.

31. *To determine the motion of two bodies,* A *and* B, (*fig.* 15.) *ſtriking obliquely againſt each other, whether they be elaſtic or not elaſtic.*—The motion of the body A along A C is reſoluble into two others, in the directions A E and A D; and the motion of B along B C into two others according to B F and B G: and the velocities through A D and B F are to the velocities through A C and B C as the right lines A D, B F, A C, B C: now ſince the right lines A E and B G are parallel, the forces acting according to theſe directions are not mutually oppoſite, and muſt therefore be conſidered in the congreſs.

But ſince the lines A D and B F, or, which is the ſame, E C and G C, conſtitute the ſame right line perpendicular to D C; it is the ſame as if the bodies A and B ſhould meet directly with velocities that are as E C and G C. Find, therefore, the velocity of A and B according to the rules above laid down.

Suppoſe, *e. gr.* the velocity of the rebounding body A to be as C H; ſince the motion along A E is not changed by the congreſs, make $C K = A E$, and complete the parallelogram H C K I; the diagonal C I will repreſent the motion of A after the congreſs: for, after percuſſion, the body will move according to the direction C I, and with a velocity as C I. In the ſame manner it will be found, that the rebounding body B will move along the diagonal of the parallelogram C M; in which $L M = B G$. The velocities, therefore, after percuſſion, are as C I to C M.

Percussion, *Centre of.* See Center *of Percuſſion.*

PERCY, in *Geography*, a town of France, in the department of the Channel, and chief place of a canton, in the diſtrict of St. Lo; 12 miles S. of St. Lo. The place contains 2952, and the canton 9580 inhabitants, on a territory of 160 kiliometres, in 13 communes.

Percy, an extenſive townſhip of America, in Grafton county, New Hampſhire, watered by the ſeveral branches of Upper Amonooſuck river, bounded W. by Northumberland, on Connecticut river; incorporated in 1774, and containing 148 inhabitants.

PERDICCAS, in *Biography*, one of the captains of Alexander the Great, was a Macedonian of noble birth, and roſe to high favour with his maſter, in whoſe conqueſts he bore a conſiderable part. Alexander, in his laſt illneſs, entruſted his ring to Perdiccas, who, at a meeting of the great officers after the death of the conqueror, reſigned the ring, together with any authority it might be ſuppoſed to convey. When Aridæus, the brother of Alexander, was appointed to the ſucceſſion, Perdiccas gained a conſiderable aſcendancy over him, and procured the death of Meleager, the commander of the Macedonian phalanx, of whom he was jealous. At the diviſion of honours and provinces among the great officers, he was nominated general of the houſhold troops, and exerciſed the protectorate of the Macedonian princes, Aridæus, and the new-born ſon of Alexander by Roxana, though Craterus had the title of protector. In conjunction with Roxana, he removed all who could be competitors to the crown, and conducted the government with great cruelty. Ambitious of extending his power, he repudiated his wife Nicæa, the daughter of Antipater, and married Cleopatra, the daughter of Philip, and ſiſter of Alexander, at the propoſal of Olympias, her mother. A league being formed againſt him, between Ptolemy, Antipater, and Craterus, he reſolved to march into Egypt againſt the firſt, while Eumenes, who adhered to him as guardian of the royal family, ſhould make head againſt the others. Perdiccas, on entering Egypt, found ſome ſymptoms of diſaffection in his troops, which he was at firſt diſpoſed to treat with ſeverity, but finding that this method would not ſucceed, he changed his conduct, and behaved to them with great condeſcenſion, inſomuch that they were induced to croſs the Nile, and attack Ptolemy in his intrenchments. After a bloody action, they were repulſed, and great numbers of them were drowned in repaſſing the river. At length their diſcontents were ſo high, that they mutinied; and a party of horſe, ſurrounding the tent of Perdiccas, murdered him in the year B.C. 321, two years after the death of Alexander. Univ. Hiſt.

PERDICIUM, in *Botany*, appears to have been ſo called by Linnæus, on account of a conſiderable reſemblance between his original ſpecies, *ſemifloſculare*, and his *Leontodon* (now *Hieracium*) *bulboſum*. The latter was thought by ſome to be the περδικιον of Theophraſtus, which received that appellation, as the Greek writer expreſsly mentions, becauſe partridges frequented the plant and ſcratched its roots out of the ground. Various other tuberous-rooted herbs have indeed been taken for the ancient περδικιον, but theſe are not to our preſent purpoſe. The roots of the Linnæan *Perdicium ſemifloſculare* are copious, long, and fleſhy, and we cannot doubt that hence aroſe the ſcarcely warrantable aſſumption of an old Greek name, for a Cape and American genus, though that name had hitherto not been, with any certainty, appropriated. Linn. Gen. 428. Schreb. 559. Willd. Sp. Pl. v. 3. 2116. Mart. Mill. Dict. v. 3. Vahl. in Copenh. Tranſ. v. 1. faſc. 2. 8. Ait. Hort. Kew. ed. 2. v. 5. 84. Juſſ. 181. Lamarck Illuſtr. t. 677. Gærtn. v. 2. 450. t. 170. (Trixis; Browne Jam. 312 ?)—Claſs and order, *Syngeneſia Polygamia-ſuperflua.* Nat. Ord. *Compoſitæ diſcoideæ*, Linn. *Corymbiferæ*, Juſſ.

Gen. Ch. *Common Calyx* oblong, of many lanceolate imbricated leaves; the innermoſt ſcarcely longer than the corolla. *Cor.* compound, imbricated, radiated. Florets of the diſk perfect, tubular, cloven half way down; their inner lip deeply divided, ſharp-pointed, equal; outer three-cleft half way down, linear, equal; thoſe of the radius female, linear, tongue-ſhaped, three-toothed, with two teeth at the baſe on the inner ſide. *Stam.* in the perfect florets, filaments five, ſhort; anthers forming a cylindrical tube, with five teeth. *Piſt.* in the ſame, germen ſmall; ſtyle ſimple; ſtigma cloven, obtuſe: in the female ones, germen ſmall; ſtyle cloven half way down; ſtigmas obtuſe. *Peric.* none, except the unchanged calyx. *Seeds* ſolitary, obovate. *Down* capillary, ſeſſile, rough, very abundant, the length of the calyx, level-topped. *Recept.* naked.

Obſ. The flower reſembles a ſemifloſculous one, though it is truly radiated. The characters were taken from the firſt ſpecies, *P. ſemifloſculare;* the *radiale*, though agreeing in the character of the two-lipped florets, differs entirely in habit. *Linn.* Vahl conſiders the florets as all uniform, and therefore places this genus in the order *Polygamia æqualis*.

Eſſ. Ch. Receptacle naked. Florets two lipped. Down capillary, rough.

1. P. *ſemifloſculare.* Linn. Sp. Pl. 1248. Amoen. Acad. v. 6. 103. Thunb. Prodr. 160. (P. Taraxici; Vahl. n. 1. t. 1. Willd. n. 1.)—Stalks radical, ſingle-flowered. Leaves runcinate, ſmooth, with rounded lobes.—Native of the Cape of Good Hope, in muddy places. The *root* is perennial, long and tuberous, with numerous, long, cylindrical, thick, fleſhy fibres, running deep into the ground, totally miſrepreſented in Vahl's plate. *Stem* none. *Leaves* numerous, radical, ſpreading, ſtalked, three or four inches long, runcinate, obtuſe, ſmooth; their numerous lobes ſhort, broad, rounded, ſlightly toothed. *Footſtalks* linear, their permanent fibrous remains crowning the root, and ſurrounding the preſent leaves. *Flower-ſtalks* one or two, aſcending, ſimple, round, woolly, rather longer than the leaves, each uſually bearing one linear *bractea*, towards the top. *Flower* ſomewhat drooping, large. *Calyx* like a *Scorzonera*. *Seed-down* very copious and denſe, ſhining, rather tawny, an inch long. This plant has indeed much of the aſpect of a Dandelion, but we cannot ſubmit to the change of a good Linnæan name, expreſſive of the habit of the flower, for a new one of a very faulty conſtruction.

2. P. *tomentoſum.* Thunb. Jap. 319. Vahl. n. 2. t. 2. Willd. n. 2.—Stalk radical, ſingle-flowered, with ſeveral awl-ſhaped bracteas. Leaves lyrate, downy beneath.—Gathered by Thunberg in Japan, flowering in April and

May. Smaller and more downy than the former, with lyrate *leaves*, whoſe terminal lobe is heart-ſhaped and wavy, with ſlight teeth. *Flowers* much ſmaller, with a purple radius and yellow diſk.

3. F. *Anandria.* Siberian Perdicium. Brown in Ait. Hort. Kew. ed. 2. v. 5. 84. (Tuſſilago Anandria; Linn. Sp. Pl. 1213. Willd. Sp. Pl. v. 3. 1962. T. ſcapo unifloro, calyce clauſo; Linn. Hort. Upſ. 259. t. 3. f. 1. Gmel. Sib. v. 2. 141. t. 68. f. 1. Anandria; Linn. Amœn. Acad. v. 1. 243. t. 11.)—Stalk radical, ſingle-flowered, with ſeveral awl-ſhaped bracteas. Leaves lyrate, acute, denudated on both ſides. Calyx cloſed, longer than the florets. —Native of Siberia, in mountainous fields. Cultivated by Miller in 1759. It flowers in March and is perennial, but has nothing to recommend it as a garden plant, except botanical ſingularity. The *root*, according to Gmelin, conſiſts of many fleſhy ſpreading fibres, like that of Aſphodel. *Leaves* radical, ſtalked, lyrate, minutely toothed; when young cottony beneath, but becoming naked and ſmooth, on both ſides, when fully grown; their terminal lobe larger, more ovate, and acute, than in the laſt. *Flower-ſtalk* a foot high, much taller than the leaves, cottony, with ſeveral awl-ſhaped *bracteas*. *Flower* nearly globoſe; its *calyx* downy, cloſed, riſing much above the *florets*, which appear to have the proper characters of *Perdicium*, as was firſt pointed out by Mr. Brown. The whole habit of the plant, compared with the two preceding ſpecies, confirms his determination of the genus.

4. P. *populifolium.* (Tuſſilago ſcapo imbricato, unifloro, foliis ovatis, oblongis, ex ſinuato dentatis; Gmel. Sib. v. 2. 141. t. 67. f. 1.)—Stalk radical, ſingle-flowered, with ſeveral ſheathing bracteas. Leaves ovate, wavy, toothed; denſely woolly beneath. Root creeping.—Native of Siberia, in ſtony places. We cannot but think this muſt be a diſtinct ſpecies from the laſt. The *root* creeps among ſtones, and is not thicker than a crow's quill. *Leaves* ſimple, (not lyrate,) wavy or coarſely toothed; cottony beneath at all times; clothed with deciduous down on the upper ſide when young, but afterwards ſmooth and ſhining, of a dark purpliſh hue. *Flower-ſtalk* inveſted with three or four broad, ſheathing, finally ſmooth *bracteas*. *Flowers* white. *Calyx* chiefly downy at the baſe, ſcarcely more than half the length of the ſpreading *radius*, which is white.

With reſpect to Gmelin's *Tuſſilago* n. 124. t. 67. f. 2, it differs from this laſt in having ſomewhat lyrate *leaves*, far leſs cottony beneath, and a very few linear *bracteas*. This appears to be what Linnæus has figured in Hort Upſ. t. 3. f. 2, under the name of *Bellidiaſtrum*. He ſpeaks of it as a variety of *Anandria*, with elongated radiant *florets*, cauſed by being planted in a pot, or an open dry ſituation. Gmelin ſeems not to have been ſatisfied with this deciſion, and adviſed the cultivation of both plants, from ſeed. We are alſo well aware of the fallibility of cultivators, and think it not impoſſible, that Linnæus might have received the roots of both the plants in queſtion, without diſtinguiſhing them, and thus have been led to conſider the ſubſequent difference in their produce as accidental. We will not however preſume to decide this queſtion, any further than that we have no doubt of the permanent difference between our *P. populifolium* and Gmelin's t. 67. f. 2; which laſt, if not diſtinct, muſt be a variety of *Anandria*, with which its *bracteas* and habit moſt nearly agree. Gmelin's original ſpecimens are all before us in the Linnæan herbarium. In the moment of writing this article, the fourth and fifth volumes of the Hortus Kewenſis have reached us, and have led to the above inveſtigation. This valuable publication being now complete, we need not in future note the edition to which we refer, except when we may occaſionally want to cite the firſt.

5. P. *purpareum.* Vahl. n. 3. t. 3. Willd. n. 3.—Stems moſtly ſimple, nearly leafleſs, aſcending. Flowers ſolitary. Leaves pinnatifid, cut, looſely woolly. Radius revolute. —Gathered by Commerſon in the ſtraits of Magellan. The *root* is perennial, with long ſlender fibres. *Stems* ſeveral, aſcending three or four inches high, ſimple or rarely divided, looſely woolly, bearing uſually one pinnatifid *leaf* near the baſe, and ſeveral alternate, linear, undivided ones higher up. *Leaves* moſtly radical, ſtalked, clothed with fine, long, lax, deciduous wool, deeply pinnatifid; their ſegments ovate or wedge-ſhaped, deeply and irregularly cut; their margins generally entire and ſmooth, but now and then minutely ſpinous. *Flowers* terminal, ſolitary, about an inch wide. Radiant *florets* ovate, entire, revolute, purple. *Down* more feathery than in the reſt. Our ſpecimen was given by Thouin to the younger Linnæus.

6. P. *magellanicum.* Linn. Suppl. 376. Willd. n. 4. Vahl. n. 4. t. 4.—Stem ſimple, ſingle-flowered, hiſpid, nearly leafleſs. Leaves pinnatifid; their ſegments rounded, undivided, fringed. Radius ſpreading.—Gathered by Forſter and Commerſon in the ſtraits of Magellan. *Root* much like the laſt. *Stem* ſolitary, from two to five inches high, ſlightly leafy, reddiſh, rough all over with minute, prominent, glandular points. *Leaves* chiefly radical, numerous, ſpreading, about two inches long including their *footſtalks*, deeply pinnatifid, and ſomewhat lyrate, with numerous, oppoſite, rounded, entire ſegments, ſmooth on both ſides, but denſely bordered with minute briſtles. *Flower* ſolitary, twice the ſize of the laſt, white, with ſpreading oblong radiant *florets*, toothed at the end. *Leaves* of the calyx bordered with purple, roughiſh, partly fringed. *Seed-down* rough, not feathery. This is a very elegant plant, on account of the regularity of its *leaves*, which reſemble thoſe of a *Lepidium*, and the ſize as well as beauty of the *flower*.

7. P. *nervoſum.* Thunb. Prodr. 160. Willd. n. 5.— "Leaves ſimple; downy and ribbed beneath."—Native of the Cape of Good Hope. We have ſeen no ſpecimen of this or the next.

8. P. *chilenſe.* Willd. n. 6.—"Stem leafy, ſingle-flowered. Leaves linear-lanceolate, ſtalked, ſerrated at the extremity."—Native of Chili.—*Root* perennial. *Stems* ſeveral, a ſpan long, aſcending, ſmooth, leafy, ſingle-flowered. *Leaves* half an inch long, linear-lanceolate, tapering at each end, very narrow, ſharply ſerrated at the apex. *Footſtalks* longer than the leaves. *Bracteas* numerous, ſomewhat ſtalked, of the ſhape of the leaves, ſurrounding the *flower*, which is radiated. *Willd.*

9. P. *lactucoides.* Vahl n. 5. t. 5. Willd. n. 7. (After magellanicus; Lamarck Dict. v. 1. 305. n. 26. Illuſtr. t. 681. f. 3.)—Stem leafy, ſingle-flowered. Radical leaves elliptic-lanceolate, on long ſtalks; the reſt ſeſſile, claſping the ſtem.—Gathered at the ſtraits of Magellan, by Commerſon, who having marked his ſpecimens as an *Aſter*, the plant was deſcribed as ſuch by Lamarck. The whole *herb* is deſtitute of pubeſcence. *Stem* from one to nearly two feet high, ſlender, quite ſimple, round, leafy. Radical *leaves* ſeveral, an inch or two long, entire, on ſlender, almoſt capillary, *footſtalks*, three or four times their own length; thoſe on the ſtem numerous, alternate, ſeſſile, linear-lanceolate, entire, about an inch long, embracing the ſtem with their ovate baſe. *Flower* ſolitary, rather drooping, not unlike that of *P. magellanicum*, but ſcarcely half ſo large.

10. P. *ſquarroſum.* Vahl n. 6. t. 6. Willd. n. 8.—Stem many-flowered. Leaves pinnatifid, with toothed briſtly ſegments.—Gathered by Commerſon at Monte Video.

A very handſome ſpecies. The *ſtem* is above a foot high, leafy, corymboſe, hiſpid in the manner of the ſixth ſpecies. *Leaves* ſeſſile, two or three inches long, linear, ſhining, rough with minute points, deeply pinnatifid; their ſegments acute, toothed, each point and tooth tipped with a pale briſtle: the radical leaves moſt numerous, ſomewhat ſtalked, their ſegments rather folded or imbricated. *Flowers* ſolitary at the top of each branch, from four to eight in all, an inch broad. *Calyx* rough, pointed, its outer leaves fringed, *Radius* purple, revolute.

11. P. *braſilienſe*. Linn. Mant. 115. Willd. n. 9. Vahl n. 7.—Stem many-flowered. Leaves rough; radical ones obovate, runcinate; the reſt oblong; uppermoſt entire.—Gathered in Braſil, by Father Panegai an aſtronomer, who ſent it to Arduino. Commerſon alſo found it at Monte Video. The *root* has many thick fleſhy fibres. *Herb* rough in every part, with minute briſtly hairs, a foot or more in height. Radical *leaves* ſtalked, near three inches long, obtuſe, with many ſhallow, runcinate, toothed ſegments; thoſe on the ſtem ſeſſile, oblong, undivided, the lower ones toothed, the upper gradually ſmaller and entire. *Flowers* four or five at the top of the ſtem, corymboſe, the ſize of the laſt, but yellow, or pale ſulphur-coloured.

12. P. *lævigatum*. Berg. in Stockh. Tranſ. for 1772. 229. t. 7. Willd. n. 10.—Stem rather ſhrubby. Leaves ſtalked, lanceolate, entire, fringed. Flower-ſtalks terminal, moſtly in pairs.—Native of Porto Bello. We have ſeen no ſpecimen, nor even that volume of the Stockholm Tranſactions, in which alone this ſpecies is deſcribed.

13. P. *radiale*. Linn. Sp. Pl. 1248. Willd. n. 11. Vahl n. 8. (Inula Trixis; Linn. Am. Acad. v. 5. 406. Trixis n. 1; Browne Jam. 312. t. 33. f. 1.)—Stem ſhrubby. Leaves ſtalked, ovate, toothed, flat, ſmooth. Flowers corymboſe.—Native of meadows about Kingſton in Jamaica. *Browne*. *Stem* four or five feet high, ſhrubby, round, ſmooth, leafy. *Leaves* alternate, on ſhort ſtalks, ovate, pointed, flat, ſmooth on both ſides, three inches long, reticulated with minute veins. *Flowers* few, yellow, corymboſe, at the ends of the branches, accompanied by diminiſhed leaves. *Calyx* ſmooth, ſomewhat fringed.

14. P. *recurvatum*. Vahl n. 9. t. 7. Willd. n. 12.—Stem ſomewhat ſhrubby. Leaves linear-lanceolate, recurved, revolute, bordered with minute ſpines. Flowers terminal, ſolitary.—Gathered by Commerſon at the ſtraits of Magellan. This ſeems to be a low, tufted, much branched *ſhrub*, with crowded, recurved, ſhining, linear-lanceolate *leaves*, an inch long, corrugated on the upper ſide, reflexed at the margin, the prominent edges beſet with little ſpines. *Footſtalks* broad, fringed, imbricated. Flowering *branches* terminal, erect, roughiſh upwards, each bearing a few alternate, fringed, claſping *leaves*, and one erect purple *flower*, about an inch wide, whoſe outer *calyx-leaves* are fringed with ſmall ſpines. A very pretty and ſingular ſpecies, which though different in its firſt aſpect, diſplays, when examined, abundant marks of affinity to the reſt.

Perhaps Vahl may be right in removing *Perdicium* to the order of *Syngeneſia Polygamia-æqualis*, there being, apparently, in moſt of the ſpecies, no more difference between the florets, than a gradual diminution as they approach the centre, like what is ſeen in *Hieracium* and others. In habit ſome of the ſpecies agree with the ligulate, others with the capitate, genera of that order. Notwithſtanding all this, as the various ſpecies have not been examined living, and as Linnæus has deſcribed a difference in ſtructure, between the florets of the radius and of the diſk, we rather prefer leaving the genus where he placed it. The thirteenth ſpecies is ſo different in habit, that we cannot but ſuſpect it to belong to ſome other tribe. Browne's figure of the diſſected flower diſagrees with his deſcription, which ſays the florets are all uniform. In the plate the radiant ones are as they ought to be in *Perdicium*; while the diſk is made to conſiſt of ſuch as are equally five-cleft.

PERDIDO, in *Geography*, a river and bay on the coaſt of Weſt Florida. The mouth of the river is about ten leagues E. of Mobile point and four W. of the line of Penſacola. It has a narrow entrance, with a bar of ſix feet, but afterwards widens conſiderably. This was formerly the boundary between Florida and Louiſiana, ſeparating the French and Spaniſh dominions, and is now conſidered as the eaſtern boundary of Louiſiana, as lately ceded to the United States. The river ſtretches in one place N.E. where it paſſes within a mile of the great lagoon W. of the entrance of Penſacola harbour.

PERDIX, in *Conchology*, a name given by authors to a genus of ſhells, ſuppoſed to reſemble the partridge in the ſhades and diſpoſition of the colours.

The partridge-ſhell is of the dolium, or concha globoſa claſs, and is ſtriated and ſpotted in a peculiarly elegant and regular manner. See CONCHOLOGY.

PERDIX, in *Ornithology*. See TETRAO.

PERDIX *Ruſtica*. See SCOLOPAX *Ruſticola*.

PERDIX *Major Braſilienſis*. See PSOPHIA *Crepitans*.

PERDIX *Montana*. See COLUMBA *Montana*.

PERDOLI, in *Geography*, a town of Iſtria; four miles N.N.W. of Pola.

PERDONATIO *ut lagariæ*, in *Law*, a pardon for one who is outlawed.

PERDRIX *de Mer*, in *Ornithology*. See GLAREOLA and TETRAO.

PERDU, MONT, in *Geography*, the loftieſt mountain of the Pyrenées, and the moſt elevated in which any marine remains have been found in Europe. M. Ramond obſerved that this mountain was calcareous, and contained ſhells and other organized bodies, in a foſſil ſtate, at an elevation of about 3000 metres. As he aſcended this mountain, in Auguſt 1802, by paſſing the Col de Fanlo, or Niſele, he conſtantly found ſtrata of compact carbonated lime in a poſition nearly vertical. They include ſtrata of calcareous ſandſtone, and theſe ſtrata ſometimes cover the ſaliant angles of the vertical ſtrata, nearly in a horizontal direction. This calcareous ſtone falls off ſpontaneouſly in little irregular fragments; and on the ſlighteſt friction, or diſſolved in acids, it emits a nauſeous fœtid ſmell, probably owing to the animal matter it contains. Some of the ſtrata of this ſtone contain nodules of flint; others ſuch conſiderable maſſes of "Camerines," that the ſtone appears entirely compoſed of them. The ſummit is formed of a fœtid limeſtone, contaminated with quartz, and containing a little iron, and $\frac{1}{150}$th of carbon, without alumine. The elevation of this ſummit is the ſame as that of the Col du Géant in the Alps, or 3426 metres = 3727 yards.

M. Ramond has aſcertained the limits of permanent ſnow, and of vegetation, for this lofty part of the Pyrenean chain. The ſnow terminates at 2440 metres. The laſt trees are Scotch firs, which reach 2150 metres. Next come the ſhrubs, of which the juniper is the higheſt. At 2760 metres were found the "Ranunculus parnaſſiæ foliis," the "Saxifraga Groenlandica," &c.; then the "Artemiſia rupeſtris" of Lamarck; and laſtly round the very peak of Mont Perdu, on rocks too ſloping to retain the ſnow, grow the "ceraſtium," perhaps the "alpinum" of Linnæus, and the roſe-flowering "Aretia alpina."

PERDUE, a ſoldier placed in a dangerous, and almoſt deſperate poſt. Thus we ſay, *enfans perdues*, for the forlorn hope of an army.

The word is French, and literally ſignifies *loſt*.

To lie *perdue*, is to lie flat on the belly, or to lie cloſely in wait.

Perdue *Bay*, in *Geography*, a bay on the S.W. coaſt of the iſland of St. Vincent; 71 miles N.W. of Kingſton bay.

PEREA, a ſmall iſland near the coaſt of Braſil. S. lat. 2° 22′. W. long. 45° 2′.

PEREBEA, in *Botany*, Aubl. Guian. 952. t. 361. Juſſ. 402, a Guiana plant, whoſe botanical characters are not fully known. Aublet deſcribes it as a middling-ſized *tree*, throwing up from the *root* many ſtraight flexible *trunks*, about four or five inches in diameter, which bear ſtriated leafy *branches*. *Leaves* alternate, nearly ſeſſile, elliptic-oblong, pointed, wavy and ſomewhat toothed, a foot or more in length, and about five inches wide, green, ſmooth and ſhining, with one principal rib, and many tranſverſe ones. When held againſt the light, theſe *leaves* appear full of tranſparent dots. *Stipulas* ſolitary, large, membranous, deciduous. *Flowers* axillary, on ſhort ſtalks, ſolitary, each conſiſting of a flat fleſhy *receptacle*, toothed at the edge, two inches or more in diameter, its upper ſurface covered with about 30 crowded *florets*, and at length becoming convex. Each *floret* conſiſts of a tubular *calyx*, with four teeth, embracing a roundiſh *germen*, a fleſhy columnar *ſtyle*, and cloven *ſtigma*. Aublet ſaw nothing of the *ſtamens*, which he ſuppoſes are in ſeparate flowers, on a diſtinct tree. The *calyx* becomes a fleſhy *fruit*, of a coral red, containing a ſingle *ſeed*, as in the Mulberry; but each *fruit* falls off ſeparate, leaving the *receptacle* bare. Every part of the tree yields a milky juice. The bark ſerves for cordage.

This genus is juſtly ranged by Juſſieu in his natural order of *Urticæ*, being evidently allied to *Ficus*, *Morus*, *Brouſſonetia*, &c. See Papirius.

PE'RE-EN-RETZ, St., in *Geography*, a town of France, in the department of the Lower Loire, and chief place of a canton, in the diſtrict of Paimbœuf. The place contains 1973, and the canton 5988 inhabitants, on a territory of 232½ kiliometres, in four communes.

PEREFIXE, Hardouin de Beaumont, in *Biography*, a prelate and hiſtorian, deſcended from an ancient family in Poictou, was the ſon of cardinal Richelieu's maître d'hôtel. That miniſter took care of his education, and being brought up to the church, he was made a doctor of the Sorbonne, and preached with applauſe. He was choſen preceptor to the prince, afterwards Lewis XIV., and in 1654 he was admitted into the French academy. By command of the king he compoſed an abridgment of French hiſtory, from which he detached the life of Henry IV. which was publiſhed ſeparately at Amſterdam in 1661, and again with augmentations at Paris the year after. Though negligently written, it is accounted an excellent work, and one which gives a better picture of that amiable monarch than the fuller hiſtory of father Daniel. It omits many circumſtances of his life, the purpoſe being to collect thoſe only which might ſerve for leſſons to a great prince. This author publiſhed likewiſe a ſmall piece entitled "Inſtitutio Principis," being a plan of royal education during the period of childhood. In 1664 he was created archbiſhop of Paris, and had the fortune to be deeply involved in the diſputes of Janſeniſm. He died at an advanced age in 1676. His private character has been repreſented as mild and amiable. Moreri.

PEREGRINARY, Peregrinarius, in the *Ancient Monaſteries*, a monk to whom was committed the care of receiving and entertaining ſtrangers, or viſitors.

PEREGRINATORES, in *Botany*, a name for ſuch ſtudents in that ſcience as have taken long journies, and viſited the remoteſt regions, in ſearch of plants.

PEREGRINE, Peregrinus, a term applied among *Aſtrologers*, to a planet, when found in a ſign where it has none of its five eſſential dignities.

PEREGRINUS, ſurnamed *Proteus*, in *Biography*, a cynic philoſopher in the ſecond century, was a native of Parium in Pontus. If we are to credit the account which Lucian has given of him, his conduct in early life was extremely profligate. Being obliged to fly from his country, he went to Paleſtine, where he made profeſſion of Chriſtianity, and gained ſome credit with the Chriſtians by his firmneſs in ſubmitting to impriſonment under Trajan's perſecution, ſooner than renounce his avowed principles. During his confinement, he was viſited by the deputies from the churches of Aſia, who adminiſtered to him aſſiſtance ſuited to his wants and ſufferings, and in the character of a perſecuted believer, he contrived to amaſs a conſiderable ſum of money. At length he was ſet at liberty by the governor of Syria, who was a lover of philoſophy, and admired the contempt of death which Peregrinus diſplayed. Upon his return to Parium, he acquired reputation in the character of a diſintereſted philoſopher. By the charity of the Chriſtians, whom he continued to deceive, he was furniſhed with all neceſſary ſupplies, till, having been detected in the commiſſion of ſome crime, he was diſmiſſed their ſociety, and fell into indigence. He now endeavoured to recover the poſſeſſion of his eſtates from the city, but failing in the attempt, he went into Egypt. Here, in the character of a mendicant cynic, he practiſed the moſt extravagant exploits of fanaticiſm, in order to ſhew his contempt for the opinions of the world. From Egypt he went into Italy, where he behaved extremely ill, ſo that he was driven away by the government. Paſſing over into Greece he attracted the admiration of the crowd at Athens, by the ſeverity of his cynical manners, and the lectures which he delivered. Finding their enthuſiaſm in his favour becoming leſs ardent, he determined to procure an immortal name by burning himſelf at the olympic games, in imitation of Hercules. This deſign he announced throughout the whole of Greece, and, at the appointed time, went to Olympia, where, in the preſence of a vaſt concourſe of ſpectators, he raiſed a funeral pile, and devoted himſelf to a voluntary death. Such is the account given of Peregrinus by Lucian, but Aulus Gellius ſpeaks of him as a philoſopher of reputation at Athens, who was admired for his conſtancy, and whoſe moral lectures were much frequented. According to Euſebius he committed himſelf to the flames in the year 168. Lucian. Enfield's Hiſt. Phil.

PEREIRA, Bartholème, a Portugueſe Jeſuit, and one of the many epic poets which that extraordinary ſociety has produced. The work which he publiſhed is entitled "Paciecidos" libri xii. Coimbra 1640; it was written in honour of a Jeſuit who ſuffered martyrdom in Japan, and to whom the poet was related. Except the names of idols, and the bronzes, there is no alluſion to any rite or cuſtom of the country. There are, however, ſays Mr. Southey, ſome curious paſſages in the poem, particularly a perſonification of Amor Vitæ, and ſome of real merit.

Pereira *de Suſa*, in *Geography*, a town of Portugal, in the province of Beira; 18 miles S.E. of Oporto.

PEREK, a town of Perſia, in the province of Farſiſtan; 14 miles N. of Darebghend.

PEREKOP, a fortreſs of Ruſſia, in the province of

Tauris, on the iſthmus which joins the peninſula to the continent, and which has been always reckoned the key to the whole country. Its name is Sclavonian, denoting a cut made through a place, and applicable to the ditch dug here, in remote ages, acroſs the neck of land at the entrance of the Crimea, for the ſecurity of the place. For the ſame reaſon the Greeks called it "Taphros" or "Taphræ," and the Greeks and Tartars "Or." The houſes here are mean. After often changing maſters, it was finally ceded, in 1783, to the Ruſſians, with the reſt of the Crimea, by the abdication of the khan. N. lat. 46° 4′. E. long. 33° 20′.

PEREKOPSKAIA, a town of Ruſſia, in the country of the Coſſacks, on the Don; 48 miles S. of Archedinſkaia.

PERELOMOV, a town of Ruſſia, in the government of Irkutſk, on the Amor; 56 miles N.E. of Stretinſk.

PEREMSCHAL, a town of Ruſſia, in the government of Kaluga, on the Oka; 16 miles S.S.W. of Kaluga. N. lat. 54° 15′. E. long. 35° 44′.

PEREMPTORY, in *Law*, an epithet applied to an action, exception, &c. ſignifying them to be abſolute, final, and determinate; and not to be altered, renewed, or reſtrained.

Thus in our law books we find *peremptory action, peremptory nonſuit, peremptory exemption*, &c.

PERENDORE, or Perentoray, in *Geography*, a town of Hindooſtan, in the Myſore; 10 miles S.W. of Erroad.

PERENE, a river of Peru, which riſes about two leagues from Tarma, runs through that town, and receives many ſtreams from the heights of Bombom and Paſco; the Perene joins the Maranon, on the weſtern ſide, at 11° 18′.

PERENNIAL Plants, in *Gardening*, are ſuch as are of long duration. Such plants as are perpetuated by the roots, whether the leaves and ſtalks decay annually in winter, or always remain, provided the roots are of many years duration, are perennial. All plants, therefore, with abiding roots, both of the herbaceous, ſhrub, and tree kinds, are perennials; though in the general acceptation of the word perennial, it is moſt commonly applied to herbaceous vegetables with durable roots, more eſpecially thoſe of the flowery kind, which among gardeners are commonly called ſimply perennials, particularly the fibrous-rooted tribe; but it is equally applicable to fibrous, tuberous, and bulbous-rooted plants, whoſe roots are of ſeveral years duration; likewiſe all ſhrubs and trees of every denomination, as having abiding roots, are perennial plants.

And theſe ſorts of plants conſiſt both of deciduous and ever-green kinds; thoſe that caſt their leaves, &c. in winter being termed deciduous perennials, and thoſe which retain their leaves, ever-greens.

The herbaceous perennials, of the fibrous, tuberous, and bulbous-rooted kinds, for the greater part, have annual ſtalks, riſing in ſpring, and decaying in winter; and a great many loſe their leaves entirely alſo in that ſeaſon, ſuch as the perennial ſun-flower, aſters, and numerous other ſorts; and many retain their leaves all the year, but not their ſtalks; as is exemplified in the auricula, polyanthus, ſome campanulas, pinks, carnations, and many other plants.

Numbers of the herbaceous perennials multiply exceedingly by off-ſets of the root, by which they are readily propagated. See Off-set.

All the tree and ſhrub perennials are durable in root, ſtem, and branch; but renew their leaves annually. Even the ever-green kinds, although they are in leaf the year round, put forth new leaves every year, to which the old ones gradually give place. See Deciduous and Ever-green Trees.

Perennial *Winds*. See Winds.

PERES, or *Conſtantine Peres*, in *Geography*, an iſland on the coaſt of Chili, oppoſite to Port Coral. On this iſland is a fort called Manſera, and on the back of the iſland is an entrance for boats into the harbour of Valdivia.

PERESKIA, in *Botany*, received that appellation from Plumier, in honour of Nicholas Fabricius Peireſk, a magiſtrate of Aix in Provence, highly celebrated for his botanical learning and great love of plants. He is ſaid to have prepared ſeveral works on natural philoſophy, mathematics, and botany, whoſe publication was prevented by his death. The *Pereſkia* of Plumier however was reduced by Linnæus to Cactus, ſee that article. There are characters perhaps in the fructification ſufficient to have kept it diſtinct, as the habit is very diſſimilar.

PERESLAVALZALSKOI, in *Geography*, a town of Ruſſia, in the government of Vladimir; 60 miles N.W. of Vladimir. N. lat. 56° 35′. E. long. 38 54′.

PERETERION, a name given by chirurgical writers to the perforating part of the trepan.

PEREVOLOTSKAIA, in *Geography*, a fort of Ruſſia, in the government of Upha, on the Samara; 32 miles W.N.W. of Orenburg.

PEREVOZ, a town of Ruſſia, in the government of Niznei Novgorod; 48 miles S.S.E. of Niznei Novgorod. N. lat. 55° 36′. E. long. 44° 34′.

PEREVOZNOI, Nos, a cape of Ruſſia, in the ſtraits of Vaigatſkoi. N. lat. 69° 15′. E long. 58° 22′.

PEREZ, David, in *Biography*, the ſon of Juan Perez, a Spaniard, ſettled at Naples, was born in 1711, and brought up in the conſervatorio of Santa Maria di Loreto, in that city, under Antonio Gallo and Franceſco Mancini. His progreſs in compoſition was rapid, and diſcovered an uncommon genius. When he quitted the conſervatorio, his firſt preferment was at Palermo in Sicily, where he was appointed maeſtro di capella of the cathedral in that city, at a conſiderable ſalary, the half of which he was permitted to enjoy, not only after he quitted Sicily, but even Italy, to the time of his death.

He compoſed his firſt operas for the theatre at Palermo, from 1741 to 1748, and then returned to Naples, where his "Clemenza di Tito" was performed with ſuch great applauſe at the theatre of San Carlo, as to extend his fame to Rome, whither he was invited the next year to compoſe for the theatre delle Dame. Here he produced "Semiramide" and "Farnace;" and for other cities in Italy "La Didone Abbandonata," "Zenobia," and "Aleſſandro nell' Indie."

In 1752, he went to Portugal, where he was engaged in the ſervice of king Joſeph. His firſt opera at Liſbon, "Demofoonte," was received with very great applauſe. Gizziello was the principal ſoprano, and the celebrated Raaf the tenor. It was beſides rendered magnificent in the performance by a powerful orcheſtra and decorations that were extremely ſplendid. But the new theatre of his Portugueſe majeſty, which was opened on the queen's birth-day, March 31ſt, 1755, ſurpaſſed, in magnitude and decorations, all that modern times can boaſt. On this occaſion Perez new ſet the opera of "Aleſſandro nell' Indie," in which opera a troop of horſe appeared on the ſtage, with a Macedonian phalanx. One of the king's riding-maſters rode Bucephalus, to a march which Perez compoſed in the manege, to the grand pas of a beautiful horſe; the whole far exceeding all that Farinelli had attempted to introduce in a grand theatre under his direction at Madrid, for the fitting out of which he had unlimited powers. Beſides theſe ſplendid decorations, his Portugueſe majeſty had aſſembled together the greateſt ſingers then exiſting; ſo that the lyric productions of Perez had every advantage which a moſt captivating and perfect execution could give them.

The operas by which he acquired the greateſt fame in Portugal were "Demetrio" and "Solimano," with which, as they were to be alternately performed with the operas of "Vologeſo" and "Enea in Latio" that Jomelli had been requeſted by his moſt faithful majeſty to compoſe for his theatre, were produced with a degree of exertion and emulation, which rendered him ſuperior to himſelf. Jomelli on this occaſion was chiefly admired for the ingenious and learned texture of the inſtrumental parts; and Perez for the elegance and grace of his melodies, and expreſſion of the words.

His muſic for the church, of which a ſpecimen has been printed in England, "Matutino de i Morti," publiſhed by Bremner, in ſcore, is grave, ingenious, and expreſſive.

But though Perez has compoſed a "Te Deum," which is greatly eſteemed at Liſbon, and his "Lezione prima per il Giovedì ſanto," mentioned above, has conſiderable merit, yet it appears, on examining his ſcores, that this maſter had not, like Jomelli, much exerciſed his pen in the compoſition of fugues or learned counterpoint for the church, to the perfection of which, genius alone can contribute but little, without the aſſiſtance of great ſtudy and experience.

There is, however, an original ſpirit and elegance in all his productions; in which, if any defect appears, it is the want of ſymmetry in the phraſeology of his melodies, in which there may ſometimes be found what the French call *phraſes manquées*, and *contre-tems*, to which critical ears, in modern times, are much leſs accuſtomed than formerly. An ear for meaſure, and an ear for harmony and the accuracy of tones, ſeem to be totally different gifts of nature; and it frequently happens that a perſon who dances perfectly well in time, knows not one tune or tone from another.

Perez, like Handel, was corpulent and gourmand, a propenſity which has been ſuppoſed to have ſomewhat ſhortened his days. After living much admired, beloved, and reſpected, twenty-ſeven years in Portugal, where he was maeſtro di capella to his moſt faithful majeſty, and maſter to the royal family, at a ſalary exceeding 2000*l*. *per annum*, he died extremely regretted at the age of ſixty-ſeven. Like Handel, he was likewiſe blind during the latter years of his life; but after this calamity, when confined to his bed he frequently dictated, without an inſtrument, compoſitions, in parts, to an amanuenſis. His remains were depoſited in the church of the Italian Barbadindros, and a ſolemn dirge of his own compoſition was performed at his funeral, by a concourſe of the beſt muſicians in Liſbon.

Perez, Antonio, whoſe father was forty years ſole ſecretary of ſtate to Charles V. and Philip II., in which office he was ſucceeded by the ſubject of the preſent article, was alſo made ſecretary of war, and demeaned himſelf ſo well, as to enjoy, at the ſame time, the favour of the king and of the people. While in office he was commanded by the king to obtain the aſſaſſination of Don Juan de Eſcovedo. He unfortunately obeyed the orders of his ſovereign; and ſuppoſing that the deed would be conſidered as a common accident, the murder was perpetrated in the ſtreets of Madrid. Perez appears never to have ſuſpected that he committed a very great crime. He repreſented Eſcovedo's death as neceſſary, and the forms of juſtice he thought might readily be diſpenſed with on extraordinary occaſions. Suſpicion fell on him and the princeſs Eboli: it had been ſurmiſed that Philip was an unſucceſsful ſuitor to this lady, and jealous of Perez's intimacy with her. Be this, however, as it may, he took the opportunity, occaſioned by the ſuſpicion, to throw them both into priſon, and ſuffered the accuſation to hang over the ſecretary's head for many years, ſtill continuing to employ him, and promiſing him his protection and favour. At length he got poſſeſſion of the papers which alone could have eſtabliſhed his own ſhare in the murder, and then ſuffered Antonio to be put to the rack. It was the intention of this unfortunate man to bear the tortures inflicted on him without confeſſing, but the violence of the pain overcame his reſolution, and he declared that he had procured Eſcovedo's aſſaſſination, but that it was by Philip's orders. Happily for his own character, he had ſtill by him papers ſufficient to prove this, and with theſe he eſcaped to Arragon. "That kingdom," ſaid Mr. Southey, in writing the life of Perez only a year or two ſince, "was ſtill by its conſtitution a free country, but conſtitutions are nothing in the way of power, and no country has any other ſecurity for its freedom than the ſpirit and ſtrength of the people." He appealed to the tribunal del juſtiza de Arragon, a free tribunal, to whoſe deciſion Philip did not chuſe to attend, and, therefore, removed the cauſe to the Enqueſta, a ſort of ſtar-chamber of his own, in which any wickedneſs that it pleaſed him to direct would receive the form of legality. "But," ſays the writer already alluded to, "the Arragoneſe had now eſpouſed the cauſe of their injured countryman, and it was thought that the moſt effectual method of deſtroying him would be to deliver him over to the inquiſition. That accurſed tribunal, which had lately been eſtabliſhed in Saragoſſa, laid hands on him, on a charge of witchcraft: blinded and beſotted with ſuperſtition as the Arragoneſe were, in common with all the Spaniards, their love of liberty was not at this time to be thus betrayed. They reſcued him from the holy office. In conſequence of this and other tumults an army was marched into Arragon. The juſtiza, as he was bound to do, called upon his countrymen to reſiſt this invaſion of their rights; but he, and the nobles with him, aware of their inablity to oppoſe veteran troops, ſet the example of flight. Better had it been to have died in the field, even had the cauſe been utterly hopeleſs, as he deemed it, which poſſibly it might not have been. He and the other chiefs were ſecured and beheaded. Perez made his eſcape into France, and the forms of liberty in Arragon were extinguiſhed." Antonio found the protection that he implored: he publiſhed a narrative of his ſufferings, and it is certain, by the great names which appear in his correſpondence, that he was highly eſteemed and reſpected both in France and England. Several unſucceſsful attempts were made to murder him. He died miſerably poor in the year 1611, and endured to the laſt the heavy affliction of being ſeparated from his wife and children. No intereſt could avail to procure their liberation, and he imputes the death of his eldeſt daughter to grief on his account. Gen. Biog.

PERFECT, ſomething to which nothing is wanting; or that has all the requiſites of its nature and kind.

Perfect, *Perfecti*, in *Church Hiſtory*, a deſignation which the followers of Valentinus aſſumed to themſelves.

Perfect, in *Grammar*. Preter or preterit-perfect tenſe, is an inflection, marking a time perfectly paſt; as *I have heard*: pluſquam-perfect, is an inflection, expreſſing the time more than perfectly paſt; as *I had heard*, &c. See Tense.

Perfect, in *Muſic*, denotes ſometing that fills and ſatisfies the mind, and the ear. In which ſenſe we ſay, perfect cadence, perfect concord, &c.

The ancients had two kinds of modes, the major and minor; and each of theſe, again, was either *perfect* or *imperfect*.

The word *perfect*, when joined by the words *mode* and *time*, uſually expreſſes triple time, or meaſure; in oppoſition

poſition to double time, which they call *imperfect*. See Time.

Perfect, in *Phyſiology*. A perfect animal is uſed, by ſome writers, for that which is born by univocal generation; in oppoſition to inſects, which they pretend to be produced by equivocal generation.

Perfect *Flowers*, in *Botany*, and *Vegetable Phyſiology*, are ſuch as have the ſtamens and piſtils both perfect in the ſame flower. They are the *flores hermaphroditi* of Linnæus, and are ſometimes called *united flowers*.

Perfect *Mixts*. See Mixts.

Perfect *Number*, in *Arithmetic*, is one that is equal to the ſum of all its diviſors, or aliquot parts (Euclid, book vii. def. 22): thus,

$$6 = \frac{6}{2} + \frac{6}{3} + \frac{6}{6}$$

$$28 = \frac{28}{2} + \frac{28}{4} + \frac{28}{7} + \frac{28}{14} + \frac{28}{28}$$

are both perfect numbers.

To find Perfect Numbers.—Find $2^n - 1$, a prime number, then will $2^{n-1}(2^n - 1)$ be a perfect number: for $2^n - 1 = 1 + 2 + 2^2 + 2^3 + 2^4 +$ &c. 2^{n-1}: and it is demonſtrated by Euclid, in the laſt propoſition of book ix, that if the above ſeries be continued till the ſum be a prime, then that ſum multiplied by the laſt term of the ſeries will be a perfect number, which, therefore, is identically the ſame as the above formula, and the truth of the theorem under its analytical form may be demonſtrated as follows. Since $2^n - 1$ is a prime, put it $= b$, and $2^{n-1} = 2^m = a^m$, then the above is reduced to $a^m b$.

Now the ſum of the diviſors of $a^m b = \frac{a^{m+1} - 1}{a - 1} \times \frac{b^{1+1} - 1}{b - 1}$. See Numbers.

But in this formula the number itſelf is conſidered as a diviſor, which is excluded in perfect numbers; therefore the ſum of the diviſors, excluſive of the number itſelf, is

$$\frac{a^{m+1} - 1}{a - 1} \times \frac{b^{1+1} - 1}{b - 1}\, a^m - b;$$

and it only remains to be ſhewn that this is equal to $a^m b$, or that

$$\frac{a^{m+1} - 1}{a - 1} \times \frac{b^2 - 1}{b - 1} = 2\, a^m b:$$

and this will be obvious by re-eſtabliſhing again the values of a and b, as above: for then $\frac{2^n - 1}{2 - 1} \times \frac{(2n - 1)^2 - 1}{(2n - 1) - 1} = (2^n - 1)(2^n - 1 + 1) = 2^n(2^n - 1)$, and $2\, a^m b = 2 \cdot 2^{n-1}(2^n - 1) = 2^n(2^n - 1)$, which are identical.

Conſequently, every number of the form $2^{n-1}(2^n - 1)$ when the latter factor is a prime, is a perfect number, the ſum of its diviſors being equal to the number itſelf.

$$\begin{array}{llllll}
\text{If } n = & 2 & \text{then} & 2\;(2 - 1) & = & 6 \\
n = & 3 & - & 2^2\,(2^3 - 1) & = & 28 \\
n = & 5 & - & 2^4\,(2^5 - 1) & = & 496 \\
n = & 7 & - & 2^6\,(2^7 - 1) & = & 8128 \\
n = & 13 & - & 2^{12}\,(2^{13} - 1) & = & 33550336 \\
n = & 17 & - & 2^{16}\,(2^{17} - 1) & = & 8589869056 \\
n = & 19 & - & 2^{18}\,(2^{19} - 1) & = & 137438691328 \\
n = & 31 & - & 2^{30}\,(2^{31} - 1) & = & 2305843008139952128
\end{array}$$

which are all the perfect numbers at preſent known.

The difficulty, therefore, of finding perfect numbers ariſes out of that of finding prime numbers of the form $2^n - 1$, which is a very laborious operation. Euler aſcertained that $2^{31} - 1 = 214748347$ is a prime number, and this is the greateſt at preſent known to be ſuch, and conſequently the laſt of the above perfect numbers, which depends upon it, is the greateſt perfect number at preſent known, and in all probability the greateſt that ever will be known; for being merely matters of curioſity, it is not likely that any one will ever attempt to find one beyond it. See Barlow's Theory of Numbers.

Perfect *Plants*. See Plants.

PERFECTION, the ſtate or quality of a thing perfect. This is of divers kinds: *phyſical*, *moral*, and *metaphyſical*.

Perfection, *Phyſical*, or *Natural*, is that by which a thing has all its powers or faculties, and thoſe too in their full vigour; and all its parts both principal and ſecondary, and thoſe in their due proportion, conſtitution, &c. In which ſenſe a man is ſaid to be perfect, when he has a ſound mind in a ſound body.

This perfection is by the ſchoolmen frequently called ενεργητικη, becauſe a thing is thus enabled to perform all its operations.

Perfection, *Moral*, is an eminent degree of virtue, or moral goodneſs; to which men arrive by often repeated acts of piety, beneficence, &c.

This ſome ſubdivide into *abſolute* or *inherent*, which is actually in him to whom we attribute it; and *imputative*, which exiſts in ſome other, and not in him to whom it is attributed.

Perfection, *Metaphyſical*, or *Tranſcendental*, or *Eſſential*, is the poſſeſſion of all the eſſential attributes, or of all the parts neceſſary to the integrity of a ſubſtance: or it is that by which a thing has, or is provided of, every thing belonging to its nature.

This is either *abſolute*, where all imperfection is excluded; ſuch is the perfection of God: or *ſecundum quid*, and in its kind.

PERFECTISSIMATE, Perfectissimatus, a quality, or dignity, mentioned in the Code. Perfectiſſimi were thoſe to whom the emperors truſted the preſidentſhip of any province. Alciat imagined the name had been only given to the governors of Hiſpania Tarraconenſis, and Noricum; but Calvin has ſhewn the contrary in his Lexicon Juridicum.

The perfectiſſimi were inferior to the clariſſimi, though the former word imply moſt perfect.

PERFETTO, as in the old time-table, when *perfetto* implied triple time, *conſonanza perfetta*, a perfect concord.

PERFIDE, in *Italian Muſic*, implies a certain tendency to repeat the ſame thing, as in *Roſalie*, to repeat the ſame paſſages, or purſue the ſame deſign, perſiſt in the ſame movement, the ſame character of air or melody, the ſame paſſages in the ſame kind of notes. (See Chant, Design, and Movement.) Such are the ground baſes, in chacones, and an infinite number of conſtrained accompaniments, or *perfidi*, or *perfidiati*, which depend on the caprice of the compoſers.

PERFOLIATA Folia, in *Botany*, Perfoliate Leaves, are ſuch as have the ſtem or branch running through them, as in *Bupleurum perfoliatum*, thence termed Thorough-wax, from the old word *wax*, to grow. See Leaf.

PERFORANS, Perforatus, in *Anatomy*, two muſcles of the fingers, called alſo flexor digitorum profundus and ſublimis. See Flexor.

Perforans *Caſſerii*, a name given to the external cutaneous nerve of the arm, which penetrates the coraco-brachialis muſcle, from an Italian anatomiſt who deſcribed it. See Nerve.

PERFORATA, in *Botany*, a name given by ſome authors to the *hypericum*, or St. John's wort, from the ſmall holes ſeen all over its leaves, if held up to the light.

PERFORATIVE. See Trepanum.

PERFORATOR, in *Midwifery*, an inſtrument uſed to open the heads of children, when from ſome error, or defect in the pelvis of the mother, it is impoſſible to bring them through without mutilating them. (See Labour, *Difficult*.) The perforator introduced by Smellie, and which is now generally uſed, is that of a pair of ſciſſors, or an inſtrument formed like ſciſſors, on a large ſcale, *viz.* about thirteen inches in length, and of proportionate thickneſs, with the edges rounded, that they may not cut, and with a guard, or projection on each blade, about three inches from the points, to prevent their entering farther than is neceſſary into the ſkull of the child. Having puſhed the perforator through one of the parietal bones of the head of the child, or through a ſuture, if one can be found, (ſee Labour, *Difficult*,) until ſtopped by the guard, the handles muſt be opened, and the inſtrument turned round, by which means the aperture in the ſkull will be enlarged, in every direction, when the perforator may be withdrawn. See the figure.

PERFUME, an agreeable artificial odour, ſtriking the ſenſe, or organ of ſmelling.

Perfumes are generally made or compoſed of muſk, ambergris, civet, roſe, and cedar-woods, orange-flowers, jaſmin, jonquils, tuberoſes, and other odoriferous flowers.

Into theſe alſo enter ſtorax, frankincenſe, benzoin, cloves, mace, and other like drugs, commonly called *aromatics*. Some perfumes are alſo compoſed with aromatic herbs, or leaves, as lavender, marjoram, ſage, thyme, hyſſop, &c.

Perfumes were anciently much in uſe, particularly thoſe into which muſk, ambergris, and civet enter; but they are now generally diſuſed, ſince people have become ſenſible of the harm they do to the head. In Spain and Italy, however, they are ſtill very common.

Perfumes, *Suffitus*, in *Pharmacy*, &c. are topical or external medicines, compoſed of certain powders and gums, which, being mixed together, and thrown on the coals, produce a vapour or ſmoke, ſalutary in the ſeveral diſeaſes. See Suffitus.

Burnt mercury is ſometimes applied by way of ſuffitus, called fumes of cinnabar.

There are dry perfumes, made up in troches, pills, &c. of olibanum, maſtic, aloes, &c. and moiſt viſcous ones mixed with the juices of herbs, &c.

PERG, in *Geography*, a town of Auſtria; 6 miles S.S.E. of Aigen.—Alſo, a town of Auſtria; 12 miles E. of Steyregg.

PERGA, in *Ancient Geography*, a town of Aſia Minor, in the interior of Pamphylia, between the rivers Ceſtron and Cataractes.

Perga, or *Parga*, in *Geography*, a town of Albania, on the coaſt of the Adriatic; 25 miles W.N.W. of Arta.

PERGAMAR, a town of European Turkey, in Romania; the ſee of a biſhop; 60 miles S.W. of Adrianople.

PERGAMO, a town of Aſiatic Turkey, in Natolia, ſituated at the foot of a mountain, on a river formerly called "Caicus," with a harbour about 15 miles from the ſea; inhabited chiefly by Turks, with ſome Chriſtians, who have a church, and are poor; 144 miles S.S.W. of Conſtantinople. N. lat. 39° 11'. E. long. 27° 0'.

PERGAMUS, in *Ancient Geography*, (now *Pergamo*,) a town of Myſia, ſeated on a ſpacious plain on the banks of the Caicus. The territory of this town was watered by two rivers, one of which traverſed the town, and the other ran S.W. of it at a little diſtance. This territory was pleaſant and fertile; and the town was built at the foot of a rock, in the form of a cone, upon which was a fortified caſtle, where the ancient kings depoſited their treaſures. The inhabitants of this city pretended to be deſcendants of the Arcadians, who arrived in this part of Aſia with Telephus, ſon of Hercules; and they ſay that Eſculapius came to Pergamus with a learned colony of Greeks, and practiſed medicine in this place. The Pergamenians paid him great honours, calling him by the titles of god the ſaviour, and the ſovereign god. They conſtructed for him a magnificent temple, in which they offered ſacrifices, and they celebrated in honour of him public games. The temple was viſited by all the people of Aſia Minor, and thus Pergamus became famous: the worſhip of this god continued in it till the eſtabliſhment of Chriſtianity. Pergamus was at firſt governed by its own magiſtrates, who were independent of any other power. It was afterwards under the dominion of the kings of Lydia, from whom it was transferred to the kings of Perſia. After the death of Alexander it was ſubject to Antigonus, and at his death it was transferred to Lyſimachus, one of the ſucceſſors of Alexander, according to Strabo. This prince depoſited his treaſures in the caſtle, and entruſted the cuſtody of them to Philede-us of Thios, who fortified the caſtle and laid the foundation of the kingdom of Pergamus, which laſted 153 years. Eumenes, one of the kings of Pergamus, enlarged and embelliſhed this city. He enriched it with a library containing 200,000 choice volumes, for the tranſcribing of which parchment was here firſt invented, and thence called by the Latins Charta Pergamena. In Pergamus were likewiſe invented thoſe coſtly hangings, which we call tapeſtry, and which the Romans named "Aulæa," from aula, a hall, becauſe the hall of Attalus, who invented them, was the firſt room adorned with this furniture. Galen was born in this city. At Pergamus was one of the ſeven churches mentioned in the Revelation. Attalus III., ſurnamed Philometer, having no children, bequeathed his eſtates to the Romans, A. U. C. 621. Ariſtonicus, the natural ſon of Eumenes II., contended the kingdom of Pergamus with the Romans, but after different events, he was made a priſoner and conducted to Rome. The kingdom of Pergamus was reduced to a Roman province, and bore the name of "Proconſular Aſia." In proceſs of time, however, it was diſmembered from it. Under the Romans the government of Pergamus was democratic, conducted by a council appointed by the people, under the direction and ſuperintendance of a magiſtrate, who was preſident and who was choſen annually. Pallas, Hercules, and Jupiter were divinities held in great reſpect at Pergamus; but the moſt celebrated was Eſculapius; and Apollo, who was regarded as his father, received ſingular honours at Pergamus. Trajan had divine honours at Pergamus; and both the gods and the emperors had temples here, the moſt conſiderable of which was that of Eſculapius. The temple of Auguſtus in this city was conſtructed at the expence of the province of Aſia; the pagoda had eight columns, and is repreſented on many medals. This city celebrated, with a magnificence that was very expenſive, the Olympic, Pythic and Actian games, and alſo others in honour of Eſculapius and the emperors. Theſe games were preceded by ſolemn ſacrifices. There were many perſons at Pergamus, who conducted the offices of religion, the chief of whom bore the name of pontiff or chief prieſt. The "Nicephorium," or wood conſecrated to Jupiter, was held in high veneration. This city accumulated great wealth by induſtry, by the commerce of parchment, and by the fabric of ſtuffs and tapeſtry.

It is now an inconſiderable place, thinly inhabited. In the neighbouring fields may ſtill be found the ruins of the palace of the Attalic kings, an aqueduct and a theatre.

PERGKIRCHEN, in *Geography*, a town of Auſtria; 11 miles E. of Steyregg.

PERGOLA, a town of the duchy of Urbino; 8 miles E. of Cagli.

PERGOLESI, Giovan Battista, in *Biography*, a gifted muſician, born at Caſoria, a little town about ten miles from Naples, in 1704. His friends diſcovering, very early in his infancy, that he had a diſpoſition for muſic, placed him in the conſervatorio at Naples, called Dei poveri in Gieſu Griſto, which has been ſince ſuppreſſed. Gaetano Greco, of whom the Italians ſtill ſpeak with reverence as a contrapuntiſt, preſided then over that celebrated ſchool. This judicious maſter ſoon perceiving uncommon genius in his young pupil, took particular pleaſure in facilitating his ſtudies, and communicating to him all the myſteries of his art. The progreſs which the young muſician made was proportioned to the uncommon advantages of nature and art with which he was favoured; and at a time when others had ſcarcely learned the gammut, he produced ſpecimens of his abilities which would have done honour to the firſt maſters in Naples. At the age of fourteen, he began to perceive that taſte and melody were ſacrificed to the pedantry of learned counterpoint, and after vanquiſhing the neceſſary difficulties in the ſtudy of harmony, fugue, and ſcientific texture of the parts, he intreated his friends to take him home, that he might indulge his own fancies, and write ſuch muſic as was moſt agreeable to his natural perceptions and feelings.

The inſtant he quitted the conſervatorio, he totally changed his ſtyle, and adopted that of Vinci, of whom he received leſſons in vocal compoſition, and of Haſſe, who was then in high favour. And though he ſo late entered the courſe which they were purſuing with ſuch rapidity, he ſoon came up with them; and, taking the lead, attained the goal, to which their views were pointed, before them. With equal ſimplicity and clearneſs, he ſeems to have ſurpaſſed them both in graceful and intereſting melody.

His countrymen, however, were the laſt to diſcover or allow his ſuperiority, and his firſt opera, performed at the ſecond theatre of Naples, called "Dei Fiorentini," met with but little ſucceſs. The prince of Stigliano, firſt equerry to the king of Naples, diſcovering, however, great abilities in the young Pergoleſi, took him under his protection; and from the year 1730 to 1734, by his influence, procured employment for him at the Teatro Nuovo. But during this period, the chief of his productions were of the comic kind, and in the Neapolitan dialect, which is unintelligible to the reſt of Italy, except the "Serva Padrona," ſet for the theatre of San Bartolomeo.

It was not till the year 1735, that an account of his merit penetrated ſo far as Rome, and inclined the directors of the opera there, to engage him to compoſe for the Tordinona theatre in that city.

Pergoleſi, ambitious of writing for a better theatre, as well as for better performers, than thoſe for which he had hitherto been employed; and happy in having the exquiſite poetry of Metaſtaſio's Olimpiade to ſet, inſtead of the Neapolitan jargon, went to work with the zeal and enthuſiaſm of a man of genius, animated by hope, and glowing with an ardent paſſion for his art.

The Romans, however, by ſome unaccountable fatality, received his opera with coldneſs; and the compoſer being a young man but little known, they ſeemed to want to be told by others that his muſic was excellent, and would ſoon, by the admiration of all Europe, make them aſhamed of their injuſtice and want of taſte.

To complete his mortification at the ill reception of this opera, "Nerone," compoſed by Duni, the next that was brought on the ſtage, and for which his was laid aſide, had a very great ſucceſs.

Duni, a good muſician, and a man of candour, though greatly inferior in genius to Pergoleſi, is ſaid to have been aſhamed of the treatment which he had received; and with an honeſt indignation declared, that he was out of all patience with the Roman public, "frenetico contro il publico Romano." He even tried during the ſhort life of this opera, to make a party in its favour among the profeſſors and artiſts who were captivated with the beauty of the muſic; but all their efforts were vain; the time was not yet come when judgment and feeling were to unite in its favour.

Pergoleſi returned to Naples with the ſmall crop of laurels which had been beſtowed on him by profeſſors and perſons of taſte, who in every country compoſe but a very inconſiderable part of an audience. He was, indeed, extremely mortified at the fate of his opera, and not much diſpoſed to reſume the pen, till the duke of Matalon, a Neapolitan nobleman, engaged him to compoſe a maſs and veſpers for the feſtival of a ſaint at Rome, which was to be celebrated with the utmoſt magnificence.

Though Pergoleſi had but too much cauſe to be diſſatisfied with Roman decrees he could not decline the duke's propoſition, and it was on this occaſion that he compoſed the "Maſs, Dixit, et Laudate," which have been ſince ſo often performed for the public, and tranſcribed for the curious. They were heard for the firſt time in the church of San Lorenzo in Lucina, with general rapture; and if any thing could conſole a man of genius for ſuch unworthy treatment as he had lately experienced at Rome, it muſt have been ſuch hearty and unequivocal approbation as he now received in the ſame city.

His health, however, daily and viſibly declined. His friends had perceived, by his frequent ſpitting of blood, for four or five years before this period, that he was likely to be cut off in his prime; and his malady was ſtill increaſed by this laſt journey to Rome. His firſt patron, the prince of Stigliano, who had never ceaſed to love and protect him, adviſed him to take a ſmall houſe at Torre del Greco, near Naples, on the ſea-ſide, almoſt at the foot of mount Veſuvius. It is imagined by the Neapolitans, that perſons afflicted with conſumptions are either ſpeedily cured, or killed, in this ſituation.

During his laſt ſickneſs, Pergoleſi compoſed his celebrated cantata of Orpheus and Euridice, and his "Stabat Mater," at Torre del Greco, whence he uſed to go to Naples from time to time to have them tried. The "Salve Regina," which is printed in England, was the laſt of his productions, and he died very ſoon after it was finiſhed, in 1737, at the age of 33!

The inſtant his death was known, all Italy manifeſted an eager deſire to hear and poſſeſs his productions, not excepting his firſt and moſt trivial farces and *intermezzi*; and not only lovers of elegant muſic, and curious collectors elſewhere, but even the Neapolitans themſelves, who had heard them with indifference during his lifetime, were now equally ſolicitous to do juſtice to the works and memory of their deceaſed countryman. Rome, ſenſible now of its former injuſtice, as an *amende honorable*, had his opera of Olimpiade revived: an honour which had never been conferred on any compoſer of the 18th century. It was now brought on the ſtage with the utmoſt magnificence, and that indifference with which it had been heard but two years before, was now converted into rapture.

Pergoleſi's firſt and principal inſtrument was the violin, which was urged againſt him, by envious rivals, as a proof that he was unable to compoſe for voices. If this objection was ever in force with reaſonable and candid judges, it muſt have been much enfeebled, not only by the ſucceſs of Pergoleſi in vocal compoſitions, but by Sacchini, whoſe principal ſtudy and practice, during youth, were likewiſe beſtowed on the violin.

It was the opinion of the Hon. Horace Walpole, afterwards earl of Orford, that Mr. Gray firſt brought the compoſitions of Pergoleſi into England. His opera of Olimpiade was firſt performed on our ſtage in 1742, when Monticelli acquired uncommon applauſe in the air, "Tremende oſcuri atroce," and the ſcene where the "aria parlante: Se cerca ſe dice" occurs; which, though it has often been ſet ſince to more elaborate and artificial muſic, its effect has never been ſo truly dramatic; all other compoſitions to thoſe words are languid on the ſtage, and leave the actor in too languid a ſtate for his ſituation. When we mentioned this opinion to Pacchierotti, in a converſation on the ſubject, he very well applied our Engliſh vulgar phraſe to Pergoleſi, by ſaying, "He had hit the right nail on the head."

The words "Tremende oſcuri atroce," are not Metaſtaſio's, nor have we ever been able to diſcover whoſe they are, or how they happened to be ſet by Pergoleſi; the air, however, "A due cori," is admirable.

From all the information which we were able to procure at Rome and Naples, concerning the premature death of Pergoleſi, there does not ſeem the leaſt foundation for the ſtory concerning his having been poiſoned. The diſeaſe of which he died was a conſumption, that preyed upon his lungs during the laſt five or ſix years of his exiſtence, and the moſt active and important of his life. As envy was ſaid to have ſtimulated his concurrents to have recourſe to poiſon in order to get rid of ſo formidable a rival, it has been well obſerved, that the ſucceſs of Pergoleſi's productions was never ſufficiently brilliant to render him ſuch an object of envy to his brethren as to make it neceſſary to diſpatch him by unfair means. Mem. ſur la Vie et les Ouvrages de Pergoleſi, par M. Boyer, Mercure de France pour Juillet, 1772, p. 191.

The art of muſic, however, did not die with Pergoleſi, as may be ſeen by the liſt of his ſucceſſors, who, purſuing the track which Vinci, Haſſe, and Pergoleſi firſt had traced out, have advanced into new regions of invention, taſte, grace, elegance, and grand effects.

We were aſſured at Rome, by a muſician who had known Pergoleſi perſonally, that he was a ſlow workman; "but the gods ſell to mortals," ſays Epicharmus, "all that is great and beautiful at the price of immenſe labour;" *παντα χαλεπα τα καλα.*

Salvini tells us that the celebrated compoſer Cariſſimi, being praiſed for the grace and eaſe of his melodies, uſed to cry out: "Ah! with what difficulty is this eaſe required!" *Ah! queſto facile, quanto è difficile!*

He had perhaps more energy of genius, and a finer *tact*, than any of his predeceſſors: for though no labour appears in his productions, even for the church, where the parts are thin, and frequently in uniſon, yet greater and more beautiful effects are often produced in performance than are promiſed in the ſcore. And, indeed, it frequently happens, that a ſcore in which the texture of the parts is very artificial, ingenious, and amuſing to the eye, affords nothing but noiſe and confuſion to the ear. As the Italians in the ſixteenth century were the maſters to all Europe in elaborate compoſition, even to a pedantic exceſs, ſo they have been the firſt, in modern times, to abjure its abſurdity.

The eaſe and ſimplicity of Vinci's and Pergoleſi's ſtyle, were ſoon imitated with ſervility by men of no genius, who always appear more contemptible in light than laboured ſtrains; and theſe, puſhing facility to an inſipid exceſs, ſoon rendered opera muſic proverbially flimſy and frivolous. Of this number were Lampugnani, Peſcetti, Pelegrini, Giacomelli, Paleazzi, Schiaſſi, Pampani, and many others.

The church muſic of Pergoleſi has been cenſured by his countryman, Padre Martini, as well as by ſome Engliſh muſical critics, for too much levity of movement, and a dramatic caſt, even in ſome of his ſlow airs; while, on the contrary, Eximeno ſays, that "he never heard, and perhaps never ſhall hear, ſacred muſic accompanied with inſtruments, ſo learned and ſo divine, as the Stabat Mater."

As the works of this maſter form an era in modern muſic, and as general praiſe and cenſure is ſeldom juſt and ſatisfactory to diſcriminating minds, it was our intention to have inſerted here ſome critical remarks reſulting from a late careful examination of his principal productions for the church; but upon calculating the buſineſs which we have ſtill on our hands before we arrive at the end of the gigantic labour which we have, perhaps, too raſhly undertaken; we find that critical diſcuſſion muſt give way to matters of fact, or our volumes will be rendered too numerous or too unwieldy.

Of the ſonatas aſcribed to Pergoleſi, for two violins and a baſe, if they are genuine, which is much to be doubted, they will not bear compariſon with the bold, varied, and elegant compoſitions of Boccherini, Haydn, Mozart, and Vanhal. They are compoſed in a flimſy ſtyle, which was worn out when Pergoleſi began to write; at which time another was forming by Tartini, Veracini, and Martini of Milan, which has been ſince poliſhed, refined, and enriched with new melodies, harmonies, modulation, and effects.

No fair and accurate judgment can be formed of the merit of a compoſer of paſt times, but by comparing his works with thoſe of his predeceſſors and immediate competitors. The great progreſs that has been made in inſtrumental muſic, ſince the deceaſe of Pergoleſi, will not diminiſh his reputation, which was not built on productions of that kind, but on vocal compoſitions, in which the clearneſs, ſimplicity, truth, and ſweetneſs of expreſſion, juſtly entitle him to ſupremacy over all his predeceſſors and contemporary rivals, and to a niche in the temple of Fame, among the great improvers of the art, who, if not the founder was the principal poliſher of a ſtyle of compoſition both for the church and ſtage, which has been conſtantly cultivated by his ſucceſſors, and which at the diſtance of 70 years from the ſhort period in which he flouriſhed, ſtill reigns throughout Europe.

PERGUBA, in *Geography*, a town of Ruſſia, in the government of Olonetz; 64 miles N. of Petrozavodſk.

PERGULARIA, in *Botany*, ſo called from *pergula*, a balcony, or trellis, in alluſion to its twining habit and fragrant bloſſoms, which render this genus very deſirable for bowers. Rumphius firſt gave the name of *Flos pergulanus* to the Linnæan *Pergularia glabra*, which however does not anſwer to the generic character, and is eſtabliſhed by Mr. Brown as a diſtinct genus, under the appellation of *Vallaris*, adopted from Burmann's Fl. Ind. 51. The true Linnæan *Pergularia* is founded on our firſt ſpecies, hereafter deſcribed. Linn. Mant. 8. Brown Aſclep. in Tr. of Wern. Soc. v. 1. 31.

31. Ait. Hort. Kew. v. 2. 83. Schreb. 167. Willd. Sp. Pl. v. 1. 1247. Juſſ. 146. Lamarck Illuſtr. t. 176?—Claſs and order, *Pentandria Digynia*. Nat. Ord. *Contortæ*, Linn. *Apocineæ*, Juſſ. *Aſclepiadeæ*, Brown.

Gen. Ch. *Cal.* Perianth inferior, of one leaf, in five erect, acute, permanent ſegments. *Cor.* of one petal, ſalver-ſhaped; tube inflated, various in length; limb in five oblong, horizontal, ſlightly twiſted ſegments. Crown of the ſtamens of five compreſſed erect leaves, undivided at the ſummit, concave at the back, furniſhed with the pointed appendage at the inſide. Nectary a row of glands round the baſe of the germen. *Stam* Filaments five, oblong, dilated, flat, cloven at the top and bottom; anthers ſeſſile, membranous, of two cells; maſſes of pollen erect, ſtalked, ſoon depoſited in pairs on the glands of the ſtigma. *Piſt.* Germens two, ovate; ſtyles very ſhort; ſtigma common to the two, conical, obtuſe, downy, with five lateral glands receiving the maſſes of pollen. *Peric.* Follicles two, ovate, ſmooth. *Seeds* numerous, comoſe.

Eſſ. Ch. Corolla contorted, ſalver-ſhaped; its tube inflated. Crown of five compreſſed undivided leaves, with an internal appendage. Anthers ſurmounted by a membrane. Maſſes of pollen ten, ſmooth, erect. Stigma pointleſs. Follicles inflated.

1. P. *odoratiſſima*. Sweet Green Pergularia, or Chineſe Creeper. Sm. Ic. Pict. t. 16. Andr. Repoſ. t. 185.—Leaves heart-ſhaped, pointed, rather downy. Panicles axillary. Calyx ſhorter than the tube of the corolla. Sir Joſeph Banks is ſaid to have ſent this to Kew about the year 1784. It is cultivated in China, as a favourite bower plant, though of what preciſe country a native is not known. We have been told it is wild in Sumatra. The late Lady Amelia Hume received a fine plant of this ſpecies in 1789, which covered the ſtern of the ſhip with its fragrant green bloſſoms, during a great part of the voyage, and has ſince been widely propagated in this country. It thrives either in a ſtove or warm conſervatory, flowering throughout the ſummer and autumn, and exhaling, in an evening, that peculiar, light, lemon-like, but luſcious fragrance, of which the Chineſe are ſo fond, and which belongs to various greeniſh night-ſcented flowers, as the *Chloranthus inconſpicuus*, and ſome *Orchideæ*. The *root* is branched, widely ſpreading. *Stem* ſhrubby, round, branched, twining and climbing to a great extent; downy when young; the bark ſpongy and cracked when old. *Leaves* oppoſite, ſtalked, deflexed, heart-ſhaped, rather taper-pointed, entire, opaque, veiny, downy at the veins and margin, paler beneath, each two or three inches long. *Stipulas* none, but the *footſtalks*, much ſhorter than the leaves, are glandular at their ſummit, as well as on each ſide at the baſe. *Panicles* axillary, ſolitary, drooping, forked, many-flowered, downy. *Bracteas* lanceolate, at each diviſion of the panicle. *Flowers* the ſize of a primroſe, pale yellowiſh-green, bearded within, their ſegments linear-oblong, oblique, the length of the tube, fringed.

Linnæus had in his herbarium a Chineſe ſpecimen of this plant, marked *tomentoſa*, with a note at the back ſignifying that the Catholic clergy at Macao prepare, from its milky juice, a medicine for the dyſentery. He cultivated the ſame in his ſtove, and deſcribed it in his *Mantiſſa*, 53. The name and ſpecific character however do not apply to this, but to a very different plant, Forſkall's *Aſclepias cordata*. Flos ſiamicus, Rumph. Amb. auctuar. v. 7. 58. t. 26. f. 1, ſeems to be intended for our preſent ſpecies; though *Cynanchum odoratiſſimum*, of Loureiro, by the deſcription of the yellow flowers, probably belongs rather to the following.

2. P. *minor*. Sweet Yellow Pergularia, or Weſt-Coaſt Creeper. Andr. Repoſ. t. 184. Curt. Mag. t. 755. (Cynanchum odoratiſſimum; Loureir. Cochinch. 166?)—Leaves heart-ſhaped, obtuſe with a point. Panicles axillary. Calyx nearly as long as the tube of the corolla.—Native of the Eaſt Indies, where it is cultivated for the ſame reaſon as the foregoing. By dried ſpecimens, we could hardly diſcern any ſpecific difference between theſe two plants, but when compared alive, they appear to be diſtinct ſpecies. Beſides what is noted in the ſpecific character, the preſent is rather ſmaller in all its parts, with fewer *flowers* in each panicle. The *corolla* has broader and blunter ſegments, of a tawny yellow on their upper ſurface, though not ſo round and orange-coloured as Mr. Andrews exhibits them. *P. minor* was introduced into England by ſir Joſeph Banks in 1784, and blooms in a ſtove all ſummer long.

3. P. *purpurea*. Purple Pergularia. Vahl. Symb. v. 3. 44. Willd. n. 4. (Aſclepias cordata; Burm. Ind. 72. t. 27. f. 2.)—Leaves heart-ſhaped, taper-pointed, ſmooth. Panicles terminal. Calyx much ſhorter than the tube of the corolla.—Native of Java. We know it but from Burmann's work. He ſays the *ſtem* is erect, and *flowers* purple, in terminal umbels or panicles. Mr. Brown has not examined the fructification of this or the following, and merely ſays they "may belong to *Pergularia*."

4. P. *japonica*. Japan Pergularia. Thunb. Jap. 111. Willd. n. 5.—Leaves heart-ſhaped, ſmooth. Umbels ſimple, axillary. Calyx longer than the tube of the corolla.—Gathered by Thunberg near Nagaſaki in Japan, flowering in Auguſt. *Stem* twining, ſimple, ſmooth. *Leaves* acute, ribbed, an inch long. *Footſtalks* ſhorter, ſmooth. *Umbels* erect. *Stigma*, according to Thunberg, terminating in a long, erect, white, wavy, tapering thread, the length of the *corolla*, which is rather contrary to the generic character.

Another ſpecies may be found in Willdenow, *P. edulis*, Thunb. Prodr. 38, diſcovered at the Cape of Good Hope, and ſaid to have an herbaceous *ſtem*, with ovate *leaves*. Of this we know nothing. Mr. Brown excludes it.

PERHAY, POINT DE, in *Geography*, a cape on the W. coaſt of France; 6 miles S.E. of Point St. Matthew.

PERHO, a town of Sweden, in the government of Waſa; 56 miles E. of Jacobſtadt.

PERI, JACOPO, in *Biography*, a native of Florence, the principal inventor of recitative, and the compoſer of "Euridice," written by Rinuccini, the *firſt opera* that was compoſed in *ſtilo rappreſentivo*. This drama, written and ſet to a new ſpecies of muſic for the royal nuptials of Mary of Medicis with Henry IV. of France in 1600, was publicly exhibited at Florence in the moſt ſplendid manner, and in which Peri, the compoſer, performed a vocal part.

Peri is ſaid by Battiſta Doni to have been not only a good compoſer in the new ſtyle, but a famous ſinger and performer on keyed inſtruments.

PERIA, in *Geography*, a town of Perſia, in the province of Irac; 90 miles W. of Iſpahan.

PERIAC, a town of France, in the department of the Aude, celebrated for its ſalt works; 6 miles S.W. of Narbonne.

PERIACULTUM, a town of Hindooſtan; 30 miles S.S.W. of Dindigul.

PERIADA, in *Ancient Geography*, a town of Greece, in the iſle of Eubœa. Strabo.

PERIAGOGE, περιαγωγη, in *Rhetoric*, the ſame with peribole.

PERI-AGRARUM, in *Geography*, a town of Hindooſtan, in Coimbetore; three miles W.N.W of Erroad.

PERIAGUA, in *Sea Language*, a ſort of large canoe, uſed in the Leeward iſlands, South America, and the gulf of Mexico.

This is compoſed of the trunks of two trees hollowed and united together; and thus differs from the canoe, which is formed of one tree. See BOAT.

PERIAMMA, a word uſed by ſome medical writers to expreſs an amulet.

PERIAMOODY, in *Geography*, a town of Hindooſtan; 30 miles W.S.W. of Dindigul.

PERJAN, a town of Grand Bucharia; 34 miles E.S.E. of Anderab.

PERIANDER, in *Biography*, a tyrant of Corinth and Corcyra, was the ſon of Cypſelus, who before him had obtained an unjuſt authority over his fellow-citizens. Periander ſucceeded him about the year B.C. 628, and in order to ſecure his power put to death the principal perſons in Corinth. In almoſt every other reſpect he well merited the title of tyrant, which has ever been attached to his name; but he was very inimical to that luxury which involved the inhabitants of the city, and he kept the country in peace by means of his fleet which gave him the controul of the ſea. He is alſo applauded for not having impoſed taxes upon his people, excepting thoſe which reſulted from the export and import of merchandize. His private life was ſtained with enormous crimes, with a detail of which we will not fully our pages. He baniſhed his ſon Lycophron to Corcyra, for ſhewing an abhorrence of the cruelty inflicted on his mother, but in his old age he ſent to recall him, in order to govern Corinth in his ſtead, while he himſelf intended to retire to Corcyra. The people of that iſland prevented the exchange by putting the prince to death. Periander took a juſt and ample revenge on the ſavage perpetrators of the deed; but not contented with this, he indulged the moſt cruel reſentment on the innocent, by ſending three hundred youths of the beſt families to be made eunuchs by king Alyattes of Sardis. Theſe victims to royal madneſs, ſtopping by the way to Samos, were reſcued by the people, and it has been aſſerted that the chagrin occaſioned to Periander by the diſappointment, cauſed his death, at the age of 80, in the year B.C. 584. He was a man of great talents, and an inſcription on his tomb at Corinth, preſerved by Laertius, proves that his country regarded him as a wiſe and able ruler. He was traditionally reckoned among the ſeven wiſe men of Greece, and ſome of his maxims, which are rather prudential than moral, ſeem to juſtify the title. The maxim moſt known is, "There is nothing which prudence cannot accompliſh."

PERIANTH, PERIANTHIUM, in *Botany*, from περι, *about*, and ανθος, *a flower*, is the moſt uſual ſort of CALYX, ſee that article, which is immediately contiguous to, or more properly makes a part of, the flower. Such are the five green leaves, with their urn-ſhaped baſe, in the roſe: and the tubular cup of a pink, including the ſcales at its baſe. In this laſt inſtance the perianth may be called double; and is avowedly ſo in moſt of the mallow tribe, while in the ſcabious it is triple. When the term calyx is uſed without any particular explanation, it means a perianth.

This part is either deciduous, as in the poppy, or permanent, as in the pink. In many inſtances it becomes enlarged, thickened, or hardened, crowning or enveloping the fruit. Its ſituation is either *inferior*, below the germen, or *ſuperior*, above that part. The petals and ſtamens are ſometimes inſerted into it, as in the ſtrawberry. (See PERIGYNOUS *Inſertion*.) Its forms are infinitely various, on which the characteriſtic diſtinctions of many genera depend. In ſome inſtances it is divided, more or leſs deeply, in others undivided; in ſome it is of one leaf, in others of ſeveral. Its form is either regular or irregular; its diviſions equal or unequal. Compound flowers have a common perianth. The hue of the part in queſtion is uſually green; but not unfrequently otherwiſe, in which laſt caſe only it is technically ſaid to be coloured. Many flowers have no perianth, as the tulip, which is deſtitute of any calyx at all; and the narciſſus, which has another kind of calyx, the ſheath, or *ſpatha*. Some, as the umbelliferous tribe and the genus *Euphorbia*, are eſteemed by Linnæus to have an involucrum as well as a perianth; but we would rather uſe the term bractea for any external covering, or accompaniment, of a flower furniſhed with a real perianth.

When Linnæus and Magnol are ſaid to have adopted a method of claſſing plants by the calyx, the former took into conſideration, not only all his ſeven kinds of calyx, for that purpoſe, but alſo what he ſubſequently called corolla in graſſes; and in his ſubdiviſions is obliged to have recourſe to the petals and ſtamens. Magnol takes a ſtill wider and unauthorized range, though founded on the ideas of ancient authors. He terms the perianth the external calyx, the pericarp the inner. (See PERICARP.) He inſiſts on the preſence of a calyx in every caſe, applying that name to whatever *incloſes* or *ſupports* the flower; ſo that it may mean the mere ſummit of a flower-ſtalk. The corolla is employed by this author, as well as by Linnæus, to form ſubdiviſions of ſome of his principal claſſes.

PERIAPAT, in *Geography*, a town of Hindooſtan; 27 miles N.E. of Coimbetore.

PERIAPATAM, a town of Hindooſtan, in Myſore; taken in 1791 by the Britiſh army under general Abercromby; 24 miles S.W. of Seringapatam. N. lat. 12° 15′. E. long. 76° 31′.

PERIAPATTAM, a town of Hindooſtan, in the Carnatic; 20 miles N.W. of Madras.

PERIAPTON, περιαπτον, a kind of medicine, otherwiſe called *periamma*, or *amulet*; which, being tied about the neck, is ſuppoſed to prevent, or cure diſeaſes.

PERIBOACA, in *Geography*, a river of Canada, which runs into the lake of St. John, N. lat. 48° 32′. W. long. 72° 20′.

PERIBOLE, in *Medicine*, a word uſed very frequently by Hippocrates, and in different places, in very different ſenſes. Sometimes it ſignifies a tranſlation of the humours from one part to another; ſometimes only the dreſs or garments of a patient. In the firſt of theſe ſenſes, the word is frequently uſed to expreſs a tranſlation of the morbific matter from the centre to the ſurface, in the termination of a diſeaſe, by the breaking out of puſtules all over the body.

PERIBOLE, περιβολη, in *Rhetoric*, is uſed where many things are accumulated into one period; which might have been divided into ſeveral. We have an inſtance in Cicero's defence of Flaccus: "Quod ſi eſſet aliquando futurum, ut aliquis de L. Flacci pernicie cogitaret; nunquam tamen exiſtimavi, judices, Decium Lælium, optimi viri filium, optimâ ipſum ſpe præditum, ſummæ dignitatis, eam ſuſcepturum accuſationem, quæ ſceleratorum potius civium odio, & furori, quam ipſius virtuti, atque inſtitutæ adoleſcentiæ, conveniret."

Now this long period might very well have been divided into the three following: "1. Quod ſi eſſet aliquando futurum, ut aliquis de L. Flacci pernicie cogitaret; nunquam tamen exiſtimavi, judices, Decium Lælium, eam ſuſcepturum accuſationem. 2. Eſt enim is optimi viri filius, optimâ ipſe ſpe præditus, ſummæ dignitatis. 3. Accuſatio vero hæc ſceleratorum potius odio et furori, quam ipſius virtuti

tuti atque inſtitutæ adoleſcentiæ, conveniret." See Punctuation.

PERICA, in *Geography*, three ſmall iſlands in the bay of Panama, which give ſhelter to ſhips, out of the command of the town of Panama.

PERICALAMITES, in the *Materia Medica of the Ancients*, a name given by ſome to the *adarce*.

We find the word pericalamitis in a preſcription recorded in Galen, and it has generally been underſtood to mean *ſtyrax*, that being called *calamita:* but the *adarce* is the thing ſignified by the name, which expreſſes its manner of formation, it being always found concreted about the ſtalks of reeds that grow on the edges of waters.

PERICARDIARY, an epithet given to worms generated in the pericardium, or capſula of the heart.

M. Andry makes theſe one of the twelve kinds of worms engendered in the human body: they ſometimes occaſion convulſions, the paroxyſms of which laſt but a little while, but return inceſſantly.

Theſe worms are accompanied with a frightful paleneſs of the face, a low pulſe, and violent pains of the ſtomach and breaſt.

They ſometimes occaſion a palpitation of the heart. M. Andry adds, that they have been known to occaſion ſudden death.

PERICARDITIS, in *Medicine*, ſignifies an inflammation of the *pericardium*, or membranous bag which ſurrounds the heart.

The ſymptoms which accompany an inflammation of the pericardium cannot be diſtinguiſhed in practice from thoſe which attend inflammation of the ſubſtance of the heart itſelf. In fact, the inflammations of both parts are often combined: for whenever the inflammation of the pericardium is violent, it extends to the muſcular ſubſtance of the heart, to a conſiderable depth. The ſymptoms, which have been obſerved, are, the general affection of the ſyſtem called fever; pain in the region of the heart, which is often, but not always, attended with palpitations, and with an irregular pulſe, cough, difficulty of breathing, and ſometimes ſyncope. But all theſe occur in inflammation of the heart. See Carditis.

PERICARDIUM, in *Anatomy*, (from περι, *about*, and καρδια, *the heart*,) the membrane ſurrounding the heart. See Heart.

PERICARP, Pericarpium, in *Botany*, from περι, *about*, and καρπος, *fruit*, (or more ſtrictly, *ſeed*,) the ſeed-veſſel. This is formed of the enlarged germen, and is extremely various in different plants. It is not neceſſarily always preſent, there being many tribes of plants in which the ſeeds are naked, and guarded only by the integuments of the flower. The latter in ſuch caſes not only enfold the ſeed, but in ſome inſtances ſo entirely aſſume the nature of a pericarp, as to become juicy and coloured; witneſs *Commelina Zannonia*, and the mulberry with its allies. Several genera of graſſes are diſtinguiſhed from others by the firm union of their hardened corolla to the ſeed, which takes place as the latter advances to maturity.

The uſe of the pericarp is to protect the ſeeds till ripe, and then, in ſome way or other, to promote their diſperſion. It is curious to obſerve how admirably the very ſame part is contrived, to anſwer theſe oppoſite intentions. This is generally accompliſhed on hygrometrical principles. While moiſt or juicy, the valves remain cloſed; but in drying they ſplit or fly aſunder; thus moreover, by an elaſtic action, aſſiſting in the diſperſion of their contents; and that in a dry ſtate of the atmoſphere, which is moſt favourable to the ſowing of ſeeds in general. An exception to this rule has been obſerved, in ſome annual ſpecies of *Meſembryanthemum*, natives of the ſandy country of Africa, where the arid ſoil but rarely enjoys the benefit of rain. The capſules of theſe expand by means of wet alone, when the elaſtic valves, of each ſeparate cell, project their ſeeds to a diſtance, to take advantage of a favourable moment for vegetation, that might not ſoon occur if they were ſent abroad during the dry ſeaſon.

Juicy pericarps commonly ſerve for the food of animals, more eſpecially birds, in whoſe dung their ſeeds are depoſited, at a diſtance from the ſpot where they grew, and in a condition peculiarly favourable for vegetation.

The different kinds of pericarp will be found under the different articles of Capsule, Follicle, Legume, Bacca, Drupa, Pomum, Siliqua, Strobilus. Hence genera, and occaſionally even natural orders, derive ſome of their moſt important marks of diſtinction.

PERICARPIA, περικαρπια, compounded of περι, *about*, and καρπος, *the wriſt*, a name ſometimes given to medicines that are applied to the wriſt: otherwiſe called *epicarpia*.

PERICHÆTIUM, in *Botany*, from περι, *about*, and χαιτη, *a hair* or *briſtle*, is a ſcaly ſheath, peculiar to moſſes, which owes its name to its ſituation around the baſe of their briſtle-like fruit-ſtalk. It belongs alſo to the male, or barren, flowers of theſe plants, and indeed conſtitutes their calyx in both ſexes. The *perichætium* conſiſts of ſeveral imbricated leaves, differing, in a more or leſs ſtriking manner, from the genuine foliage of the plant, either in ſtructure, dimenſions, or colour. In *Hypnum* it is of great conſequence, conſtituting, by its preſence, a part of the generic character, and aſſiſting powerfully, by its diverſities of ſhape, proportion, or ſtructure, in the diſcrimination of ſpecies. Its duration is remarkable in ſome inſtances, even to the extent of three or four years, long after the ſeed and its pericarp have diſappeared; of which we ſcarcely know an example among the generality of other plants. More frequently it is deciduous, after having accompliſhed its original purpoſe of protection to the tender organs which it encloſes. See Perigonium.

PERICHAREIA, a word uſed by the ancients to expreſs a ſudden ſurpriſe of joy, ſuch as has been frequently known to occaſion death.

PERICHONDRIUM, (from περι and χονδρος, *cartilage*,) the inveſting membrane of cartilages. See the article Membrane, under the diviſion *fibrous* membranes; and Cartilage.

PERICHORESIS. See Circumincession.

PERICHORUS, formed from περι, and χωρα, *country*, in *Antiquity*, a name given by the Greeks to their profane games and combats, *i. e* to ſuch as were not conſecrated to any of the gods. See Games.

Perichorus, in the original, ſignifies *near*, or *neighbouring;* apparently becauſe none of the people of the neighbourhood attended at theſe obſcure exerciſes. The champions here did not fight in honour of any god, or hero, as in the others; but only for the prize-ſake.

PERICHRISIS, a word uſed by the ancients for a liniment principally of the oleaginous or ſpirituous kinds, and as thin and fluid as oil.

PERICLASIS, from περι, and κλαω, *to break*, in *Surgery*, a fracture attended with a conſiderable wound of the ſoft parts, and expoſure of the bone.

PERICLES, in *Biography*, one of the moſt illuſtrious ſtateſmen of ancient Greece, was a native of Athens, and ſon of Xantippus, a diſtinguiſhed general, who gained the battle of Mycale againſt the Perſians. He received the liberal education that was common among the Athenians of rank. One of his maſters was Damon, who, under the pretext of teaching him muſic, in reality gave him leſſons in politics. Another of his maſters was the celebrated philoſopher Anaxagoras, from whoſe inſtructions he gained an acquaintance with the phenomena of nature, that freed him from the effects of the ſuperſtitions of the times. Having an inſatiable thirſt for knowledge, he attended the lectures of Zeno of Elea, a philoſopher and formidable diſputant. By means of theſe, and other advantages which his ſituation in life gave him the command of, joined to excellent natural abilities and ſolidity of underſtanding, he acquired an elevation of ſentiment, and ſtrength of character, that enabled him long to maintain an almoſt uncontrolled authority over a people of all the moſt difficult to manage. The family connections of Pericles were with the ariſtocracy; but being ſenſible of the jealouſy with which this party was viewed by the body of the people, in whom real power reſided, and, moreover, finding the poſt of head of the nobility pre-occupied by Cimon, he at firſt held back from public affairs, and employed his talents in endeavouring to obtain the favour and ſuffrages of the democracy. The manners which he affected were oppoſite to thoſe of Cimon: thoſe of the latter were ſplendid and ſocial; but Pericles avoided all entertainments and public amuſements: he neither received nor paid any viſits of ceremony, and was never ſeen abroad except in his way to the prytaneum and aſſembly, and maintained a conſtant gravity in his demeanour. Not being himſelf a member of the court of the areopagus, he endeavoured to leſſen its authority. The ſpecies of eloquence which he adopted was of the lofty and dignified kind; and ſuch were his powers, that he was ſaid to thunder and lighten in his harangues. He was particularly careful to ſay nothing that might diſpleaſe the people, and, probably through caution, left none of his orations in writing, though it was known that he wrote them all down before they were delivered. In early life, when the paſſions are more eaſily rouſed to action, he was celebrated for great patience in bearing any inſults offered him, a quality which greatly favoured his riſe. As an example of this power over his feelings, it is recorded, that having been treated with great outrage at a public aſſembly, by a ſimple citizen, who even followed him, at night, to his houſe, with the moſt abuſive language, Pericles calmly ordered one of his ſervants to take a torch and light the man home.

When the popular party had procured the impeachment of Cimon, Pericles was appointed one of the conductors; he however acquitted himſelf with great moderation, and ſpoke of this great man with the reſpect due to his character and talents. The exile of his rival gave full ſcope to his ambitious purſuits. As Cimon had fed and clothed the people, for which he had received diſgrace and baniſhment in return, Pericles, well knowing their paſſion for public diverſions and ſhows, cauſed the poorer citizens to be ſupplied with money out of the treaſury to enable them to obtain admiſſion, and he likewiſe cauſed them to be paid for their attendance on the courts of judicature. In the war between the Athenians and Lacedæmonians, which broke out in the year B.C. 458, Pericles expoſed himſelf to great danger at the battle of Tanagra, and afterwards unſucceſsfully invaded the Peloponneſus, with a fleet and ſmall body of troops. Finding the people deſirous of the return of Cimon, he propoſed a decree for that purpoſe; and it is ſaid, through the medium of Elpinice, Cimon's ſiſter, he made a private agreement with that general, that the latter ſhould have the ſupreme command abroad, while he himſelf ſhould direct the public affairs at home. After the death of Cimon, Pericles may undoubtedly be regarded as the maſter of Athens. He contrived always to occupy the attention of the people, either in ſending out new colonies or engaging in expeditions; and by public works, which he ſet on foot, he both flattered the vanity of the Athenians by the ſplendour of their city, and provided employment for a number of artiſts and mechanics of all deſcriptions. To ſupply the expences of theſe grand undertakings, he ventured upon a bold expedient, which was that of removing the public treaſures of Greece from Delos to Athens, which violation of national faith he excuſed, by ſaying that the money having been raiſed for the purpoſe of defence againſt the barbarians, and the Athenians having by their ſole efforts effectually anſwered this purpoſe, their allies had no longer any right to demand an account of its expenditure. His perſonal integrity with reſpect to pecuniary matters was above ſuſpicion, of which a remarkable inſtance is recorded. While engaged in an expedition againſt Eubœa, the Lacedæmonians made an incurſion into Attica. Pericles thought it moſt expedient to avert this ſtorm by money, and accordingly, by means of a large bribe to the tutor of the king of Sparta, procured the return of their troops. When he came to make up his accounts, he charged a ſum of ten talents, as "laid out in a fit manner upon a proper occaſion;" and the Athenians paſſed the article without farther explanation. Perſiſting in his invaſion of Eubœa, he made himſelf completely maſter of that important iſland in the year B.C. 447, and ſoon after concluded a truce of thirty years with the Lacedæmonians. Upon the occaſion of a large preſent of corn to the Athenians by the king of Egypt, a law, which Pericles had procured to be paſſed, disfranchiſing all Athenians of half-blood, was enforced with ſuch rigour, that 5000 perſons, hitherto conſidered as freemen, were ſold as ſlaves. This arbitrary act diſplays the great power of Pericles, but probably was not diſagreeable to the majority of the citizens, whoſe conſequence was increaſed by the diminution of the number. A war between the Athenians and Samians took place B.C. 440, which is ſaid, in part, to have been produced by the influence of Aſpaſia and Pericles. It was on his return from the war that he pronounced the funeral oration which was aſcribed to Aſpaſia, and which was ſo grateful to the Athenians, that the women crowded round him, and placed garlands on his head. After Thucydides had been ſentenced to baniſhment, in the party conteſts of Athens, the authority of Pericles became ſtill more overbearing, and at length excited the jealouſy of the Athenians. Some of his friends were proſecuted: Anaxagoras, his revered preceptor, underwent a charge of irreligion. Aſpaſia was publicly accuſed both of impiety and of favouring the illicit amours of Pericles. He pleaded her cauſe in perſon, and procured her acquittal, and he prevented any perſonal attack upon Anaxagoras, by ſending him out of Attica, himſelf accompanying him, as well to ſhew him a marked perſonal reſpect, as to ſave him from the rude attacks of the people. When the Spartans, taking part with the ſmall ſtates of Greece, ſent their demands of reparation of injuries to Athens, denouncing war in caſe of refuſal, Pericles, in a ſpeech which is preſerved by Thucydides, perſuaded the Athenians to reject the conditions, and was thus the cauſe of the Peloponneſian war. His conduct was aſcribed by ſome perſons to the purpoſe of finding his countrymen ſo much employment, that they ſhould not be able to attend to the accuſations which his enemies were preparing againſt him; and a ſtory to this effect is related by Plutarch, that young Alcibiades, ſeeing Pericles one day very thoughtful, and aſking the reaſon, was told by him, that he was at a loſs how to account for the public money which had paſſed through his hands: then, ſaid Alcibiades, " ſtudy to give no account at all."

When the war began B.C. 431, it was the advice of Pericles that the Athenians ſhould neglect the defence of their eſtates in the country, and turn all their attention to fortifying the city, and equipping fleets. In purſuance of this policy, when he was appointed to the command, he ſuffered the ſuperior army of the Spartans and their allies to advance without oppoſition, unmoved by the murmurs of the Athenians; but at the ſame time ſent a powerful fleet to the coaſts of Peloponneſus, and to Locris and Ægina, which more than retaliated the ravages committed in Attica. At the concluſion of the campaign, he exerciſed his powerful eloquence in a funeral oration for thoſe who had fallen in the ſervice of their country. In the next year began the memorable plague of Athens, and it required all the fortitude of Pericles to ſupport his own ſpirits, and infuſe courage into the hearts of his countrymen. From this time he underwent many mortifications, but his firmneſs did not on that account forſake him. At length, however, domeſtic calamity, united with public diſaſter, completely overwhelmed him. His eldeſt ſon Xantippus, who had lived on ill terms with his father, died of the plague, and the dreadful diſeaſe carried off the ſiſter of Pericles, and almoſt all his relations and intimate friends. In ſhort, Paralus, his only remaining ſon, by his firſt wife, alſo died; and at the funeral, as he was placing a wreath of flowers on the head of the corpſe, he burſt into tears, and withdrew in an agony of grief. The Athenians, to ſoothe him, repealed his own law for disfranchiſing children of the half-blood, and he enrolled as a freeman his ſon by Aſpaſia. But his end was now drawing near, and his faculties were well nigh impaired. He fell into a lingering illneſs, which enfeebled both his body and mind, ſtill however the lamp was not entirely extinguiſhed. Some vigour of intellect remained to the laſt; for when he lay near expiring, and his friends round his bed-ſide were enumerating the great actions of his life, he ſuddenly raiſed himſelf on his bed, and addreſſing them, ſaid he wondered they ſhould dwell upon circumſtances in which fortune had the chief ſhare, and which were common to him with many others, and forget that which was his peculiar glory, *viz.* " that no Athenian had ever put on mourning on his account." He died in the year B.C. 429. His character has been thus drawn: " though by no means a man of ſtrict virtue, Pericles had many features of greatneſs. His philoſophical education enlightened his mind, and raiſed him above the prejudices of the age. Of his happy application of this ſuperiority the following inſtance is mentioned. As he was going on board his galley to take the command of the fleet, an eclipſe of the ſun took place, which terrified his pilot ſo as to render him incapable of his duty. Pericles, perceiving his embarraſſment, pulled off his cloak, and wrapping it round the man's head, aſked him if there were any thing ominous in being thus deprived of light? the man replied in the negative: then, ſaid he, what difference can you make between this darkneſs and the other, except that which ſhades the ſun is bigger than my cloak? The pilot felt the compariſon, and was cured of his fear. The adminiſtration of Pericles is particularly memorable for the magnificent decorations it conferred on the city of Athens. Vaſt ſums were undoubtedly laviſhed on thoſe ſubjects, but they ſtamped that character of refined art upon Athens, which ſhe retained after ſhe had loſt all her political diſtinction. Pericles was leſs excuſable in foſtering that high ambition and ſpirit of aggrandiſement in his countrymen, which was the cauſe of their greateſt diſaſters, and he too much favoured that corruption of manners of which he himſelf participated. Univer. Hiſt. Plutarch.

PERICLESE, in *Eccleſiaſtical Muſic*, a term in canto fermo. It implies the interpoſition of one or more notes in the intonation of certain chants, in order to arrive at the final cloſe, and to inform the choir that they have to purſue and finiſh the reſt. This, in ſecular muſic, would be called a cadence.

PERICLYMENUM, in *Botany*, περικλυμενον, an ancient name for ſome climbing ſhrub, has generally been applied to the common Britiſh Honeyſuckle (ſee LONICERA); or to other ſpecies of that genus.

PERICNEMIA, a word uſed by ſome medical writers for the parts about the calf of the leg.

PERICO, in *Geography*, a town of South America, in the province of Tucuman; 15 miles S. of St. Salvador de Jugeè.

PERICONIA, in *Botany*, a genus of *Fungi*, ſo named by Tode, from περι, *about*, and κονις, *powder;* becauſe it is entirely ſurrounded, when ripe, with its own duſty ſeeds. Tode Fung. Mecklenb. v. 2. 2. Perſ. Syn. 686.—Claſs and order, *Cryptogamia Fungi*. Nat. Ord. *Fungi*.

Eſſ. Ch. Stalk rigid, ſimple, terminating in a dry farinaceous head.

The ſpecies are three. 1. *P. lichenoides*, Tode, t. 8. f. 61. This is found in ſummer on the ſtems of plants, and proceeds from a black cruſt-like baſe, ſo as very nearly to approach the nature of that genus of *Lichenes* called *Calicium;* 2. *P. byſſoides;* and 3. *P. ſtemonitis*, both found likewiſe on the ſtems and branches of plants.

PERICRANIUM, from περι and κρανιον, *the ſkull*, in *Anatomy*, the perioſteum of the ſkull.

PERIDIUM, in *Botany*, a term introduced by Perſoon, for the round, membranous, dry caſe of the ſeeds, in ſome of his firſt ſection of *Fungi*, the *Angiocarpi*, which bear their ſeeds internally, and not throughout the ſurface of an expanded membrane called HYMENIUM; ſee that article.—The various kinds of Puff-ball, *Lycoperdon* and its allies, afford good examples of a *Peridium*.

PERIDONIUS LAPIS, in *Natural Hiſtory*, a name given by ſome of the writers of the middle ages to the *pyrites*, which they call alſo *pyrithe*.

PERIDOT, in *Mineralogy*. See CHRYSOLITE.

PERIDOT *Granuliforme* of Haüy. See OLIVIN.

PERIDROME, PERIDROMUS, in the *Ancient Architecture*, the ſpace or an iſle in a periptere, between the columns and the wall.

Salmaſius obſerves, that the peridromes ſerved for walks among the Greeks.

PERIDROMIDES, Περιδρομιδες, in *Antiquity*. See XYSTI.

PERIDROMOS, a word uſed by the old Greek writers to expreſs the extreme edge of the hairs of the head, when hanging down in their natural form.

PERIEGETES, Περιηγητης, a Greek term, ſignifying a perſon who leads or conducts another about a thing, to ſhew it him, &c.

It is applied in antiquity to geographers; eſpecially to thoſe who deſcribed the ſea-coaſts: thus Dionyſius is ſtyled periegetes, for publiſhing a geography in hexameter verſes, which Euſtathius has commented on, both in Greek.

The name periegetes was alſo given to thoſe who conducted ſtrangers about in cities, to ſhew them the antiquities, monuments, curioſities, &c. thereof. Theſe were the ſame with what they now call the antiquaries in Italy.

PERIERS, BONAVENTURE DES, in *Biography*, a French writer, was born at Arnai-le-Duc, in Burgundy. In 1536 he became valet-de-chambre to Margaret of Valois, ſiſter of Francis I. He publiſhed ſeveral tranſlations and other pieces, in verſe and proſe; but he is chiefly noted for his work, entitled "Cymbalum Mundi," written firſt in Latin, and tranſlated by himſelf into French, under a fictitious name, firſt printed at Paris in 1537 by Morin, whò was impriſoned on account of it. This work conſiſts of four dialogues in the Lucianic ſtyle, ridiculing the follies and falſe opinions of mankind. It has been charged with groſs impiety, upon the ſuppoſition, that under the appearance of laughing at the heathen theology, it meant to maſk an attack upon Chriſtian myſteries, and religion in general. It was cenſured by the theologians of Paris, and ever after paſſed as a prohibited, or at leaſt a ſcandalous work, on which account it became very rare, and much ſought after by the curious. It is ſaid the author of it made an unhappy end, by falling on his ſword in a fit of deſpair. Moreri.

Periers, in *Geography*, a town of France, in the department of the Channel, and chief place of a canton, in the diſtrict of Coutances; 8 miles N. of Coutances. The place contains 2557, and the canton 10,255 inhabitants, on a territory of 140 kiliometres, in 16 communes.

PERIESTECOS, in *Medicine*, an epithet for diſeaſes, ſigns, and ſymptoms, which are ſalutary, and prognoſticate the future better health of the patient.

PERIGÆUM, Perigee, formed of περι and γη, *earth*, in *Aſtronomy*, that point of the ſun's or moon's orbit, wherein they are at their leaſt diſtance from the earth.

In which ſenſe perigee ſtands oppoſed to apogee.

PERIGEE, in the *Ancient Aſtronomy*, denotes a point in a planet's orb, wherein the centre of its epicycle is at the leaſt diſtance from the earth.

PERIGNAC, in *Geography*, a town of France, in the department of the Lower Charente; 10 miles S.E. of Saintes.

PERIGONIUM, in *Botany*, a more recent term than *Perichætium*, invented by Linnæus for the ſame part in Moſſes, the ſcaly leaves inveſting the flowers. It is derived from περι, *about*, and γονη, *generation*, and being common to the flowers of thoſe plants in general, whether male or female, united or ſeparated, the author judged it more proper than a word which literally applied only to the leaves that ſurround the fruit-ſtalk. (See Perichætium.) There is however no end of thus changing terms, when once generally eſtabliſhed; and the inconveniences of ſuch a meaſure, greatly counterbalance any poſſible advantages. This improved denomination conveys no new idea, nor additional information, but rather leſs; for it is, in its meaning, ambiguous, as applicable to both *calyx* and *corolla;* whereas theſe plants poſſeſs a diſtinct and peculiar *corolla* in their *calyptra*, which is equally a *perigonium*, as encompaſſing the flower during impregnation, but not a *perichætium*, becauſe it is removed upwards, as ſoon as the fruit-ſtalk, or *briſtle*, is formed. *Perichætium* therefore, as an appropriate appellation for the calyx, and for the calyx only, is preferable, in our opinion, to *Perigonium*.

PERIGORD, in *Geography*, a country of France, ſo called before the revolution; now the department of the Dordogne.

PERIGRAPHE, a word uſually underſtood to expreſs a careleſs or inaccurate delineation of any thing: but in Veſalius it is uſed to expreſs the white lines or impreſſions that appear in the muſculus rectus of the abdomen.

PERIGUEUX, in *Geography*, a town of France, and principal place of a diſtrict, in the department of the Dordogne, and the capital of Perigord before the revolution; the ſee of a biſhop, and reſidence of a governor. This place has ſome remains of antiquities, has an amphitheatre, a temple of Venus, &c. It is famous for its partridge-pies, which are ſent all over Europe. The town contains 5733, and the canton 11,676 inhabitants, on a territory of 140 kiliometres, in 10 communes. N. lat. 45° 11'. E. long. 0° 47'.

PERIGYNOUS Insertion, in *Botany*, from περι, *about*, and γυνη, *a female*, expreſſes the inſertion of the ſtamens neither above nor below the germen, but into a ſurrounding part, whether calyx or corolla. Such is the character of the third, ſixth, ninth, and fourteeth claſſes in Juſſieu's ſyſtem. In the firſt of theſe inſtances the author conſiders ſuch inſertion to be into the calyx; as he arbitrarily ſo denominates the covering of the flower, in all his monocotyledonous claſſes, whatever its appearance or ſtructure may be, and whether it be ſingle, as in moſt, or double, as in *Narciſſus*, *Tulbaghia*, &c. In the 6th claſs he aſſumes a ſimilar principle. In the 9th he conſiders the inſertion to be ſometimes into the calyx, ſometimes into the corolla. In the 14th the ſtamens, as well as the polypetalous corolla, are inſerted into the calyx.

Mr. Saliſbury, in a paper publiſhed by the Linnæan Society, in the 8th volume of its Tranſactions, contends that there is no ſuch thing in nature as an inſertion of ſtamens into the calyx, but that where they proceed from any real integument of the flower, it muſt be a corolla. This appears to us well made out, with reſpect to the liliaceous plants. But the moſt valuable part of Mr. Saliſbury's paper is a demonſtration that Juſſieu has, in various inſtances, miſtaken the origin of the ſtamens, and that in ſuch they are inſerted into the receptacle, which he is pleaſed to name *torus*, and not into either calyx or corolla. This is the caſe with the *Atriplices*, *Junci*, and *Polygoni;* while in the *Bicornes*, the corolla, whether it bears the ſtamens or not, is itſelf inſerted into the receptacle, not as Juſſieu ſuppoſes, into the calyx, and therefore the plants of that order are neither mediately nor immediately perigynous.

The chief difficulty in the ſubject before us, and it is one of the moſt arduous in theoretical botany, reſpects Juſſieu's 14th claſs. In the plants which compoſe this claſs, Mr. Saliſbury conſiders every thing below the line where the ſtamens are inſerted, whatever its appearance, texture, or ſubſtance may be, as either a germen, or a receptacle, alias *torus*. We ſhould feel little difficulty in acceding to this deciſion as far as concerns *Pyrus*, *Meſpilus*, *Roſa*, *&c.*; but it ſurely would be forcing analogy too far to name the lower part of the deciduous calyx of *Amygdalus* a receptacle, and the teeth only a calyx, though both together are forced off entire, by the ſwelling germen, nor is there any line of diſtinction between them. Neither among the *Onagræ* of Juſſieu, can we bring ourſelves to diſtinguiſh between the teeth of the calyx, though deciduous, and its tube, in *Epilobium*, or *Fuchſia*. In *Ribes*, whoſe affinity to *Saxifraga*, ſo ingeniouſly pointed out by Mr. Saliſbury, we cannot but admit, the whole calyx, bearing the faded petals and ſtamens, falls off entire. Who can diſtinguiſh its lower part from the upper, ſo as to term one a calyx the other a receptacle? Perhaps theſe are among the exceptions to which all ſyſtematic laws, as applied to nature, are always found liable. We do not point them out for the ſake of invalidating an ingenious hypotheſis, which we conſider as throwing great light upon the ſubject, at leaſt; but rather as matter of caution. The curious reader may find in the Tranſactions of the Linnæan Society, v. 10. p. 3—5, and on the ſubject of calyx and corolla, in Introd. to Botany, more than we think it neceſſary to introduce here, on a matter chiefly hypothetical.

PERIHELIUM, formed from περι, and ηλιος, *ſun*, in *Aſtronomy*,

Aſtronomy, that point of the orbit of a planet, or comet, wherein it is at its leaſt diſtance from the ſun.

Perihelium ſtands oppoſed to aphelium. The ancient aſtronomers, inſtead of this term, uſed *perigæum;* becauſe they placed the earth in the centre.

PERIJA, in *Geography*, a town of South America, in the government of Caraccas; 80 miles S.W. of Maracaybo.

PERILEUCOS, in the *Natural Hiſtory of the Ancients*, a name given to an agate; but not of a diſtinct ſpecies, but only a particular appearance of the lead-coloured agate, more uſually known among them by the name of *phaſſachates*.

PERILLA, in *Botany*, a name of whoſe meaning or derivation we find no account. Linn. Gen. App. 578. Schreb. 387. Willd. Sp. Pl. v. 3. 83. Mart. Mill. Dict. v. 3. Ait. Hort. Kew. v. 3. 390. Juſſ. 113. Lamarck Dict. v. 5. 186. Illuſtr. t. 503.—Claſs and order, *Didynamia Gymnoſpermia*. Nat. Ord. *Verticillatæ*, Linn. *Labiatæ*, Juſſ.

Gen. Ch. *Cal.* Perianth inferior, of one leaf, erect, permanent, cloven half way down into five nearly equal ſegments, the uppermoſt very ſhort. *Cor.* of one petal, irregular, four-cleft; the upper ſegment emarginate; the lateral ones ſpreading; the lower longer, obtuſe. *Stam.* Filaments four, ſimple, diſtant, ſhorter than the corolla; anthers cloven. *Piſt.* Germens ſuperior, four; ſtyles two, thread-ſhaped, joined together, the length of the ſtamens; ſtigmas ſimple. *Peric.* the unchanged calyx. *Seeds* four.

Eſſ. Ch. Upper ſegments of the calyx very ſhort. Stamens ſeparate. Styles two, joined together.

1. P. *ocymoides*. Balm-leaved Perilla. Linn. Syſt. Veg. ed. 14. 533. Willd. n. 1. (Meliſſa maxima; Arduin. Spec. faſc. 2. 28. t. 13.)—Originally obtained by Arduino from India. It was introduced at Kew in 1770, by M. Richard, where it flowers in July and Auguſt.—*Root* annual, branched. *Stem* erect, herbaceous, three feet or more in height, quadrangular, furrowed, purple when old, rough with hairs. *Branches* oppoſite, croſſing each other in pairs, ſhort. *Leaves* oppoſite, ſtalked, ovate, rough, veined beneath, acute at each end. *Bracteas* lanceolate, erect, ſcarcely hairy. *Flowers* in ſpikes at the extremities of the ſtem and branches, all inclined one way, very hairy, of a white colour. *Seeds* ovate, ruſty-coloured, reticulated.—The whole plant has a ſtrong balmy fragrance, and may be ſubſtituted for the balm of the ſhops.

PERIM, in *Geography*, a ſmall iſland in the ſtraits of Babel-Mandeb, about four miles from the coaſt of Africa, having a good port, but no freſh water. N. lat. 12° 36′. E. long. 43 50′.

PERIMETER, formed from περι, and μετρον, *meaſure*, in *Geometry*, the ambit or extent that bounds a figure or body.

The perimeters of ſurfaces, or figures, are lines: thoſe of bodies are ſurfaces.

In circular figures, &c. inſtead of perimeter, we ſay circumference or periphery.

PERINÆOCELE, from *perinæum*, and κηλη, *a rupture*, in *Surgery*, a rupture, or hernia, in the perinæum.

PERINALDO, in *Geography*, a town of France, in the department of the Maritime Alps, and chief place of a canton, in the diſtrict of Monaco; 18 miles E.N.E. of Nice. The place contains 1283, and the canton 4858 inhabitants, on a territory of 57½ kiliometres, in 6 communes.

PERINDA, a town of Hindooſtan, in Dowlatabad; 23 miles S.E. of Carmulla. N. lat. 18° 33′. E. long. 75° 50′.

PERINDARY, a town of Hindooſtan, in Coimbetore; 5 miles S.W. of Erroad.

PERINDE VALERE, in the *Canon Law*, a diſpenſation granted a clerk, who being legally incapable of a benefice, or other eccleſiaſtical function, is *de facto* admitted to it.

The perinde valere is a kind of writ, thus called from two words therein ſignifying the diſpenſation to be equivalent or tantamount to a legal capacity.

PERINENEUCOS, an epithet given to a peculiar ſort of irregular pulſe common in hectic patients, in which the artery beats more ſtrongly in ſome parts than in others. See EPINENEUCOS.

PERINEUM, from περιναιος, *the penis*, in *Anatomy*, that part of the body which extends from the organs of generation in either ſex to the anus. The ſpace in queſtion is much longer in the male, than in the female; being about four or five inches in the former, one inch, or one and a half in the latter. A roughiſh line, called the raphe, runs along the middle of it. A few hairs are ſcattered over it. Some muſcles are placed under the ſkin in this part, and are called muſcles of the perineum; theſe are the tranſverſus, and tranſverſus alter perinei; ſee INTESTINE; erector penis, ſee GENERATION; and accelerator urinæ, ſee ACCELERATOR. There is alſo a ſmall artery, called arteria perinei. (See ARTERY.) The perineum is more particularly deſcribed in the article GENERATION.

PERINGIANO, in *Geography*, a town of the iſland of Sardinia; 20 miles S. of Villa d'Igleſias.

PERINGOODY, a town of Hindooſtan, in Marawar; 20 miles N.W. of Ramanadporum.

PERINGSKIOLD, JOHN, in *Biography*, a learned Swede, was born in Sudermania, in 1654. He became ſecretary of antiquities and counſellor to the king of Sweden, and profeſſor at Upſal. He died in 1720. His works are "A Hiſtory of the Kings of the North;" "Hiſtory of the Kings of Norway," in two vols. fol.; "Hiſtorical and Chronological Tables from Adam to Jeſus Chriſt."

PERINRAPAX, in *Geography*, one of the Laccadive iſlands, in the Indian ſea. N. lat. 11° 10′. E. long. 71° 18′.

PERIOCHA, Περιοχη, an argument, indicating the ſum of a diſcourſe.

PERIOD, Περιοδος, in *Aſtronomy*, the time taken up by a ſtar or planet in making a revolution; or the duration of its courſe, till it return to the ſame point of the heavens.

The ſun's, or properly the earth's, period is three hundred and ſixty-five days, five hours, forty-nine minutes. That of the moon is twenty-ſeven days, ſeven hours, forty-three minutes, &c. The periods of the comets are now many of them pretty well aſcertained. See COMET.

There is a wonderful harmony between the diſtances of the planets from the ſun, and their periods round him; the great law of which is, that the ſquares of the periodic times are ever proportional to the cubes of their mean diſtances from the ſun.

For the ſeveral periods and mean diſtances of the ſeveral planets, ſee *Solar* SYSTEM, and each planet reſpectively.

PERIOD, in *Chronology*, denotes an epocha, or interval of time, by which the years are accounted; or a ſeries of years, whereby, in different nations, and on different occaſions, time is meaſured.

Such are the Calippic and Metonic periods, two different corrections of the Greek calendar; the Julian period, invented by Joſeph Scaliger; the Victorian period, &c.

PERIOD, *Calippic*. See CALIPPIC *Period*.

PERIOD, *Conſtantinopolitan*. See *Julian* PERIOD.

PERIOD, *Dionyſian*. See *Victorian* PERIOD.

PERIOD, *Hipparchus's*, is a ſeries of three hundred and four ſolar years, returning in a conſtant round, and reſtoring the new and full moons to the ſame day of the ſolar year; according to the ſentiment of Hipparchus.

This period ariſes by multiplying the Calippic period by four. Hipparchus aſſumed the quantity of the ſolar year to be 365 days, 5 hours, 55′ 12″; and hence concluded, that in one hundred and four years Calippus's period would err a whole day. He therefore multiplied the period by four, and from the product caſt away an entire day. But even this does not reſtore the new and full moons to the ſame day throughout the whole period: but they are ſometimes anticipated 1 day, 8 hours, 23′ 29″ 20‴. See CALIPPIC *Period*.

PERIOD, *Julian*, ſo called as being adapted to the Julian year, a ſeries of ſeven thouſand nine hundred and eighty Julian years; ariſing by the multiplication of the cycles of the moon, the ſun, and indiction, *viz.* 28, 19, 15, into one another; commencing from the firſt day of January in the Julian year.

The Julian period is alſo produced by multiplying the Victorian period by fifteen. Since every year in the Julian period has its particular cycles of the moon, ſun, and indiction; *e. gr.* only the firſt has the moon's cycle one, the ſun's cycle one, and cycle of indiction one; all the years of this period are accurately diſtinguiſhed from each other.

This period was invented by Scaliger, as a common receptacle of epochas, to facilitate the reduction of years of a given epocha to thoſe of another epocha likewiſe given. It agrees with the Conſtantinopolitan epocha, or period, uſed by the Greeks, except in this, that the cycles of the ſun, moon, and indiction, are reckoned differently; and in that the firſt year of the Conſtantinopolitan period differs from that of the Julian period.

To find the year anſwering to any given year of the Julian period, and *vice verſâ*, ſee EPOCHA.

PERIOD, *Metonic*, or *Cycle*. See CYCLE *of the Moon*.

PERIOD, *Victorian*, an interval of five hundred and thirty-two Julian years; which elapſed, the new and full moons return on the ſame day of the Julian year, according to the ſentiment of the inventor Victorinus, or Victorius, who lived in the time of pope Hillary.

Some aſcribe this period to Dionyſius Exiguus, and hence call it the Dionyſian period: others call it the *great paſchal cycle*, becauſe it was invented for computing the time of Eaſter.

The Victorian period is produced by multiplying the lunar cycle nineteen, by the ſolar circle eighteen; the product of which is five hundred thirty-two. But neither does this reſtore the new and full moons to the ſame day throughout its whole duration, by 1 day, 16 hours, 58′ 59″ 40‴.

PERIOD, *Chaldaic*. See SAROS.

PERIOD, in *Grammar* and *Rhetoric*, denotes a little compaſs of diſcourſe, containing a perfect ſenſe; diſtinguiſhed at the end by a point or full ſtop (.); and its members or diviſions marked by commas, colons, &c.

De Colonia defines period, a ſhort, but perfect ſentence, conſiſting of certain parts or members, depending one on another, and connected together by ſome common vinculum.

The celebrated definition of Ariſtotle is, a period is a diſcourſe which has a beginning, a middle, and an end, all viſible at one view.

Rhetoricians conſider period, which treats of the ſtructure of ſentences, as one of the four parts of compoſition.

The periods allowed in oratory are three: a period of two members, called by the Greeks *dicolos*, and the Latins *bimembris*; a period of three members, *tricolos*, *trimembris*; and a period of four, *quadrimembris*, *tetracolos*.

A ſtrict oratorial period does not allow of either more or fewer than theſe: it is poſſible indeed to introduce a period of one member, called by Ariſtotle *monocolos*, or ſimple period; but it will be reputed a flaw, and is a thing never practiſed by the maſters.

The period may be likewiſe prolonged to five or ſix members; but then it changes its name, and, inſtead of period, commences what they call a *periodical diſcourſe*.

A period of two members Cicero ſupplies us with: "Ergo & mihi meæ priſtinæ vitæ conſuetudinem, C. Cæſar, intercluſam aperuiſti: & his omnibus ad bene de republica ſperandum quaſi ſignum aliquod ſuſtuliſti."

A period of three members the ſame Cicero gives us in the exordium of his Manilian oration: "Nam cum antea per ætatem hujus auctoritatem loci contingere non auderem; ſtatueremque nihil huc niſi perfectum ingenio, elaboratum induſtria, afferri oportere; omne meum tempus amicorum temporibus tranſmittendum putavi."

A period of four members he gives us in that admirable deſcription of puniſhment of parricides: "Ita vivunt, ut ducere animum de cœlo non queant: ita moriuntur, ut eorum oſſa terram non tangant: ita jactantur fluctibus, ut nunquam abluantur: ita poſtremo ejiciuntur, ut ne ad ſaxa quidem mortui conquieſcant."

The laws and meaſures of periods are pretty ſtrictly regarded by orators, at leaſt they are ſo by the ancient ones: in ordinary diſcourſe, and in the modern tongues, authors are much leſs ſevere. In oratory, the members of periods are to be equal, or nearly equal; that the pauſes or reſts of the voice at the cloſe of each member may be nearly equal: but in writing not intended for rehearſal, this is diſregarded.

Common diſcourſe allows of periods both longer and ſhorter than oratory; which admits of none leſs than two members, nor greater than four. Short mutilated periods break the ſtream, and check the courſe of the ſublime; and long ones embarraſs and keep the mind too long in ſuſpence; and even ſtrain the voice, which is never to ſtop but at the ends of periods. Philareus, Hermogenes, Terence, &c. confine the juſt period, called by the Latins *ambitus* and *circuitus*, to four members; agreeably to the diſtich:

> "Quatuor e membris plenum formare videbis
> Rhetora circuitum, ſive ambitus ille vocetur."

Of which ſentiment is Cicero, who in his Orator ſays, "Conſtat ille ambitus & plena comprehenſio e quatuor fere partibus, quæ membra dicuntur, ut & aures impleat, & ne brevior ſit quam ſatis ſit neque longior." An inſtance of a periodical diſcourſe the ſame author gives us in the opening of his oration for Archias the poet: "Si quid in me ſit ingenii, judices, quod ſentio quam ſit exiguum; aut ſi qua exercitatio dicendi, in qua me non inficior mediocriter eſſe verſatum; aut ſi hujuſce rei ratio aliqua ab optimarum artium ſtudiis & diſciplina profecta a qua ego confiteor nullum ætatis meæ tempus abhorruiſſe; earum rerum omnium vel in primis hic A. Licinius fructum a me repetere prope ſuo jure debet."

In the formation of theſe periods, two things are chiefly to be regarded, their length and cadence. As the length ought to be ſuited to the breath of the ſpeaker, the ancient rhetoricians ſcarcely admit of more than four colons. As to the cadence, what Cicero has obſerved is found true by experience, that the ears judge what is full, and what is deficient; and direct us to fill up our periods, that nothing be wanting of what they expect. When the voice is raiſed at the beginning of a ſentence, they are in ſuſpence till it be finiſhed; and are pleaſed with a full and juſt cadence, but are ſenſible of any defect, and are diſpleaſed with redundancy. Care muſt, therefore, be taken, that periods be neither deficient, and as it were maimed, that is, that they do not drop before their time, and defraud the ears of what ſeemed to be promiſed to them; nor, on the other hand, offend them by too long and immoderate excurſions. This riſe and cadence of the voice in pronunciation depend on the nature and ſituation of the members. In a period of two members, the turn of the voice begins with the latter member. If a ſentence conſiſts of three members, the inflexion is beſt made at the end of the ſecond member. But a period of four members is reckoned the moſt complete and perfect, where the inflection begins at the middle, that is, with the third member. An equality of the members ſhould likewiſe be attended to in the compoſition of a period, the better to adjuſt their riſe and cadence. And for this reaſon in ſentences of three members, where the cadence begins with the third; or in thoſe of four members, where it begins at the fourth, it promotes the harmony to make the laſt member the longeſt. Ward's Or. vol. i. lect. 22. See Sentence.

Periods are ſaid to be either *rotundi, round* or *quadrati, ſquare*, according to their different economy and cadences.

Period, *Square*, is that conſiſting of three or four equal members, formally diſtinguiſhed from each other: as that of Cicero on the puniſhment of parricides.

Period, *Round*, is that whoſe members or parts are ſo connected, and fitted into each other, as that the junctures or commiſſures are ſcarcely ſeen; but the whole ſlides equally round, without any notable ſtops or inequalities. Such are the dicolos and tricolos of Cicero above mentioned.

Period is alſo uſed for the character (.) with which the periods of diſcourſe are terminated and expreſſed: this is popularly called a *full ſtop*, or *point*. See Punctuation.

Father Buffier obſerves two difficulties in the uſe of the period, or point; *i. e* in diſtinguiſhing it from the colon, or double point; and in determining juſtly the end of a period, or perfect ſentence.

It is obſerved, that the ſupernumerary numbers of a period, ſeparated from the reſt by colons and ſemicolons, uſually commence with a conjunction. Yet it is certain theſe ſame conjunctions ſometimes rather begin new periods, than ſupernumerary members of old ones. It is the ſenſe of things, and the author's own diſcretion, that muſt make the proper diſtinction which of the two in effect it is. No rules will here be of any ſervice, unleſs this be admitted as one, that when what follows the conjunction is of as much extent as what precedes it, it is uſually a new period: otherwiſe not.

The ſecond difficulty ariſes hence, that the ſenſe appears perfect in ſeveral ſhort detached phraſes, wherein it does not ſeem there ſhould be periods: a thing frequent in free diſcourſe; as, *We are all in ſuſpence: make your propoſals immediately: you will be to blame for detaining us longer.* Where it is evident, that ſimple phraſes have perfect ſenſes like periods, and ought to be marked accordingly; but that the ſhortneſs of the diſcourſe making them eaſily comprehended, the pointing is neglected.

Period, *Semi.* See Semi-*Period.*

Period, in *Numbers*, is a diſtinction made by a point or comma, after every ſixth place, or figure: and is uſed in numeration, for the readier diſtinguiſhing and naming the ſeveral figures or places, which ſee under Numeration.

Period, in *Medicine*, ſignifies both the paroxyſm and the interval of thoſe diſeaſes, which occur and ceaſe, and again return and go through a ſimilar courſe, at regular periods of time. See Intermittent.

Period *of the Blood, periodus ſanguinis*, the circle of the blood, or the tour it makes round the body, for the ſupport of life. See Circulation.

Period *of Perfection*, in *Greek Muſic*. With reſpect to the period of greateſt perfection in the muſic of Greece, it is a ſubject which ſeems to merit ſome diſcuſſion. Plato, Ariſtotle, Ariſtoxenus, and Plutarch, were for ever complaining of the corruption and degeneracy of muſic. The pious Plato, indeed, regarded it as fit only for the gods, and their celebration in religious ceremonies, or as a vehicle for religious and moral lectures in the education of youth; and with a methodiſtical ſpirit cenſured all ſuch as was uſed in theatres, ſocial feſtivity, or domeſtic amuſement; but modern divines might, with equal propriety, declaim againſt the profane uſe of bread as an aliment, becauſe it is adminiſtered in the moſt ſolemn rite of our religion. A line ſhould certainly be drawn between the muſic of the church and of the theatre; but totally to ſilence all muſical ſound, except upon ſolemn occaſions, ſeems to border upon downright fanaticiſm.

With reſpect to perfection and depravity, there is nothing ſo common among muſical diſputants, as for the favourers of one ſect to call that *degeneracy*, which thoſe of another call *refinement*. But Plato ſeems to have been always too fond of ideal excellence in every thing, to be ſatisfied with any other.

PERIODEUTA, Περιοδευτης, a church officer among the Greeks, eſtabliſhed by the council of Laodicea, in towns, &c. where there were no biſhops.

The periodeutæ were a kind of rural deans; ſo called according to Zonaras, becauſe always on the road, going from one quarter to another, to keep the people in their duty.

Hence Gregory of Theſſalonica calls them *ambulantes, walkers.* Balſamon calls them *exarchæ*; by which name they are known among the Greeks at this day.

PERIODIC, Periodical, ſomething that terminates and comprehends a period.

Periodic, in *Grammar*, is applied to a ſtyle, or diſcourſe, that has numbers, or which conſiſts of juſt and artful periods.

PERIODICAL Diseases are ſuch as occur, in regular paroxyſms, at certain intervals of time. In this ſenſe they are nearly the ſame as intermittents. See Intermittent.

Periodical *Month.* See Month.

Periodical *Winds.* See Winds.

PERIŒCI, Περιοικοι, formed from περι, *about*, and οικεω, *I inhabit*, in *Geography*, ſuch inhabitants of the globe as have the ſame latitudes, but oppoſite longitudes; or live under the ſame parallel, and the ſame meridian, but in different ſemicircles of that meridian, or oppoſite points of the parallel.

Theſe have the ſame common ſeaſons throughout the year, and the ſame phenomena of the heavenly bodies; but their hours, or times of the day, are oppoſite to each other. When, *v. gr.* with the one it is mid-day, with the other it is midnight.

PERIOPHTHALMIUM, compounded of περι, *about*, and οφθαλμος, *eye*, in *Natural Hiſtory*, a thin ſkin, which birds can draw over their eyes to defend them, without ſhutting their eye-lids; otherwiſe called the nictitating membrane.

PERJOREE, in *Geography*, a town of Bengal; 10 miles W. of Curruckdeagh.

PERIOSTEUM, from περι, and οϛεου, *a bone*, in *Anatomy*, the membrane which covers the bones. See Membrane.

The perioſteum is liable to inflammation from a variety of cauſes, and particularly the venereal diſeaſe and the ſcurvy: this generally terminates in an abſceſs or gangrene: if not ſpeedily removed, the bones will be injured. The cure is, in general, the ſame as in other inflammations; but the particular intention will be to carry the peccant matter outwards by fomentations and inciſions. Caſes of this kind generally terminate in amputation.

PERIPATETIC Philosophy, the ſyſtem of philoſophy taught and eſtabliſhed by Ariſtotle, and maintained by his followers, the Peripatetics.

A ſpecimen of the Peripatetic philoſophy, ſee under Aristotelian.

PERIPATETICS, Περιπατετικοι, a ſect of philoſophers, the followers of Ariſtotle, or the maintainers of the Peripatetic philoſophy: called alſo Ariſtotelians.

Cicero tells us, that Plato left two excellent diſciples, Xenocrates and Ariſtotle, who founded two ſects, which only differed in name; the former taking the appellation of Academics, who were thoſe that continued to hold their conferences in the academy, as Plato had done before: the others, who followed Ariſtotle, were called Peripatetics; from περιπατεω, *I walk;* becauſe they diſputed walking in the Lyceum; which was a grove in the ſuburbs of Athens, which had previouſly been uſed for military exerciſes. See Lyceum.

Ammonius derives the name Peripatetic from Plato himſelf, who only taught walking; and adds, that the diſciples of Ariſtotle, and thoſe of Xenocrates, were equally called Peripatetics; the one Peripatetics of the Academy, the other Peripatetics of the Lyceum; but that, at length, the former quitted the title Peripatetic, for that of Academic, on occaſion of the place where they aſſembled; and the latter retained ſimply that of Peripatetic.

The greateſt and beſt part of Ariſtotle's philoſophy, (for an account of which, ſee the biographical article of Aristotle,) he borrowed from his maſter Plato: Serranus affirms confidently, and ſays he is able to demonſtrate it, that there is nothing exquiſite in any part of Ariſtotle's philoſophy, dialectics, ethics, politics, phyſics, or metaphyſics, but is found in Plato. And of this opinion are many of the ancient authors, Clemens Alexandrinus, &c.

Gale endeavours to ſhew, that Ariſtotle borrowed a good deal of his philoſophy, both phyſical, about the firſt matter, and metaphyſical, about the firſt being, his affections, truth, unity, goodneſs, &c. from the ſacred books; and adds, from Clearchus, one of his (Ariſtotle's) ſcholars, that he made uſe of a certain Jew, who aſſiſted him therein.

Ariſtotle, when he withdrew to Chalcis (ſee his article), was ſucceeded in the ſchool of the Lyceum by one of his favourite pupils, Theophraſtus, whom he appointed to this office in the 2d year of the 114th olympiad, B.C. 323. (See Theophrastus.) Under his conduct the Peripatetic ſchool maintained ſuch high reputation that he had about 2000 ſcholars. Theophraſtus was ſucceeded by Strato of Lampſacus (ſee Strato), who undertook the charge of it in the 3d year of the 123d olympiad, B.C. 286. After his death this ſchool was continued, in ſucceſſion, by Lycon of Troas, who enjoyed the friendſhip of Attalus and Eumenes, and filled the chair till the 138th olympiad; by Ariſto, of the iſland of Coos, whom Cicero characterizes as more diſtinguiſhed for the elegance of his language than the depth of his philoſophy; by Critolaus, a Lydian, who, with Carneades and Diogenes, was deputed by the Athenians on an embaſſy to Rome, and who is ſaid to have held the doctrine of the eternity of the world; and by Diodorus, with whom the uninterrupted ſucceſſion of the Peripatetic ſchool terminated. Of this ſchool *Demetrius Phalereus* was an illuſtrious ornament, ſee his article. The Peripatetic philoſophy found its way into Rome, in the time of Sylla, with the writings of Ariſtotle and Theophraſtus. However, the obſcurity of Ariſtotle's writings greatly obſtructed the progreſs of this philoſophy; and Cicero, who ſeems to have had ſome reſpect for the Peripatetic philoſophy, acknowledges that it was underſtood by very few even of the philoſophers themſelves. Under the Cæſars, it regained its ancient credit; and from the time of Andronicus, the preceptor of Plutarch, who, with Tyrannio, brought it to Rome, to that of Ammonius, that is, till the time of Nero, the peripatetic doctrines were taught with great purity in its ſchools. But after Ammonius it began to experience the influence of that ſpirit of confuſion, which prevailed among the Eclectic philoſophers; and the plan of Antiochus, who had formerly attempted a coalition between Ariſtotle, Plato, and Zeno, was revived. From this time the Peripatetic ſect was divided into two branches; the one conſiſting of ſuch as attempted to combine the doctrines of other ſchools with thoſe of Ariſtotle; the other, including thoſe who wiſhed to follow more cloſely the ſteps of the Stagyrite.

Julius Cæſar and Auguſtus patronized the Peripatetic philoſophy; the former in the perſon of Soſigenes, the latter in that of Nicolaus. Under the tyrannical reigns of Tiberius, Caligula, and Claudius, it experienced worſe fortune; many excellent men of this ſect, as well as others, being either baniſhed from Rome, or obliged, through fear of perſecution, to remain ſilent. In the reign of Nero, the philoſophers of this ſect, as well as others, enjoyed the temporary protection of the imperial court; but after a period of five years, they ſhared the fate of the profeſſors of magical arts, or, as they were then called, mathematicians, and were again baniſhed the city. During the firſt century of the Roman empire, we find few celebrated names among the Peripatetic philoſophers. The principal are Soſigenes, Boethius, Nicolaus, and Ægeus. About this time Ammonius, the preceptor of Plutarch, attempted to extend the authority of Ariſtotle beyond the limits of his own ſect, by blending the Platonic and Stoic doctrine with the Peripatetic. After his death many Platoniſts ſtudied the writings of Ariſtotle, and commented upon them; and thus prepared the way for the formation of the Eclectic ſect under Ammonius Sacca, who flouriſhed about a century later than Ammonius the Peripatetic. (See Ammonius and Eclectics.) After this time we meet with ſeveral genuine followers of Ariſtotle, of whom the moſt celebrated was Alexander Aphrodiſæus. (See his article.) Among the Eclectic commentators upon Ariſtotle, we may reckon, beſides Porphyry, Jamblichus, Plutarchus, Neſtorius, &c., Darippus, Themiſtius, Olympiodorus, and Simplicius. From this conciſe detail, we may learn, that under ſeveral of the Cæſars, the philoſophers of this ſchool ſhared, with their brethren, the common diſcouragements and infelicities of oppreſſion. The conciſe and logical method of philoſophiſing, which prevailed in this ſchool, could obtain few admirers at a period remarkable for a looſe and florid kind of eloquence. Beſides, the doctrine, which the Peripatetics of this period had received from their maſter, ſuffered much adulteration from the unwearied endeavours of the Alexandrian philoſophers to eſtabliſh an Eclectic ſyſtem. Many bold, but injudicious grammarians and critics, attempted to ſupply chaſms, and to clear up abſurdities, in the writings of Ariſtotle, from their own ingenious conjectures, which they preſumed to incorporate with the author's text. Even Alexander Aphrodiſæus, who profeſſed to reſtore the genuine Ariſtotelian ſyſtem, not confining himſelf to the doctrine of his maſter, contributed towards its adulteration. But nothing proved ſo injurious to the Peripatetic philoſophy, as the rage for commenting upon the works of Ariſtotle, which prevailed among his followers. Notes, paraphraſes, arguments, ſummaries, and diſſertations, piled up, century after century, under the general name of commentaries upon Ariſtotle, created, as might be expected, endleſs diſputes concerning the meaning of his writings; and it may perhaps be aſſerted with truth, that their genuine ſenſe, after all the pains which have been taken to explore it, yet remains, in many particulars, undiſcovered.

Some knowledge of the Ariſtotelian ſyſtem was introduced among the Jews by Ariſtobulus, an Alexandrian Jew, who lived in the reign of Ptolemy Philometer, and was an admirer of the Greek philoſophy. In order to facilitate the ſtudy of Ariſtotle among the Jews, his writings were, in a ſubſequent period, tranſlated from the Arabic into the Hebrew tongue; and towards the cloſe of the 13th century, the name of Ariſtotle was ſo highly reſpected among the Jews, that they not only called him the prince of philoſophers, but maintained that his philoſophy was the perfection of human ſcience, and could only be excelled by the doctrine of divine revelation; and in order to ſcreen themſelves from cenſure for ſubmitting to receive wiſdom from a heathen philoſopher, they pretended that Ariſtotle was himſelf a proſelyte to Judaiſm, and was indebted to Solomon for a great part of his philoſophy.

The commencement of the Ariſtotelian philoſophy among the Arabians may be referred to the time of Al-Mamon, who, among other writings in various languages, cauſed the works of Galen and of Ariſtotle to be tranſlated into Arabic. After his death, which happened in the year 833, philoſophy continued its progreſs among the Saracens, to which the eminent ſchools that were founded in different parts of the empire in no ſmall degree contributed. (See SARACENS.) In order to accommodate the eſtabliſhed ſyſtem, which was guarded by the ſanction of penal laws, to their philoſophical ideas, they blended the abſtract ſpeculations of the ſchools with the groſs and vulgar conceptions of the Koran. They made uſe of the ſubtleties of the Ariſtotelian philoſophy in the defective and corrupt ſtate in which it had come into their hands, to aſſiſt them in improving upon the literal meaning of their ſacred books, and thus gave a new, and for the moſt part a metaphyſical, turn to the religion and law of Mahomet. This, it is ſaid, by one of their own writers, was the origin of their religious ſects. Many of the Arabian philoſophers, among whom we may reckon Jacobus-Al-Kendi of Baſſora, Al-Farabi, or Abu Nair, a native of Balch Farab, who flouriſhed in the 10th century, Al-Raſi, called alſo Abubeker and Al-Manſor, a native of Rai, in Perſia, Avicenna, Avenpace, a Spaniſh Saracen, who flouriſhed about the middle of the 12th century, Avenzoar of Seville, Thophail of the ſame city, and Averroes, acquired celebrity by their commentaries upon Ariſtotle, and other philoſophical works. In every branch of ſcience, in which Ariſtotle led the way, the Arabian philoſophers followed him as an infallible guide; inſomuch that their tenets, as far as they are diſtinct from the peculiar dogmas of the Koran, are, without variation, thoſe of the Peripatetic ſchool.

In the earlier ages of Chriſtianity, the Platonic philoſophy was more generally preferred to the Peripatetic: the Chriſtian fathers pointed the ſevereſt cenſures againſt the Peripatetic and Epicurean ſects. The doctrines of the Peripatetics concerning divine providence, and the eternity of the world, chiefly excited their averſion againſt this ſect; and beſides this, they were much diſpleaſed with Ariſtotle, for having furniſhed heretics and infidels with the weapons of ſophiſtry. Nevertheleſs this did not prevent the doctrine of Ariſtotle from forcing its way into the Chriſtian church. Towards the cloſe of the fifth century, it roſe into conſiderable credit: the Platonics, interpreting, in their ſchools, ſome of the writings of Ariſtotle, particularly his dialectics, and recommending them to young perſons. This ſeems to have been the firſt ſtep to that univerſal dominion, which Ariſtotle afterwards obtained in the republic of letters; which was alſo very much promoted by the controverſies which Origen had occaſioned: he was zealouſly attached to the Platonic ſyſtem: and, therefore, after his condemnation, many, to avoid the imputation of his errors, and to prevent their being counted among the number of his followers, openly adopted the philoſophy of Ariſtotle. Nor was any philoſophy ſo proper for furniſhing thoſe weapons of ſubtle diſtinctions and captious ſophiſms, which were uſed in the Neſtorian, Arian, and Eutychian controverſies. About the cloſe of the ſixth century, the Ariſtotelian philoſophy, as well as ſcience in general, was almoſt univerſally decried; and it was chiefly owing to Boethius, who had explained and recommended it, and who united the Platonic with the Ariſtotelian doctrine, that it obtained a higher degree of credit among the Latins than it had hitherto enjoyed. Towards the end of the ſeventh century, the Greeks, abandoning Plato to the monks, gave themſelves up entirely to the direction of Ariſtotle, and in the ſucceeding century, the Peripatetic philoſophy was taught every where in their public ſchools, and propagated in all places with conſiderable ſucceſs. John Damaſcenus, who flouriſhed at the beginning of the eighth century, very much contributed to its credit and influence, by compoſing a conciſe, plain, and comprehenſive view of the doctrines of the Stagirite, for the inſtruction of the more ignorant, and in a manner adapted to common capacities. Under the patronage of Photius, and the protection of Barda, the ſtudy of philoſophy, having for ſome time declined, revived again about the end of the ninth century. About the year 1050, a revolution in philoſophy commenced in France; when ſeveral eminent logicians, who followed Ariſtotle as their guide, took nevertheleſs the liberty of illuſtrating and modelling anew his philoſophy, and extending it far beyond its ancient limits. In the twelfth century, three methods of teaching philoſophy were practiſed by different doctors; the firſt was the ancient and plain method, which confined its reſearches to the philoſophical notions of Porphyry, and the dialectic ſyſtem, commonly attributed to St. Auguſtine, and in which were laid down this general rule, that philoſophical inquiries were to be limited to a ſmall number of ſubjects, leſt, by their becoming too extenſive, religion might ſuffer by a profane mixture of human ſubtilty with its divine wiſdom. The ſecond method was called the Ariſtotelian, becauſe it conſiſted in explications of the works of that philoſopher, ſeveral of whoſe books, being tranſlated into Latin, were almoſt every where in the hands of the learned. The third was termed the free method, employed by ſuch as were bold enough to ſearch after truth, in the manner the moſt adapted to render their inquiries ſucceſsful, without rejecting the ſuccours of Ariſtotle and Plato.

About this time, dialectic philoſophy was ſuppoſed to be the key of theology, without which it would be impoſſible to unlock the myſteries of ſacred wiſdom. On account of this ſuppoſed alliance between logic and theology, the former was made the principal object of ſtudy in all the ſchools, and thoſe who excelled in the dialectic art were regarded with the higheſt admiration, and attended by crowds of pupils. The Ariſtotelian philoſophy had now for ſeveral centuries been ſtudied by the Saracens, and was at this time taught in their ſchools in Spain. Theſe ſchools were viſited by many of the weſtern Chriſtians, who learned Arabic, that they might be able to read tranſlations of Ariſtotle, and other philoſophical writers, and who afterwards tranſlated many Arabic books into the European tongues. Another cauſe which ſerved to eſtabliſh a general taſte for the Peripatetic philoſophy, and particularly for the Ariſtotelian logic was, that about this period many Greek copies of the writings of Ariſtotle were brought from Conſtantinople into the weſt. Before this time, though they had been read in the original by a few monks, more learned than the reſt, moſt perſons had been contented with the tranſlations of Victorinus and Boethius. But, at the beginning of the 12th century, the original writings of Ariſtotle were ſtudied in Paris; whence they were introduced among the Germans, by Otho of Freiſingen, in the time of Abelard. The guardians of the church were alarmed by the inundation of new opinions, which this fondneſs for logical diſputations introduced; and after having ſentenced the works of two Pariſian teachers of theology to be publicly burned, a general prohibition of the uſe of the phyſical and metaphyſical writings of Ariſtotle in the ſchools, was iſſued firſt by the ſynod of Paris, and afterwards, under pope Innocent III., by the council of Lateran. The evil that had cauſed the alarm was not ſuppreſſed; but the fondneſs for the ſubtleties of Ariſtotelian logic and metaphyſics became ſo general, that the orthodox clergy complained, that ſcholars ſpent their whole time in diſputation. It was at length found neceſſary, under certain reſtrictions, to favour the ſtudy of Ariſtotle. Accordingly his dialectics, phyſics, and metaphyſics, were by expreſs ſtatute received into the univerſity of Paris. It was ordered, however, in 1231, by a bull of pope Gregory IX., that only ſuch books of Ariſtotle ſhould be uſed in the ſchools, as had been examined and purged from errors. In ſeveral other countries, the Ariſtotelian philoſophy was received with leſs oppoſition. In England, the writings of the Stagirite were read with great avidity; and in Germany and Italy the ſtudy of Ariſtotle was very much encouraged. The name of Ariſtotle, from the end of the twelfth century, obtained univerſal dominion; and ſo far were his writings, after this time, from falling under the cenſure of councils and popes, that the philoſophy of Ariſtotle, and that of the Saracens, became the main pillars of eccleſiaſtical hierarchy. In the year 1452, Charles VII. ordered the works of Ariſtotle to be read and publicly explained in the univerſity of Paris. Thus the union between the Peripatetic philoſophy and the Chriſtian religion was confirmed, and Ariſtotle became not only the interpreter, but even the judge of St. Paul. At the commencement of the reformation, Luther, who was early initiated in the Peripatetic philoſophy, rejected both this and the ſcholaſtic, as not only irreconcileable with the Chriſtian ſyſtem, but the cauſe of endleſs controverſies in the Chriſtian church. In various parts of his writings he expreſſes great contempt for Ariſtotle and his followers. Melancthon ſo far eſpouſed the doctrine of Ariſtotle, as to attempt the revival of the pure Peripatetic philoſophy in the ſchools. Although at the beginning of the 16th century, the ſcholaſtic philoſophy began to fall into general contempt, Ariſtotle ſtill retained, in a great degree, his authority. This event was owing to many concurring circumſtances. The partizans of the Platonic ſyſtem, who, under the patronage of the Medicean family, had long maintained their ground againſt the Ariſtotelians, loſt their influence as that of their patrons declined; and the advocates of the Peripatetic philoſophy proportionally increaſed, and, after a violent conflict, obtained a victory. This victory was facilitated and completed by thoſe enquirers extending beyond the region of metaphyſics and theology, into the ſubjects of natural hiſtory and philoſophy, which were now proſecuted. Among the followers of the church of Rome, the Peripatetic philoſophy continued to be zealouſly maintained, on account of the aſſiſtance which its dialectics afforded them in the defence of the eſtabliſhed ſyſtem; and becauſe many of the doctrines of this ſyſtem coincided with thoſe of the ſchool of Ariſtotle. The deference which had been long paid to the deciſions of Ariſtotle, induced the firſt reſtorers of learning to direct their principal attention to his writings: accordingly the number of critics and common tutors became very conſiderable. The firſt perſons of this deſcription employed themſelves in verbal, rather than philoſophical criticiſm, and in correcting the text of their author. But commentators of a different claſs were chiefly employed, from Pomponatius to the middle of the ſeventeenth century, in aſcertaining and reſtoring the true Ariſtotelian philoſophy. It would be an endleſs taſk to enumerate all the learned men, who, in the fifteenth and ſixteenth centuries, attached themſelves to the Ariſtotelian ſyſtem. Among the Roman Catholics we may mention Nicholas Leonicus Thomæus, a Venetian, born in 1457, who ſeems to have been one of the firſt that attempted to reſtore the genuine Ariſtotelian philoſophy; Pomponatius of Mantua, born in 1462, who taught the doctrines of Ariſtotle and Averroës in the ſchools of Padua and Bologna, and who had many followers of great celebrity; ſuch were Simon Porta, a Neapolitan, Julius Cæſar Scaliger, a celebrated philologiſt, and Lazarus Bonamicus, who rivalled Eraſmus in elegant Latinity:—Majoragius of Milan:—Sepulveda of Cordova:—Peter Victor of Florence:—Zabaralla of Padua:—Strozza of Florence:—Cæſalpinus, an Italian:—and Cæſar Cremoninus of Modena. Among the Proteſtants, eſpecially in Germany, we find in their public ſchools many learned men, who were followers of Ariſtotle. At the commencement of the reformation, indeed, both the *ſcholaſtic* philoſophy, (which ſee,) and the dogmas of Ariſtotle, were rejected with great indignation, particularly, as we have already obſerved, by Martin Luther. But afterwards, when men of the ſoundeſt judgment and beſt erudition, perceived the value of philoſophy as a guard againſt fanaticiſm, much labour was devoted to the promotion of learning, and to the encouragement of a love of ſcience. The firſt place in this claſs of reformers is unqueſtionably due to Philip Melanchthon (ſee his article.) At Leipſic, Simon Simon of Lucca was diſtinguiſhed; in the academy at Tubingen flouriſhed Jacobus Schegkius, and in that of Altdorf, Philip Scherbius, whoſe contemporary, of the ſame ſchool, was Nicholas Taurullus. To theſe we may add Erneſtus Sonerus, a native of Nuremberg, and Hermannus Conringius, one of the moſt illuſtrious ornaments of the Germanic ſchools, (ſee his article); and alſo Chriſtianus Drierus, a native of Stettin in Pomerania, Melchior Zeidler of the ſame place, and Jacobus Thomaſius of Leipſic, chiefly memorable as the preceptor of the illuſtrious Leibnitz.

The general prepoſſeſſion in favour of the Ariſtotelian ſyſtem, which from a variety of cauſes, ſome of which have been enumerated, prevailed for ſeveral centuries after the revival of letters, was attended with much inconvenience and miſchief. Opinions were imbibed from the Peripatetic philoſophy, wholly inconſiſtent with the principles of true religion; ſuch as, for example, that God, the firſt mover, wholly intent upon the contemplation of his own intellect, diſregards the affairs of the world; that the Intelligence, which preſides over the lower ſphere, is the univerſal ſoul of the world, of which all men partake; and conſequently, that the ſoul of man has no diſtinct exiſtence, and will no longer ſubſiſt as ſuch, than whilſt the body continues to live. In conſequence of theſe and ſimilar tenets infidelity prevailed; and the minds of the multitude, both eccleſiaſtics and laity, were deeply tinctured with Atheiſm; and this fatal relaxation of principle produced an uncommon depravity of manners. In order to reſtrain this evil, the fathers of the Lateran council iſſued a bull in 1510, againſt the Ariſtotelian corruptions; but the Peripatetics ridiculed this idle fulmination. The Stagirite having, for many centuries, poſſeſſed authority in the ſchools little inferior to that of Jeſus Chriſt in the church, and his dogmas being intimately interwoven with thoſe of religion, it was thought exceedingly hazardous to whiſper any thing to the diſcredit of his philoſophy. This reverence for Ariſtotle was ſupported, in Popiſh univerſities, by ſtatutes which required the profeſſors to promiſe upon oath, that in their public lectures on philoſophy they would follow no other guide. Among Proteſtants, the errors and corruption of the Peripatetic philoſophy met with oppoſition; but it was attended with little ſucceſs. Several eminent men ventured to inveigh againſt Ariſtotle himſelf, as the author of many pernicious errors. But, ſtill, his ſyſtem, for the moſt part, retained its authority, and even thoſe who forſook this maſter, thought it neceſſary to make choice of ſome other ancient guide; ſo that, after all, the queſtion was, what Ariſtotle, Plato, or Pythagoras had taught rather than what was truth.

The Peripatetic ſyſtem, after having prevailed with very great and very extenſive dominion for many centuries, began rapidly to decline towards the cloſe of the ſeventeenth century, when the diſciples of Ramus attacked it on the one hand, and it had ſtill more formidable adverſaries to encounter in Des Cartes, Gaſſendi, and Newton.. Brucker's Hiſt. of Philoſ. by Enfield. Moſheim's Eccl. Hiſt. See Aristotle.

PERIPETIA, Περιπέτεια, in the *Drama*, that part of a tragedy in which the action is turned, the plot unravelled, and the whole concludes.

The word is formed from the Greek περιπέτης, ſomething falling into a different ſtate; formed of περι, *about*, and πιπτω, *cado*, *I fall*.

The peripetia is properly the change of condition, whether happy or unhappy, which the principal perſon or perſons undergo; ariſing from ſome diſcovery, or incident, which gives a new turn to the action.

The peripetia, therefore, concludes with the cataſtrophe, or unravelling; unleſs we make the peripetia to depend on the cataſtrophe, &c. as an effect on its cauſe.

The peripetia is ſometimes induced by remembrance, or diſcovery; as in the Œdipus, where the meſſenger ſent from Corinth to invite Œdipus to the crown, informs him, that Polybus and Merope were not his father and mother; which begins a diſcovery, that Laius, whom he had killed, and Jocaſta, whom he had then to wife, were his father and mother, and throws him into the deepeſt diſtreſs. This inſtance Ariſtotle calls a *double* peripetia.

The qualities of the peripetia are, that it be probable and neceſſary; in order to which it muſt be the natural reſult, at leaſt the effect, of the foregoing action, or of the ſubject itſelf; and muſt not ſtart out from any foreign, or collateral cauſe.

Sometimes the peripetia is occaſioned without any diſcovery; as in the Antigone of Sophocles, where the change in Creon's fortune is produced by the effect of his own obſtinacy; and ſometimes by a mere change of the will, which, though the leaſt artful, yet, Mr. Dryden obſerves, may be ſo managed, as to become exceedingly beautiful.

Theſe two caſes Ariſtotle calls *ſimple* peripetias; in theſe the change only conſiſts in a paſſage out of trouble and action into tranquillity and reſt. See Fable, Action, &c.

PERIPHALLIA, Περιφαλλια, in *Antiquity*, the ſame with *phallagogia*. See Phallagogia and Dionysia.

PERIPHERES, a term in the *Ancient Greek Muſic*, which ſignifies a ſeries of notes aſcending, or deſcending, and which in a manner return upon themſelves. The *peripher* was formed upon the *Anacamptos* and the *Euthia*.

PERIPHERY, formed from περιφερω, *I ſurround*, or περι, *about*, and φερω, *I bear*, or *carry*, in *Geometry*, the circumference or bounding-line of a circle, ellipſis, parabola, or other regular curvilinear figure.

The periphery of every circle is ſuppoſed to be divided into three hundred and ſixty degrees; which are again ſubdivided, each into ſixty minutes, the minutes into ſeconds, &c.

The diviſion of degrees, therefore, are fractions, whoſe denominators proceed in a ſexagecuple ratio; as, the minute, $\frac{1}{60}$, ſecond $\frac{1}{3600}$, third $\frac{1}{216000}$. See Sexagesimal.

But theſe denominators being troubleſome, in their ſtead are uſed the indices of their logarithms; hence the degree, being the integer, or unit, is marked by °, the minute by ′, ſecond by ″, &c. See Circle, and Circumference.

Periphery, *Angle at the*. See Angle.

PERIPHRASIS, Περίφρασις, *circumlocution*, formed of περι, *about*, and φραζω, *I ſpeak*, in *Rhetoric*, a circuit, or tour of words, much affected by orators, to avoid common and trite manners of expreſſion.

The periphraſis is of good uſe on many occaſions: and we are frequently forced to have recourſe to it, to make things be conceived which are not proper to name.

It is often a piece of politeneſs to ſuppreſs the names, and only intimate, or deſign them. Theſe turns of expreſſion are alſo particularly ſerviceable in oratory; for, the ſublime admitting of no direct citations, there muſt be a compaſs taken to inſinuate the authors whoſe authority is borrowed. A periphraſis, by turning round a proper name to make it underſtood, amplifies and raiſes the diſcourſe; but care muſt be taken it be not too much ſwelled, nor extended *mal à propos*; in which caſe it becomes flat and languid. See Circumlocution.

PERIPHYMOSIS. See Paraphimosis.

PERIPLOCA, in *Botany*, an old name, adopted by Tournefort and Linnæus, derived from περι, *about*, and πλοκη, *a binding*, or *twining*. It alludes to the long trailing ſtems and branches, which twine about each other to a great extent. Linn. Gen. 119. Schreb. 166. Willd Sp. Pl. v. 1. 1248. Mart. Mill. Dict. v 3. Sm. Prodr. Fl. Græc. Sibth. v. 1. 165. Brown Tr. of Wern. Soc. v. 1. 57. Ait. Hort. Kew. v. 2. 74. Juſſ. 146. Tourn. t. 22. Lamarck Illuſtr. t. 177. Jacq. Miſc. v. 1. t. 1. f. 2. Claſs and order, *Pentandria Digynia*. Nat. Ord. *Contortæ*, Linn. *Apocineæ*, Juſſ. *Aſclepiadeæ*, Brown.

Gen. Ch. *Cal.* Perianth inferior, minute, in five ovate permanent ſegments. *Cor.* of one petal, wheel ſhaped, in five deep, oblong-linear, abrupt, convex, oblique, widely ſpreading ſegments, having five awned ſcales alternate with them. *Stam.* Filaments five, diſtinct, oblong, flattened, bearded at the ſummit; anthers of two remote cells, each cell cohering with that of the neighbouring anther; maſſes of pollen granulated, ſolitary, in four parts, applied to the ſtigma. *Piſt.* Germens two, ovate, approximated; ſtyles combined above; ſtigma capitate, ſcarcely pointed, dilated, and notched at the top. *Peric.* Follicles two, cylindrical, widely ſpreading, ſmooth. *Seeds* numerous, imbricated, crowned with hair. *Receptacle* longitudinal, thread-ſhaped.

Eſſ. Ch. Corolla wheel-ſhaped, with five awned ſcales at its ſinuſes. Filaments diſtinct. Anthers cohering, bearded above. Maſſes of pollen five, granular. Stigma nearly pointleſs. Follicles cylindrical, widely ſpreading, ſmooth. Seeds crowned with hair.

Obſ. From this genus are now ſeparated, by Mr. Brown, *P. Secamone* of Linnæus, and *emetica* of Willdenow; both referred to his genus Secamone, hereafter to be deſcribed: as are *P. eſculenta* of Linnæus, ſee Oxystelma; *P. indica*, ſee Hemidesmus; *P. capſularis* of Forſter, ſee Parsonsia; and *P. ſylveſtris* of Willdenow, ſee Gymnema. *P. tunicata* of the laſt-mentioned author appears to be likewiſe rejected by Mr. Brown; but we neither know the plant, nor where he has placed it. The Linnæan *P. africana* is made by him a *Cynanchum*. The following ſpecies only therefore remain.

1. P. *græca*. Common Periploca. Linn. Sp. Pl. 309. Sm. Fl. Græc. Sibth. t. 249, unpubl. Schmidt Arb. v. 1. t. 46. (P. foliis oblongis; Hort. Angl. t. 15. Duham. Arb. v. 2. 104. t. 21. P. repens anguſtifolia; Ger. Em. 902.)—Corolla hairy on the upper ſide. Leaves ovate, acute.—Native of hedges and thickets in the Levant. Dr. Sibthorp gathered it on mount Athos and near Pruſa. Gerarde had the plant in his garden, and it has ever ſince been cultivated in England, as a hardy climber, flowering plentifully in July and Auguſt, and diſtinguiſhed by the abſurd name of Virginian ſilk. Lord Bute ſent a deſcription of this *Periploca*, as a new genus, without any idea of its being a deſcribed plant, to Peter Collinſon, which the latter forwarded to Linnæus. The *ſtem* twines round every thing in its way to the extent of ſeveral yards, and is much branched, round, and ſmooth. *Leaves* oppoſite, on ſhort ſtalks, ovate, ſharp-pointed, entire, ſmooth and ſhining, very beautiful, two or three inches long, deciduous; the lowermoſt on each branch ſhort, rounded and obtuſe. *Flowers* corymboſe, at the ends of ſhort lateral branches, inodorous, ſingularly elegant though not oſtentatious, brown, with a velvet ſoftneſs, each an inch in diameter. They convey an idea of ſome brown kinds of Auricula.

2. P. *lævigata*. Smooth-flowered Periploca. Ait. Hort. Kew. ed. 1. v. 1. 301. Willd. n. 3. (P. punicæfolia; Cavan. Ic. v. 3. 9. t. 217.)—Corolla ſmooth. Leaves obovate.—Native of the Canary iſlands, whence it was ſent by Mr. Maſſon to Kew in 1779, and where according to Cavanilles it is called *Granadillo*. The *ſtem* is ſtouter and more upright than in the former. *Leaves* ſmaller, moſtly obovate. *Flowers* yellowiſh-green, equally terminal, but ſmaller and ſmooth. We find their ſegments frequently emarginate, though ſometimes entire, agreeing in thoſe reſpects with the following.

3. P. *anguſtifolia*. Narrow-leaved Periploca. Labillard. Syr. faſc. 2. 13. t. 7. Willd. n. 4.—Corolla ſmooth. Leaves lanceolate, obtuſe.—Gathered by M. Labillardiere, from whom we have a ſpecimen, near Laodicea ad mare, and in the iſland of Lampedoſa. It is alſo found in Barbary. The *ſtem* ſeems ſtill more upright and ſtraight than in the laſt, and the *leaves* are more lanceolate, but their *flowers* exactly agree, notwithſtanding a ſuppoſed difference in the apex of each ſegment, pointed out by Willdenow. This is very probably a variety of the *lævigata*.

Mr. Brown mentions a fourth ſpecies, brought by Dr. Afzelius from Sierra Leone, which we have not ſeen, and of which no character or deſcription is given.

Periploca, in *Gardening*, compriſes plants of the woody climbing kind, of which the ſpecies cultivated are the common Virginian ſilk or periploca (P. græca); the green periploca (P. ſecamone); the Indian periploca (P. indica); and the African periploca (P. africana).

The firſt is ſometimes called *climbing dog's-bane.*

The ſecond ſpecies has a twining, ſhrubby, even ſtem: the leaves are oppoſite, petioled, even, underneath paler, veined tranſverſely: the panicles axillary, alternate, dichotomous, ſhorter than the leaves: the flowers are ſmall. It differs obviouſly from the firſt ſort in its ſmall copious flowers. It is ſaid to be a native of Egypt; but its place of growth is uncertain; flowering in July.

The third has many ſlender ſtalks, which twine about each other, and by a ſhrub, or other ſupport, will riſe near three feet high, putting out ſeveral ſmall ſide-branches; theſe are hairy, as are alſo the leaves; which are about three quarters of an inch long, and half an inch broad, ſtanding by pairs upon very ſhort footſtalks; the flowers come out in ſmall bunches from the ſide of the ſtalks; are ſmall, of a dull purple colour, and have a ſweet ſcent. It flowers in the ſummer, but does not produce ſeeds in this climate. It is a native of the Cape.

In the third ſort there is a variety with ſmooth leaves and ſtalks, which comes from the Cape.

Method of Culture.—Theſe plants may be eaſily increaſed by layers made from the young wood in the early ſpring or ſummer ſeaſon. When they are fully rooted, they may be taken off, and planted out, the firſt or hardy kind, either where they are to remain, or in the nurſery, to be afterwards removed; and the two laſt, or tender ſorts, into pots, to be protected during the winter. The firſt ſort likewiſe often ſucceeds by cuttings, and alſo the two laſt by the uſe of the hot-bed.

But they may all be increaſed alſo, by ſowing the ſeeds procured from abroad in pots of light earth, plunging them in the hot-bed.

They ſhould all be placed near ſupport, to prevent their trailing upon the ground and faſtening about other plants.

Where the two laſt ſorts are kept conſtantly plunged in the tan-bed of the ſtove, they thrive and flower much better than in any other ſituation, but they ſhould not be kept too warm in winter, and in the ſummer they ſhould have a large ſhare of free air admitted to them; for when they are kept too cloſe their leaves will be covered with inſects, and the plants become ſickly in a ſhort time.

The firſt ſorts only require a little protection in the winter. They all afford variety among potted plants in general.

PERIPLUS, Περιπλȣς, a voyage, or navigation, round a certain ſea, or ſea-coaſt.

Arrian has deſcribed all the coaſts of the Black ſea, after having inſpected them in quality of general of the emperor Adrian; to whom he dedicates the deſcription, under the title "Periplus of the Euxine ſea."

The "Periplus Hannonis" is one of the moſt curious ſragments tranſmitted to us by antiquity, and it is the only authentic monument of the Carthaginian ſkill in naval affairs. But ſome doubts have been entertained concerning its antiquity. (See Africa.) The periplus of the Erythrean ſea was publiſhed by Dr. Vincent. See alſo Africa.

PERIPLYSIS, a name given by ſome authors to a diarrhœa, in which the ſtools are extremely thin and watery, and very frequent, and large in quantity.

PERIPNEUMONY, in *Medicine*, from περι, and πνευμων, *the lungs*, is an inflammation of the lungs and their inveſting membrane.

The peripneumony (*peripneumonia*) has been commonly diſtinguiſhed by medical writers from the pleuriſy (*pleuritis*); the former appellation being applied excluſively to inflammation ſeated in the ſubſtance of the lungs themſelves; and the latter to inflammation affecting the *pleura*, or inveſting membrane of the lungs, as well as its duplicature, which lines the interior ſurface of the cavity of the cheſt. This diſtinction, however, is of little moment; for, as Dr. Cullen obſerves, "neither do our diagnoſtics ſerve to aſcertain exactly the ſeat of the diſeaſe, nor does the difference in the ſeat of the diſeaſe exhibit any conſiderable variation in the ſtate of the ſymptoms, nor lead to any difference in the method of cure." We ſhall, therefore, treat of pulmonic inflammation as one diſeaſe, in the ſymptoms of which there may be ſome ſhades of difference in different caſes, but to which it is ſcarcely neceſſary to appropriate different names.

Few diſeaſes are ſo diſtinctly characteriſed by their ſymptoms as ſimple inflammation of the organs of reſpiration. However various its ſeat, or its degree of violence, it is accompanied by theſe *four* ſymptoms; namely, *fever*, *difficult breathing*, *cough*, and *pain in* ſome part of *the thorax*. Theſe ſymptoms may be variouſly modified, in different inſtances; but they are all invariably preſent, where the lungs or their inveſting membrane are affected with inflammation.

The diſeaſe almoſt always begins with a cold ſtage, that is, with more or leſs chillineſs and ſhivering, and this is ſpeedily followed by increaſed heat, frequency of pulſe, depreſſion of ſtrength, and other ſymptoms of what is called *fever*. Sometimes, however, the increaſe of the fever is very gradual, and the ſymptoms at firſt moderate, and the peculiar pectoral ſymptoms do not immediately appear; but frequently theſe ſymptoms accompany the fever from the beginning. For the moſt part the pulſe is frequent, full, ſtrong, hard, and quick; but, in a few inſtances, eſpecially in the advanced ſtate of the diſeaſe, it is weak and ſoft, and at the ſame time irregular.

The *difficulty of breathing* is always preſent, and the oppreſſion is greateſt in the act of inſpiration; both becauſe the air-cells of the lungs, being compreſſed by the turgidity of the blood-veſſels, do not eaſily admit of a full dilatation, and becauſe the dilatation and diſtention of the inflamed membranes aggravate the pain attending the diſeaſe. The difficulty of breathing is ſomewhat varied by the poſture of the patient: it is generally greater when he lies upon the ſide affected; but ſometimes the contrary happens; and often he cannot lie eaſy upon either ſide, and can breathe only with eaſe, when lying on his back: and ſometimes the oppreſſion becomes ſo great, that he cannot breathe eaſily, except when in ſomewhat of an erect poſture. This *orthopnœa*, as it is technically called, implies a dangerous degree of violence, although to a careleſs obſerver, the circumſtance of the patient ſitting up (when, in fact, he is unable to lie down) might lead to an inference, that the diſeaſe was moderate. The greater facility of reſpiration in the erect poſture, under ſuch circumſtances, is the reſult of the more eaſy deſcent of the diaphragm, when the abdominal viſcera no longer preſs it upwards, and the conſequent more free dilatation of the lungs.

A *cough* is alſo an invariable attendant on peripneumony; but, in different caſes, it varies much in its violence and urgency, and in the pain which it occaſions. It is ſometimes dry, that is, without any expectoration, eſpecially in the beginning of the diſeaſe; but it ſoon becomes moiſt, from the great effuſion from the turgid veſſels, and more commonly it is moiſt even from the firſt. The matter expectorated is various both in conſiſtence and colour, and frequently it is ſtreaked with blood; ſometimes, indeed, blood is brought up in conſiderable quantity, yet without the injurious conſequences attending an ordinary hæmoptyſis.

The *pain* accompanying this diſeaſe, is, in different caſes, felt in different parts of the thorax, but moſt frequently in one ſide. It has been ſaid to affect the right ſide more frequently than the left; but this is by no means certain. Sometimes it is felt as if it were under the ſternum, or breaſt bone; ſometimes in the back between the ſhoulders; and ſometimes darting from the one to the other. When the pain is in the ſides, its ſeat is very various; but the part of all others moſt frequently affected, is about the ſixth or ſeventh rib, near the middle of its length, or a little more forward; in which ſituation it is often ſevere and pungent; while, in others, it is often more dull and obtuſe, with a ſenſe of weight rather than of actual pain. In general it continues fixed in one place; but ſometimes it ſhoots from the ſide to the ſhoulder-blade, on one hand, or to the ſternum and clavicle on the other.

This varying ſtate of the ſymptoms has been aſſumed as the foundation of the different appellations given to pneumonic inflammation, and eſpecially the different degree of acuteneſs or obtuſeneſs of the pain, of hardneſs or ſoftneſs in the pulſe, and of the oppreſſion of reſpiration. An *acute* pain or ſtitch, fixed in one point of the ſide, and remarkably increaſed by the act of inſpiration, and ſtill more by that of coughing, together with a *hard* pulſe, and a *dry* cough, at firſt, is conſidered as characteriſing an inflammation ſeated in the *pleura*, ſurrounding the lungs, or lining the ribs; and therefore conſtituting the *pleuriſy:* while on the other hand, an *obtuſe* and *deep-ſeated* pain in the breaſt, not remarkably increaſed by reſpiration, which is conſtantly oppreſſed, and often requires an erect poſture, together with a pulſe often *ſoft*, and frequently with a tumid and livid countenance, is deemed indicative of inflammation in the ſubſtance of the lungs, and therefore called more ſpecifically, *peripneumony*. But although an attention to theſe different forms of the diſeaſe is neceſſary, as they afford important indications in reſpect to the prognoſis, yet there is little foundation for referring the diſeaſe to a different ſeat in theſe caſes. It ſeems probable, as Dr. Cullen juſtly ſuggeſts, that every acute inflammation begins in membranous parts; and in every diſſection of perſons dead of peripneumony and pleuriſy, both the ſurrounding membrane and the ſubſtance of the lungs appear to have been affected with the inflammation. In ſhort, wherever the diſeaſe begins, it appears to be communicated ſpeedily to the other parts of the organ.

Some writers have given a particular appellation (*paraphrenitis*) to an inflammation of the pleura, covering the upper ſurface of the diaphragm, and have ſuppoſed it to be attended with peculiar ſymptoms of delirium, riſus ſardonicus, and other convulſive motions; but it is certain, that an inflammation of that portion of the pleura, and affecting alſo even the muſcular ſubſtance of the diaphragm, has often taken place without any of theſe ſymptoms: nor have any diſſections, or authentic records of diſſections, afforded any ſupport to the opinion, that an inflammation of the pleura, covering the diaphragm, is attended with delirium, more commonly than other pneumonic inflammation. See PARAPHRENITIS.

The cauſes of peripneumony are very well known. Perſons of a conſiderable vigour of conſtitution are moſt liable to be attacked with it: whence, although it may affect any age and either ſex, it ſeldom occurs before the age of puberty, and moſt commonly in the middle age of life, from thirty-five to fifty-five, more frequently in men than in women, and ſeldom in thoſe who are ſedentary, or delicate from any other cauſe. Previous diſeaſes of the lungs, ſuch as aſthma, or the preſſure of a deformed cheſt, and particularly the previous occurrence of peripneumony itſelf, occaſion a pre-diſpoſition to this inflammation.

Among the occaſional cauſes, *cold* is certainly the moſt common, eſpecially ſudden and great viciſſitudes; whence peripneumony is moſt frequently ſeen in the winter and ſpring, and in cold climates. Like all the other organs of the body, the lungs are liable to be inflamed by violence, or by whatever obſtructs, ſtrains, or otherwiſe injures their ſtructure: whence blows on the cheſt, falls, &c. ſometimes produce peripneumony; great exertions of the voice or breath, ſuch as loud and long-continued ſpeaking, ſinging, or playing upon wind-inſtruments, or even violent exerciſe, occaſionally excite the diſeaſe; exceſſive intemperance was alſo remarked by Hippocrates as one of the cauſes of pneumonic, as of other inflammations. Sometimes peripneumony occurs as a ſymptom of other inflammatory fevers, eſpecially of the meaſles and ſmall-pox; and in many caſes, it originates from common catarrh, by an extenſion of the inflammation from the mucous membrane of the bronchiæ to the ſubſtance of the lungs. Sometimes again it originates from *metaſtaſis,* as it is called, of gout, rheumatiſm, eryſipelas, &c.; or at leaſt, it comes on ſuddenly at the time when the external ſymptoms of theſe diſeaſes diſappear. Cold, under certain conditions of the atmoſphere, has occaſionally given riſe to the diſeaſe, in great numbers of people at the ſame time, ſo as to produce a ſort of epidemic peripneumony, and even to excite a ſuſpicion of its depending upon contagion.

Inflammation of the lungs may terminate either in health, in death, or in ſome other diſeaſe. It terminates in health, by what is called the *reſolution* of the inflammation. This proceſs, however, ſeldom takes place without being attended by ſome evident evacuation. In ſome rare inſtances, a ſpontaneous hæmorrhagy from the noſe, occurring early in the diſeaſe, has put a period to its courſe; or a copious diarrhœa has had the ſame effect: but theſe are not to be looked for. The evacuation moſt frequently occurring, and apparently the moſt effectual in promoting reſolution, is an expectoration of a thick white or yellowiſh matter, often a littled ſtreaked with blood, and which is brought up copiouſly, and without violent coughing. If the violence of the inflammation is not ſubdued, it goes on to a fatal termination, or to end in ſome other ſtate of diſeaſe. One termination, by which it ends fatally, is peculiar to inflammation in this organ; namely, an effuſion or extravaſation of blood and coagulable lymph into the interſtitial ſubſtance of the lungs, which, by compreſſing at once both the air-cells and the blood-veſſels, interrupt both the breathing and the circulation, and produce a fatal ſuffocation. The moſt common termination of pneumonic inflammation, when it is fatal in the early part of its courſe, ſeems, however, to be in an effuſion of the coagulable lymph only into the cellular ſubſtance of the lungs, producing a ſimilar compreſſion. In other caſes, the functions of breathing are interrupted by a profuſe effuſion of viſcid mucus into the air-cells and bronchial paſſages, by which the acceſs of air is prevented.

Where peripneumony goes through its courſe, it is apt to terminate in other diſeaſes, eſpecially in ſuppuration and abſceſs. This of itſelf becomes a formidable malady, and, unleſs the conſtitution of the patient be vigorous, and the abſceſs opens into the branches of the trachea by a ſmall aperture, is often fatal. Theſe abſceſſes, when they take place in the ſubſtance of the lungs, are called *vomicæ:* they ſometimes conſiſt of ſmall cavities containing pus; and at other times the cavities are very large, ſo that the greater part of the ſubſtance of the lungs has been deſtroyed. Where they open into the cavity of the cheſt, emptying their contents there, the diſeaſe called *empyema* is produced. Sometimes, however, *empyema* is formed by an inflamed ſtate of the pleura, exterior to the lungs. In either caſe, the pus may be accumulated in the whole cavity of the cheſt, or it may be confined to a part of it by adheſions taking place between the lungs and the pleura, which inveſts the ribs: but when pus is evacuated into the cavity of the cheſt, by the burſting of an abſceſs in the lungs, it is almoſt always confined within certain limits by adheſions. See Baillie, Morbid Anatomy, p. 53.

Theſe adheſions of the lungs to the ribs, or, more properly ſpeaking, of the *pleura* inveſting the lungs to the ſame membrane lining the cheſt, are among the common conſequences of pneumonic inflammation. Sometimes they extend over the greater part of the cheſt, and, tying the lungs cloſely to its *parietes,* produce a permanent difficulty of breathing, with a cough. Sometimes, however, they are only partial, and looſely tied, ſo as not to impede the free motion of the lungs. Where the adheſions are conſiderable, and the inflammation has been ſevere, another formidable diſeaſe occaſionally enſues, namely, dropſy of the cheſt, from the effuſion of a large quantity of ſerum from the inflamed ſurface into the cavity of the former.

It may be mentioned as a ſingular circumſtance, however, that anatomiſts ſeldom examine a body after death, in which ſome degree of adheſion between the lungs and the ribs is not found. "There would often ſeem to be ſlight degrees of inflammation in the pleura," ſays the able morbid anatomiſt above quoted, "where the ſymptoms above ſtated have not exiſted at all, or have been ſo obſcurely marked as to be altogether overlooked. In examining the cheſt of adults after death, it rarely happens that adheſions are not diſcovered in ſome part of it, uniting the ſurface of the lungs to the pleura, which lines the parietes of the cheſt. The marked ſymptoms of pleuriſy, however, are by no means ſo frequent. It ſeems, therefore, probable, that ſlight inflammations may attack the pleura; ſufficient, however, to throw out coagulable lymph, which is afterwards changed into adheſions, and yet perſons ſhall not be ſenſible of any diſeaſe in the cheſt." Morbid Anat. p. 58.

A termination of peripneumony in gangrene is mentioned by authors, but we have never ſeen or read of any well authenticated inſtance of ſuch a termination.

The accuracy of *prognoſis,* in the early ſtages of peripneumony, is of conſiderable importance; ſince, if the opportunity of employing active remedies be paſſed by, it is not eaſy to retrieve the injury. The danger of the diſeaſe in the early ſtage is chiefly to be eſtimated by the degree of difficulty in the reſpiration. When the patient can lie on one ſide only; when he can lie on neither ſide, but upon his back only; and ſtill more, when he cannot breathe with tolerable eaſe, except the trunk of his body be erect, the progreſſive impediment to the breathing will be obvious. And if, even in the erect poſture, the breathing is extremely difficult; if there is alſo a turgeſcence, and fluſhing, or purpliſh hue of the face, together with partial ſweats about the head and neck, and an irregular pulſe; the danger of the diſeaſe is extremely great. It will be yet more alarming, if any degree of delirium or confuſion of thought occur, or if the patient ſpeaks merely of general indiſpoſition, without referring his ſufferings to any particular organ. Under ſuch circumſtances, even where there is little apprehenſion on the part of the patient, and when his ſtrength is not materially ſunk, death often ſpeedily enſues.

The violence of the fever may always be conſidered as an indication of a violent diſeaſe, as well as an acute pain, very much interrupting inſpiration; but theſe are not more indicative of danger, than an obtuſe pain, a weak oppreſſed pulſe, and very difficult reſpiration. When the pains, which at firſt had affected one ſide only, have afterwards ſpread into the other; or when, leaving the ſide firſt affected, they entirely paſs into the other; theſe are always marks of an increaſing, and therefore of a dangerous diſeaſe. As the inflammation is ſeldom reſolved without ſome expectoration, ſo a continued dry cough is always an unfavourable ſymptom: but a ſudden ceſſation of the expectoration, after it had already commenced, is indicative of ſtill more danger; as it implies either a great diminution of the patient's ſtrength, or a renewed augmentation of the inflammation. A copious yellowiſh expectoration, tinged with blood, is therefore to be deemed favourable.

When peripneumony terminates fatally, this event moſt commonly happens within the firſt week, ſome time between the third and ſeventh days from the attack. Nevertheleſs, it is not unuſual for the diſeaſe to undergo a remiſſion within the ſame period, which may prove fallacious, and the violence of the diſorder may be renewed with greater danger than before. Hence it occaſionally happens, that the diſeaſe terminates in death in the ſecond, third, or even fourth week, after ſeveral remiſſions and aggravations; a circumſtance which ſhould teach us, that we ſhould not meaſure the activity of our remedies according to the period of the diſeaſe, but according to the actual condition of the ſymptoms.

When, however, a peripneumony has continued ſteadily for many days, with its ſymptoms neither very violent nor very ſlight, and without any marked remiſſions, *ſuppuration* is certainly to be apprehended. This, however, is not to be determined by the number of days; for inſtances of reſolution have occurred as late as the tenth day, and even at a much later period, where great remiſſions have occurred. But if, during a ſteady continuance of the ſymptoms for ten or twelve days, no ſigns of a reſolution have appeared; and if the difficulty of breathing have increaſed, while the pain and other ſymptoms have ſomewhat abated; and, at the ſame time, the expectoration, which had begun, have again ceaſed, ſuppuration muſt be confidently expected. When ſuppuration is actually begun, the patient is affected with frequent rigors or ſhiverings, and with a ſenſe of cold felt in different parts of the body; the pulſe alſo becomes leſs frequent and ſofter, but ſometimes fuller than before, and occaſionally quicker; and the patient can now lie more eaſily upon the affected ſide than upon the other. As the ſuppuration proceeds, there is a conſiderable remiſſion of the pain, which had before ſubſiſted, while at the ſame time the cough, and more eſpecially the difficulty of breathing, continue, and are rather augmented. The frequency of the pulſe is now rather increaſed, and the feveriſh ſtate ſuffers conſiderable exacerbations every evening, and by degrees a *hectic* in all its circumſtances is formed. When the abſceſs is fully eſtabliſhed, there is ſometimes a very evident enlargement of the ſide where the matter is accumulated. If it aſſume the form of *empyema*, the abſceſs muſt ultimately break and diſcharge its contents, either into the cavity of the cheſt, forming the diſeaſe juſt named, or into the branches of the trachæa (windpipe). In the former caſe, it may be ſometimes diſcharged either by a natural ulceration of the intercoſtal parts, or by a ſurgical operation. (See EMPYEMA.) In the latter, and more common termination, the patient may be ſuffocated by the ſudden burſting of the contained *pus* into all the bronchial paſſages; or a copious purulent ſpitting may enſue, by which the abſceſs may be more gradually and ſafely emptied. Nevertheleſs, this mode of termination is pregnant with danger: for, although in a few individuals, of robuſt habit, this courſe of purulent expectoration, and the hectic that accompanies it, will be ſuſtained until the abſceſs heals; yet, in the majority of caſes, all the ſymptoms of true pulmonary conſumption enſue, and the patient dies, worn out with the perpetual irritation and diſcharge.

Of the Cure of Peripneumony.—The extreme importance of the lungs in the living body, as the ſeat of a function the moſt neceſſary to life, and the obvious danger, juſt deſcribed, of allowing inflammation to proceed to ſuppuration, even after the more early fatality of this diſeaſe has been avoided, equally prove the neceſſity of an early and vigorous employment of remedies, when the ſymptoms of peripneumony or pleuriſy occur.

The remedy chiefly to be depended upon is *blood-letting*, freely and early employed. The quantity of blood drawn muſt of courſe be regulated by the violence of the diſeaſe, and the vigour of the patient's conſtitution, and ought generally to be as large as this laſt circumſtance will allow. The remiſſion of the pain and the relief of the reſpiration, during the flowing of the blood, may limit the quantity to be then drawn; but if theſe ſymptoms of relief do not appear, the bleeding ſhould be continued until ſome degree of ſickneſs and faintneſs, the ſigns of approaching ſyncope, come on. This direction is as old as the writings of Hippocrates. It will often happen, that one bleeding, however copious, will not prove a cure of the diſeaſe: for although the pain and difficulty of breathing may be much relieved by the firſt bleeding, theſe ſymptoms very frequently recur after a ſhort interval, and often with as much violence as before. In the event of ſuch recurrence, the bleeding muſt be repeated, even in the courſe of the ſame day, and perhaps to the ſame quantity as before. Sometimes the ſecond bleeding may be larger than the firſt. There are perſons who are conſtitutionally liable to faint even upon a ſmall bleeding; and, in ſuch perſons, this may prevent the drawing of ſo much blood at firſt, as a pneumonic inflammation may require; but as the ſame perſons are frequently found to bear ſubſequent bleedings better than the firſt, theſe may be carried to the extent which the ſymptoms of the diſeaſe ſeem to demand. For it is according to the ſtate of the ſymptoms, that the bleedings muſt be determined to be repeated; and they will be more effectual, when employed in the courſe of the firſt three days, than afterwards; but they are not to be omitted although four or five days may have elapſed, before the phyſician is called in; nay, if there be a recurrence of the urgent ſymptoms, as deſcribed above, the bleeding ſhould be repeated at any period of the diſeaſe, eſpecially within the firſt fortnight, and even afterwards, if a tendency to ſuppuration be not evident, or if, after an apparent ſolution, the diſeaſe ſhall have again returned.

There is in peripneumony, as in ſome other acute inflammations, a ſtate of pulſe occaſionally recurring, which, to an inexperienced practitioner, appears to contra-indicate the uſe of the lancet: it is ſoft, and ſmall, or what has been called an oppreſſed pulſe; but it riſes, and becomes fuller and larger after blood-letting. Under ſuch circumſtances, the propriety of the blood-letting is to be determined, by the urgency of the other ſymptoms, eſpecially of the difficulty of breathing. In a ſimilar manner, a pulſe that is irregular, and beats with conſiderable intermiſſions, in peripneumony, will become regular after the relief of blood-letting; and ſuch a ſtate of pulſe, therefore, when the pneumonic ſymptoms are urgent, is not to be conſidered as contra-indicating, but as more ſtrongly demanding, the uſe of the lancet.

With reſpect to the *quantity of blood* which ought, or which with ſafety may be taken away, no general rules can be delivered; as it muſt be different according to the ſtate of the diſeaſe and the conſtitution of the patient. In an adult male of tolerable ſtrength, a pound of blood, avoirdupois, is a full bleeding: any quantity above twenty ounces is a large, and any quantity below twelve, a ſmall bleeding. Sydenham was of opinion, that the average quantity of blood neceſſary to be drawn for the cure of pleuriſy, was forty ounces: but this muſt differ widely in different caſes. If the bleeding be performed on the firſt or ſecond day, perhaps a ſingle bleeding of fourteen or ſixteen ounces may be ſufficient to effect a cure; but if it be delayed, ſeveral repetitions of the operation may be neceſſary, and a ſtrong man will bear the loſs of even four or five pounds, in the courſe of two or three days.

When a large quantity of blood has been taken from the arm, and then, from the ſtate of the patient, the ſafety of a repetition of that evacuation is doubtful, ſome blood may be ſtill taken locally, by means of *leeches*, or *cupping*. From the ſlowneſs of the operation of leeches, the cupping is commonly to be preferred. This *local blood-letting* will be particularly proper, when the continuance or recurrence of pain, rather than the difficulty of breathing, becomes the urgent ſymptom; and then the cupping and ſcarifying ſhould be performed as near to the ſeat of the pain as poſſible.

Fomentations and poultices to the part pained have been recommended, and may be uſeful; but the application of them is often inconvenient, and certainly much leſs beneficial than that of *bliſters*. Very early in the diſeaſe, a *bliſter* ſhould be applied as near to the pained part as poſſible. But, as when the irritation of a bliſter is preſent, in the height of the inflammation, it ſeems to render bleeding leſs effectual, ſo its application ſhould be delayed till blood-letting ſhall have been employed. If the diſeaſe be moderate, the bliſter may be applied immediately after the firſt bleeding; but if the diſeaſe be violent, and it is preſumed that a ſecond bleeding may be neceſſary ſoon after the firſt, it will then be proper to delay the bliſter till after the ſecond bleeding, when it may be ſuppoſed that any further bleeding may be poſtponed, till the irritation ariſing from the bliſter ſhall have ceaſed. It may be frequently neceſſary in this diſeaſe to repeat the bliſtering: and, in that caſe, the plaſters ſhould always be applied ſomewhere on the thorax; for, when applied to more diſtant parts, they have little effect. Experience has proved, that keeping bliſtered parts open, or making what is called a perpetual bliſter, has much leſs effect than the repeated counter-irritation of a freſh bliſter.

Bliſters are always ſafe; they do not weaken the patient; neither do they tend to interrupt the expectoration. Expectoration does ſometimes take place early in the diſeaſe: but, at that period, if the ſymptoms continue urgent, the ſolution of the diſeaſe cannot be truſted to the expectoration; neither has the bleeding been found then to diminiſh it; on the contrary, it is often obſerved to promote it. It is only in the more advanced ſtages of the diſeaſe, when the patient has been already much debilitated by large evacuations, and by the continuance of the diſorder, that bleeding ſeems to ſtop expectoration; but under ſuch circumſtances, the bleeding is on every account improper.

While theſe evacuations are reſorted to, it muſt be obviouſly neceſſary to adopt moſt rigorouſly what has been called the *antiphlogiſtic regimen*; to exclude every thing ſtimulating, both in quantity and quality, from the food and drink; to ſupply the patient with light diluent and acidulate fluids; to keep him entirely at reſt, and to interdict him from unneceſſary talking; and particularly to prevent the irritation which might ariſe from any increaſe of heat. For this purpoſe, it will be proper to keep the patient out of bed, while he can bear it eaſily; and, when he cannot, to cover him very lightly while he lies in bed: the temperature of his chamber ſhould be kept uniformly cool.

Some practitioners, apparently upon theoretical grounds, have objected to the uſe of *purgatives*, upon the ſuppoſition that the evacuation which they occaſion may tend to ſuppreſs the expectoration: but in the vigour of the patient and of the diſeaſe, ſuch an apprehenſion is abſolutely groundleſs. On the contrary, the free evacuation of the bowels, by cooling purgatives, conduces, like the blood-letting, to diminiſh the local and general inflammatory action. In the turgid and loaded ſtate of the lungs, the ſtraining of vomiting is likely to be productive of miſchief, and can anſwer no uſeful purpoſe; the practice of exhibiting *emetics*, even in nauſeating doſes, is therefore to be deprecated, and is exploded by all judicious practitioners.

As the occurrence of a free expectoration is generally a favourable ſymptom, and often appears to put a termination to the diſeaſe, ſo various *expectorant* medicines, and other means of promoting this excretion, have been propoſed. But none of theſe appear to be poſſeſſed of any efficacy; and ſome of them, being acrid ſtimulant ſubſtances, cannot be adminiſtered with ſafety. It is more than queſtionable, indeed, whether there is any ſubſtance in nature, which poſſeſſes a direct expectorant power. (See EXPECTORANT.) The gums, ſuch as ammoniacum, myrrh, &c. uſually employed, are too heating to be given in an inflammatory affection; and ſquills, &c. though leſs ſtimulant, have no power, perhaps, independent of the nauſea, which they may produce.

The *inhalation* of the *ſteam* of warm water, after the violence of the inflammation is ſubdued by blood-letting, has been found to afford conſiderable relief to the cough in many caſes; but, in ſome, it has appeared to aggravate the diſtreſs.

One of the moſt pernicious pieces of practice, which is apt to be reſorted to by the ignorant and inexperienced, is the adminiſtration of *opiates*, with a view to allay the cough, in the beginning of the diſeaſe. The effect of ſuch medicines is directly the reverſe; for they increaſe the oppreſſion, and difficulty of breathing, and all the inflammatory ſymptoms. In a more advanced ſtage of the diſeaſe, however, when the highly febrile condition and the difficulty of breathing have been in a great meaſure ſubdued, and when the urgent ſymptom is an irritating cough, occaſioned by the acrid mucus, and proving the chief ſource of the continuance of the pain and of want of ſleep, a judicious employment of *opiates* often affords great relief. Although they moderate the cough, they actually promote expectoration, at this period of the diſeaſe: for, by occaſioning a temporary ſtagnation of the thin fluid, which was diſſipated inſenſibly by frequent coughing, they produce a thickening, or what phyſicians have called a concocted ſtate of the matter, which is more eaſily diſcharged. *Mucilaginous* and oily demulcents contribute in ſome meaſure, though in a much more trifling degree, to the ſame purpoſe, by allaying the acrimony of the mucus, which occaſions too frequent coughing, and by beſmearing and defending the fauces from its irritation.

PERIPNEUMONY, *Baſtard* or *Spurious*, the *Peripneumonia notha* of medical writers, was not very accurately diſtinguiſhed till modern times; and the ſagacity of Sydenham ſeems to have led him to the firſt diagnoſis of the complaint. Nevertheleſs, even he left it under conſiderable obſcurity, ſo that the term has been often employed without a definite acceptation. We ſhall firſt deſcribe the ſymptoms, and then endeavour to point out the pathology of the diſeaſe.

The *peripneumonia notha* moſt commonly attacks perſons that are ſomewhat advanced in life, and who are of a full phlegmatic habit, but moſt particularly thoſe who have been frequently ſubject to catarrhal coughs, attended with much expectoration. It often makes its attack like the habitual catarrh, from which it cannot at firſt be diſtinguiſhed. In other caſes it comes on with languor, reſtleſſneſs, and ſhiverings, alternating with fits of heat. The patient ſoon finds himſelf oppreſſed in his breathing, and complains of a ſenſe of weight, ſoreneſs, and conſtriction in the cheſt, which is ſometimes accompanied by an obtuſe pain. The reſpiration is more frequent than natural, and is performed with a ſlight wheezing noiſe: and if the patient be deſired to make a deep inſpiration, and to expand the cheſt to its full capacity, his effort is either interrupted by a fit of coughing, or, if accompliſhed, his uneaſineſs is increaſed, and the pain, if any exiſted, is aggravated. At the ſame time with the difficulty of breathing, or ſoon after, a cough commences, which is often at firſt unaccompanied by expectoration; but this ſoon follows, and in many caſes a conſiderable quantity of a white viſcid mucus is brought up. The cough, when it becomes frequent and violent, is very generally attended with a peculiar rending head-ache, over the eye-brows, which is intolerably aggravated by every fit of coughing, giving a ſenſation, as Sydenham remarks, as if the head were torn in pieces.

The functions of the mind are in general but little diſturbed in peripneumonia notha. There is often, however, a conſiderable degree of vertigo, accompanied with much fluſhing of the face, and not uncommonly a degree of drowſineſs, which approaches to coma. The tongue invariably exhibits ſome deviations from the natural ſtate, although it does not aſſume the dry coat of acute peripneumony. The digeſtive powers are at a ſtand; the patient is not merely indifferent to food, but he commonly loathes it as much as in idiopathic fever; he has thirſt, but it does not appear to be urgent. The urine is conſtantly loaded, turbid, and high coloured. The pulſe in this diſeaſe is not ſo correctly the meaſure of its urgency and violence, as in ſome others: it is always frequent, with ſome degree of ſharpneſs; but it is at the ſame time ſmall and feeble. The blood, when drawn, however, ſhews a buffy ſurface, as in other inflammatory affections.

There is often conſiderable uncertainty with reſpect to the prognoſis of this diſeaſe. For although it often goes on like a common catarrh, of greater violence than uſual, and, after the employment of ſome remedies, is entirely relieved by a free and copious expectoration; yet ſometimes a violent exacerbation of the ſymptoms ſuddenly takes place, and terminates the life of the patient, when the previous indications of danger had not been very evident. Where the expectoration is free, although the excretion be copious, and when the breathing at the ſame time is little oppreſſed, a favourable iſſue may be commonly anticipated. But on the other hand, the diſeaſe often proves fatal in conſequence of a redundant ſecretion of the mucus, rapidly clogging up the bronchial paſſages, and producing ſuffocation. This occurs eſpecially in thoſe perſons who are advanced in years, and whoſe lungs have been left in a relaxed ſtate by previous attacks of the diſeaſe: for this complaint in a remarkable manner generates a prediſpoſition to future attacks.

There is another termination of peripneumonia notha, which probably every practitioner has obſerved, and which has been well deſcribed by Dr. Badham. "It ſometimes becomes," ſays this author, "the origin of a *ſpurious conſumption*; and it is no uncommon thing to ſubdue the violence of the ſymptoms, and yet not to conquer the diſeaſe. The patient recovers, perhaps, a little ſtrength, and leaves his bed, but his reſpiration is uneaſy and oppreſſed. The cough and ſpitting, though mitigated in violence, continue to haraſs him: his pulſe becomes more feeble and frequent, and a general debility takes place, attended with a decided loſs of fleſh. He becomes ſubject to irregular ſweats, and in the courſe of a few months the emaciation often makes rapid advances. A perſon who ſees this complaint after it is formed, and ſome time eſtabliſhed, is ready to conclude, that he has to deal with phthiſis pulmonalis; but if he be able to trace it from its origin, he will diſcern that it is an affection eſſentially different from conſumption, however ſtrong the reſemblance in external character. There are alſo materials for diagnoſis. The author has known patients in an extreme ſtate of debility and emaciation, conſequent to bronchial inflammation, diſtend the cheſt to its full capacity without feeling much uneaſineſs, and not any pain, becauſe the ſubſtance of the lung is not diſeaſed. They lie down in bed much more eaſily than conſumptive patients, have no ſhooting pains in the cheſt, and though they ſweat, there is nothing like that profuſe diſcharge from the ſkin, which produces the ſolution of the hectic paroxyſm. The appearance of the ſputa might perhaps be taken into the account; but this cannot be excluſively depended upon." Badham, on the Inflam. Affections of the Mucous Membrane of the Bronchiæ, p. 43.

The exciting cauſes of the ſpurious peripneumony are the ſame with thoſe which produce the more common varieties of catarrh, namely, viciſſitudes of the atmoſpheric temperature. The diſeaſe is, however, moſt frequent about the commencement of winter, when the cold ſuddenly ſets in. We have had numerous opportunities of obſerving the effects of the ſudden change of temperature, in the months of November and December, in producing this diſeaſe: and have ſeen the ſame individuals attacked, year after year, with a violent chronic catarrh, accompanied with a profuſe excretion of mucus, until at laſt, as the lungs became more and more debilitated, the annual attack put on the character of peripneumonia notha, by which many ſuch patients are carried off. The diſeaſe is moſt prevalent in damp and foggy ſeaſons, and it is common during the occurrence of epidemic catarrh, or influenza.

Some difference of opinion has prevailed, as to the preciſe nature of the affection of the lungs, which conſtitutes the ſpurious peripneumony. Diſſection of perſons who have been deſtroyed by the diſeaſe, has always exhibited the bronchial cells and tubes loaded with a thick or puriform mucus, and commonly alſo bearing obvious marks of inflammation in the lining membrane. When this is conſidered, as well as the fact, that the diſeaſe is certainly often a common catarrhal affection at firſt, and that a catarrh is a mere inflammation of the mucous membrane of the bronchiæ, and, in old or relaxed habits, is frequently attended with a large excretion of mucus, little doubt can be entertained that the diſeaſe conſiſts in an inflammation of the lining membrane of the bronchial paſſages and cells; in other words, that it is *bronchitis*, as Dr. Badham has correctly termed it. The diſeaſe, then, muſt be conſidered as differing from *catarrh* in the more extenſive ſpreading of the inflammation, and in the more debilitated condition of the habit, and of the lungs in particular, of the patients in whom it commonly occurs. And it differs from *pleuriſy* and *peripneumony*, inaſmuch as the ſeat of the latter is confined to the parenchyma, or inveſting membrane of the lungs, the bronchial membrane being but ſlightly and ſecondarily affected. In like manner, perhaps, the inflammation of the mucous membrane, in peripneumonia notha, may, in its more acute degree, extend ſecondarily and partially to the parenchyma of the lungs, and thus produce an aggravated diſeaſe, in fact, a complication of the ſpurious with the true peripneumony.

The treatment of peripneumonia notha will of courſe be neceſſarily varied in different caſes, in proportion to the age and vigour of the patient, and according as the ſymptoms approach more or leſs to thoſe of the true peripneumony. When the inflammatory ſymptoms are conſiderable, indeed, the treatment in the two complaints differs only in degree.

In conſequence of the great tendency to effuſion, however, in all caſes of the ſpurious peripneumony, and of the advanced age and relaxed habit of body in which it commonly appears, *blood-letting* muſt be employed with much caution. It is ſometimes proper, indeed, to begin with a moderate blood-letting; but after the inflammatory ſymptoms have to a certain degree yielded, it is adviſeable to attempt the cure by an attention to diet, proper expectorants, and local evacuations alone. There are few complaints, indeed, in the treatment of which more caution and diſcrimination are required, the inflammatory ſymptoms often urging the neceſſity of one ſet of remedies, while the tendency to effuſion points out another of very oppoſite effects. All that can be done in ſuch caſes, is to ſtudy with care the nature of the ſymptoms and the habit of body, and obviate that tendency which ſeems more immediately to threaten danger, but at the ſame time in ſuch a way as ſhall as little as poſſible increaſe the oppoſite train of ſymptoms. The tendency to inflammation muſt be obviated with as little loſs of ſtrength as the nature of the caſe admits of; and that to debility, by means which tend as little as poſſible to excite irritation and increaſe inflammation. After all that can be ſaid, therefore, much muſt depend on the diſcernment of the practitioner.

As general blood-letting can ſeldom be reſorted to, without the riſk of eventually increaſing the complaint, we muſt endeavour to ſupply its place by the more aſſiduous uſe of local remedies, eſpecially by local blood-letting and bliſters. Where the diſeaſe approaches to the nature of peripneumony, *leeches* or *cupping* glaſſes, after ſcarification, may be applied to the cheſt. *Bliſters*, however, are ſafe and uſeful in all caſes, when applied to the thorax, and ſhould not be omitted. The uſe of moderate *purgatives* ſeems to afford a ſafer mode of evacuation in peripneumonia notha than blood-letting. Dr. Cullen, indeed, is doubtful of their efficacy; but Sydenham aſſures us that, according to his experience, they are more uſeful than in the true pneumonia. The reſult of general experience, however, ſeems to be, that *mild cathartics* only, or *clyſters*, are proper in this diſeaſe; for, although it is of great conſequence to prevent irritating matter from lodging in the alimentary canal, yet much or frequent evacuation is found hurtful.

The beneficial effects of *emetics* in this complaint, in which the freedom of the expectoration is a matter of great importance, might be anticipated, and experience confirms the expectation. Nor is their tendency to promote perſpiration, which, if general and not profuſe, nor brought out by heating meaſures, is far the moſt favourable, to be overlooked. With reſpect to the other medicines, denominated *expectorants*, which are often recommended in theſe bronchial affections, we have already ſtated how little efficacy they poſſeſs, which merits the appellation. (See EXPECTORANTS.) The more ſtimulant articles of this claſs, ſuch as the fœtid gum-reſins, ammoniac, aſſa fœtida, &c. may be productive of ſome benefit as tonics, in the convaleſcent ſtate of the complaint, but they are too heating to be admiſſible, where the inflammatory condition is ſtill preſent in any degree. The ipecacuanha, or the ſquill, in its preparation with vinegar, are more applicable; but they are, perhaps, chiefly efficacious by the degree of nauſea which they excite, and therefore rather belong to the claſs of emetics.

Where the mucus excreted is extremely thick and viſcid, the inhalation of the ſteam of warm water contributes to facilitate expectoration, by diluting the ſputa. Little, however, is to be expected from ground-ivy, hyſſop, and ſome other popular pectoral medicines. If they produce any actual alleviation of the cough, it is probably merely in conſequence of the mucilage which they contain, which, like the various emulſions, liquorice, ſugar-candy, &c. relieve the irritation of the cough, by beſmearing the fauces, and ſhielding the paſſages from the acrimony of the mucus.

Paregorics, which are in fact *opiates*, are too often reſorted to injudiciouſly in this diſeaſe, and it is neceſſary to enforce much caution with reſpect to the employment of theſe medicines in ſpurious peripneumony. They act by leſſening the ſenſibility of the diſeaſed parts to the irritation of the accumulating excretions of the lungs, and thus interrupt for a time the efforts to expectorate, and at the ſame time they interpoſe, as it were, a veil between the actual ſtate of diſeaſe and the obſerver, and deceive him as to the quantity of the excretion. But the great evil is, that, during the interruption to expectoration which opium occaſions, if the fluid be ſtill copiouſly poured into the bronchial paſſages, and the ſtrength be much reduced, the lungs become clogged up, beyond the powers of the patient to unload them, and the danger of actual ſuffocation is aggravated, or abſolutely brought on. It is only, therefore, after the inflammatory affection, and the febrile ſtate of the conſtitution is gone, and nothing but irritability remains, that opiates may be uſed at the diſcretion of the practitioner.

Where the ſtrength appears to be much ſunk, cordials and ſtimulants can ſcarcely be ventured upon, ſo long as any inflammatory ſymptoms remain: preparations of the bark are generally hurtful, and even wine, diluted with water, though leſs irritating, can only be admitted in caſes, when the patients, as often happens, have been long habituated to the uſe of ſtimulating liquors. The only ſafe mode of ſupporting the ſtrength, is by the cautious but aſſiduous adminiſtration of light, liquid, vegetable food. For ſo long as any fever remains, the antiphlogiſtic regimen is indiſpenſably required. See Cullen, Firſt Lines, ſect. 376. Wilſon, on Febrile Diſeaſes, vol. iv. chap. 11. Badham on Inflam. Affections of the Bronchiæ, chap. iii. Alſo, Boerhaave, Aph. 867, with Van Swieten's Commentary; Sydenham, Op. ſect. vi. cap. 4. Morgagni, de Sed. et Cauſis Morbor. epiſt. xxi; art. 11—15.

PERIPOLIUM, in *Ancient Geography*, a town of Magna Græcia, in the part called Brutium. It belonged to the Locrian-Epizephyrians, on the banks of the ſmall river Alex or Halex.

PERIPTERE, Περιπτερος, formed of περι, *about*, and πτερων, *wing*; *q. d.* winged on every ſide, in *Ancient Architecture*, a building encompaſſed on the outſide with a ſeries of inſulate columns, forming a kind of iſle, or portico, all around.

Such were the baſilica of Antonine, the ſeptizon of Severus, the portico of Pompey, &c.

Peripteres were properly temples which had columns on all the four ſides; by which they were diſtinguiſhed from proſtyles, and amphiproſtyles, the one of which had no columns before, and the other none on the ſides.

M. Perrault obſerves, that periptere, in its general ſenſe, includes all the ſpecies of temples which have porticoes of columns all around, whether the columns be diptere, or pſeudo-diptere, or ſimple periptere; which is a ſpecies that bears the name of the genus, and which has its columns diſtant from the wall by the breadth of an inter-columnation. For the difference between periptere and periſtyle, ſee Peristyle.

PERIPYEMA, from ϖερι, and ϖυον, *pus*, in *Surgery*, a collection of matter around any part.

PERIRRHANTERION, περιῤῥαντηριων, in *Antiquity*, a veſſel uſually of ſtone or braſs, filled with holy water, with which all thoſe that were admitted to the ſacrifices were ſprinkled, and beyond which it was unlawful for any one that was βεϐηλος, or *profane*, to paſs. Some ſay it was placed in the αδυτον, or inmoſt receſs of the temple, into which none entered but the prieſt; but Caſaubon will have it to be placed at the door of the temple, which opinion ſeems more probable, becauſe all perſons who were αϐεϐηλοι, or *unpolluted*, were permitted to paſs beyond it.

PERIRRHEUSA, in *Ancient Geography*, an iſland placed by Pliny on the coaſt of Ionia, a province of Aſia Minor.

PERISABORA, a town of Aſia, in an iſland of the Euphrates, according to Ammianus Marcellinus. Zoſimus calls it Berſabora, and ſays that it was well fortified, and that it was not inferior in grandeur to Cteſiphon. It was ſituated S.E. of Sippara.

PERISBA, in *Geography*, a town of Perſia, in the province of Irac; 50 miles S. of Hamadan.

PERISCEPASTRUM, from ϖερι, and *cepaſtrum, a wild onion*, denotes, in *Surgery*, a particular bandage, which encircles the head in ſucceſſive folds, like the layers of that bulbous root.

PERISCII, περισκιοι, *q. d. circumumbres*, of περι, *about*, and σκια, *ſhadow*, in *Geography*, thoſe inhabitants of the earth, whoſe ſhadows do, in one and the ſame day, ſucceſſively turn to all the points of the horizon.

Such are the inhabitants of the frozen zones, or thoſe who live within the compaſs of the arctic and antarctic circles; for as the ſun never goes down to them after he is once up, but moves always round about, ſo do their ſhadows; inſomuch that, in the ſame day, they have their ſhadows on all ſides.

PERISCYLACISMUS, ϖερισκυλακισμος, a method of purification in frequent uſe among the Greeks. It was done by drawing a whelp round the perſon to be purified. The word comes from σκυλαξ, *a whelp*.

PERISCYPHISMUS, from ϖερι, and κυφος, *gibbous*, in *Surgery*, an inciſion made acroſs the forehead, or from one temple to the other, over the coronal ſuture, formerly practiſed in conſiderable inflammations of the eyes. The lips of this wound were kept aſunder with lint, and when the diſorder abated, the denudated bone was raſped, and the wound healed. P. Ægineta. lib. vi. c. 7.

PERISSACHOREGIA, a term found in the Code, about the meaning of which authors are much divided.

Alciat, and ſome others, will have it to be the name of an office; *viz.* that of curator of the annona, or proviſions, from ϖερισσεια, *abundance*, and χορηγεω, *to lead*, or *bring*. Others take it to be the office of a magiſtrate, who was to look to the augmentation of the annona, and the diſtribution of the ſame. Dom. Macri will have it to ſignify a donative. or diſtribution made to the ſoldiers, over and above their pay, See Donative.

PERISSOLOGY, ϖερισσολογια, in *Rhetoric*, a quality of ſtyle directly oppoſite to *brachylogy*, and is otherwiſe called *macrology*. See Macrology, Brachylogy, and Diction.

PERISSON, in *Botany*, a name given by the ancient Greeks, and afterwards by the Romans, in the time of Pliny, to a kind of nightſhade, which makes thoſe people who took it internally run mad. It was alſo called *pentadryon*, and *anhydron*, and by ſome *manicum ſtrychnum*, or ſimply *manicum*.

PERISSOSIS, a word uſed by Hippocrates to expreſs a redundance of humours.

PERISTALTIC, in *Anatomy*, from περιϛελλω, *to contract*, a term applied to the motions of the alimentary canal, by which its contents are carried forwards or backwards. See Intestine.

PERISTAPHYLINUS, a name given by ſome writers to two muſcles of the ſoft palate. The periſtaphylinus externus is the circumflexus palati; the internus is the levator palati. See Deglutition.

PERISTAPHYLO-PHARYNGEUS, a name given by Winſlow to ſome fibres of the conſtrictor pharyngis ſuperior. See Deglutition.

PERISTERITES, the *Pigeon-ſtone*, in *Natural Hiſtory*, a name given by ſome whimſical people to an odd conformation of a pebble, which they ſuppoſe to repreſent very exactly a pigeon without its wings. It ſeems to have been a mere *luſus naturæ*, in the formation of a common pebble. The variations of figure in the common pebbles are ſo infinite, that a perſon of a fertile imagination might find reſemblances to all the parts of the creation in the ſtones of a ſingle gravel-pit. The giving names to ſuch accidental things is not only unneceſſary, but miſchievous, as it cauſes great confuſion in natural hiſtory.

PERISTERNA, in *Anatomy*, is uſed for the lateral parts of the thorax.

PERISTIARCHUS, ϖεριϛιαρχος, in *Antiquity*, a name given to the perſon that officiated in a luſtration.

The word comes from ϖεριϛα, another name for καθαρματα.

PERISTOMA, in *Anatomy*, a word uſed by authors to expreſs the villous coat of the inteſtines.

PERISTOMIUM, in *Botany*, from περι, *about*, and ϛομα, *the mouth*, becauſe it encircles the orifice of the capſule; ſee Fringe *of* Mosses.

PERISTYLE, ϖεριϛυλος, formed from περι, *about*, and ϛυλος, *column*, in *Ancient Architecture*, a place or building, encompaſſed with a row of columns on the inſide; by which it is diſtinguiſhed from the periptere, where the columns are diſpoſed withoutſide.

Such was the hypæthre temple of Vitruvius; and ſuch are now ſome baſilicas in Rome, ſeveral places in Italy, and moſt cloiſters of religious.

Peristyle is alſo uſed by modern writers for a range of columns, either within or without a building.

Thus we ſay, the Corinthian periſtyle of the portal of the Louvre, &c.

PERISTYLION, ϖεριϛυλιον, among the Athenians, a large ſquare place, though ſometimes oblong, in the middle of the gymnaſium, deſigned for walking, and the performance of thoſe exerciſes which were not to be performed in the palæſtra.

PERISYSTOLE, περισυϛολη, in *Phyſiology*, the pauſe or interval between the two motions of the heart, or pulſe; *viz.* that of the ſyſtole, or contraction; and that of the diaſtole, or dilatation.

PERITAS, in *Geography*, an iſland in the Spaniſh main; 10 miles W. of Cumana bay.

PERITHE, a name by which ſome of the writers of the middle ages have called the *pyrites;* they ſay it has great virtues againſt the gout; ſome of them alſo have called it the *lapis peridonius*.

PERITO, in *Geography*, a town of Naples, in Abruzzo Ultra; 16 miles W.S.W. of Celano.

PERITONÆOREXIS, from περιτοναιον, the *peritoneum*, and ῥησσω, *to break*, in *Surgery*, a burſting of the peritoneum.

PERITONEUM, in *Anatomy*, (περιτοναιον, Gr. from περιτεινω, *to ſtretch round*,) the ſerous membrane which lines the abdomen, and covers the viſcera contained in that cavity.

The abdomen or lower belly is a large cavity, containing the organs concerned in digeſtion, in the ſecretion and excretion of urine, and part of thoſe employed in generation. It occupies the part of the trunk comprehended between the cheſt and the lower extremities. We have to conſider, in the anatomy of this part, the containing parts, ſides, walls, or *parietes*, as they are technically termed, and the contained organs, or the abdominal viſcera.

The figure of the abdomen, viewed altogether, hardly admits of any general deſcription; more particularly on account of its connections with the cheſt above, and the limbs below, which obſcure its outline. We may diſtinguiſh, on the external aſpect, an anterior and poſterior, a ſuperior and inferior, and two lateral regions.

The anterior region, called the belly in common language, is oblong and convex, particularly below. The whole of this diviſion being formed of muſcles and other ſoft parts, its figure is ſubject to all thoſe changes, which the motions of the abdominal viſcera in reſpiration, and in the various movements of the trunk, and the numerous alterations in the bulk of the organs, according as they are full or empty, muſt produce. The convexity of the belly is the leaſt, when we lie horizontally on the back: it is increaſed in the erect attitude, becauſe the pelvis altogether is bent backwards in relation to the upper part of the trunk; and it is ſtill greater in the kneeling poſture, becauſe the ſpine is then more bent backwards, and the abdominal viſcera thrown forwards. The abdominal muſcles, particularly the recti, are thrown into an unpleaſant ſtate of tenſion in the latter poſition. When air is taken into the cheſt, the abdominal viſcera are thruſt forwards, ſo as to make the belly more prominent; and it falls again when air is expelled in expiration.

The middle and upper part of this region preſents a ſuperficial depreſſion, called the ſcrobiculus cordis, or pit of the ſtomach: and a little below this, on the middle line of the abdomen, is a more or leſs depreſſed cicatrix, called the navel or umbilicus.

The front of the abdomen is ſubdivided into three regions; a ſuperior, middle, and inferior, called the epigaſtric, umbilical, and hypogaſtric. The firſt begins at the end of the enſiform cartilage, and extends to the level of a line drawn from ſide to ſide, between the moſt prominent points of the inferior boundary of the cheſt. The middle of this region is properly called the epigaſtrium, while the lateral diviſions, covered by the ribs, are named the right and left hypochondria. The umbilical region reaches from the lower boundary of the epigaſtric to the level of a line drawn between the two criſtæ of the oſſa innominata: the lateral portions of this diviſion are called the flanks or ſides. The remainder of the abdomen, below the line laſt mentioned, is the hypogaſtric region: this is ſometimes divided into an upper and a lower: the middle of the former is the hypogaſtrium, and the ſides are the ilia: the middle of the latter is the region of the pubes, and the ſides are the groins or inguina. The arbitrary diſtinctions firſt indicated may be clearly ſhewn, by placing four ribbons on the body: two tranſverſely, of which one croſſes at the lower edge of the ribs, and the other at the criſtæ of the oſſa innominata; and two perpendicularly, from the anterior and ſuperior ſpines of the oſſa innominata to the edges of the cheſt. Thus the front of the abdomen will be divided into the nine parts enumerated already.

The poſterior region conſiſts of two parts. The ſuperior, called the loins, preſents a middle depreſſion, correſponding to the ſpinous proceſſes of the lumbar vertebræ, and two lateral elevations, produced by the maſſes of the ſpinal muſcles. The lumbar region, however, taken altogether, is concave from above downwards: this concavity is leaſt in the recumbent poſture, increaſes when we ſtand up, and is more conſiderable in proportion as we bend the cheſt backwards. The lower compriſes two rounded prominences, formed by large maſſes of muſcle, covered by a thick ſtratum of fat, and called the buttocks. They are ſeparated from each other by a longitudinal depreſſion leading to the anus; and each is bounded below by a large fold, which diſtinguiſhes it from the reſt of the thigh.

The upper region is not perceived externally; it is formed by the diaphragm, and correſponds exactly to the baſis of the cheſt. We have only to ſtate here that it is convex, and ſlightly divided at the middle into two prominences; and that it is much higher in front than behind, riſing as high as the enſiform cartilage, and even above it in the former aſpect, and ſlanting from this to the laſt ribs and lumbar vertebræ in the latter. For a more particular account of the form and relations of this boundary of the abdomen, which ſeparates it from the cheſt, ſee DIAPHRAGM.

The lateral regions are much leſs extenſive than the anterior and poſterior, with which they are continuous, and are defined by the lower edges of the ribs and the criſtæ of the oſſa innominata. They are concave from above downwards, and convex from before backwards; and, as the ſides of the abdomen are here, as in the front, formed by muſcles, they are ſubject to changes from the ſame cauſes. The concavity is greater in the ſtanding or upright, than in the recumbent poſture. Above the lower edge of the ribs, the cavity of the cheſt begins; but the ſurface of the diaphragm lies in contact with that of the ribs, although they are both covered by the pleura, and the convexity of the upper region of the abdomen riſes into the cheſt, and is covered behind and at the ſides by the latter cavity. Hence a ſharp inſtrument would paſs in the intervals of the lower ribs, and through the diaphragm into the abdomen, without wounding the lung. See LUNG and DIAPHRAGM.

The inferior region of the abdomen preſents at the two ſides the attachments of the lower limbs; and in the middle, the generative organs and anus. The ſpace between the two latter is called the perineum. (See PERINEUM.) The generative organs and anus are deſcribed under GENERATION and INTESTINE.

The abdominal parietes preſent the ſame regions on the inſide: the anterior, covered throughout by the peritoneum, is concave and ſmooth, and contiguous to the abdominal viſcera. The poſterior affords attachments to the various viſcera;

viſcera: when theſe are removed, it preſents a middle column, formed by the lumbar vertebræ, and ſupporting the aorta and vena cava; and two broad and deep lateral depreſſions, which end below in two wider excavations, formed by the ſuperior expanſions of the oſſa innominata, and called the iliac foſſæ. The lateral regions are narrow, concave, and ſmooth, and continued uninterruptedly with the anterior and poſterior. The ſuperior, formed by the concavity of the diaphragm, is concave, and correſponds to the liver, ſtomach, and ſpleen. The inferior conſiſts of the excavation of the pelvis; a rounded hollow, conſtituting a kind of appendix to the abdomen, and lodging the rectum and bladder, the vagina and uterus, with its appendages.

The boundaries of the abdomen, at the back and lower parts, conſiſt of the vertebral column and pelvis, which may be regarded as fixed points; the motion of which they are capable not affecting the dimenſions of the cavity. In the reſt of the extent, the coverings are muſcular, and capable of changing both the form and ſize of the part to a conſiderable degree. (See Obliquus.) The bones belonging to the abdominal parietes are the lumbar vertebræ, ſacrum, coccyx, oſſa innominata, with their connecting ligaments and fibro-cartilages; the falſe ribs, and their cartilages: to theſe we may add the enſiform cartilage. The front and ſides of the cavity are formed by the obliqui externi and interni, the tranſverſi, recti, and pyramidales: at the back part we have, forming the immediate ſurface of the cavity, the iliaci interni and pſoæ, the quadrati lumborum, and crura of the diaphragm: nearer to the ſurface, the multifidi ſpinæ, the ſacrolumbales and longiſſimi dorſi, the obliqui interni and tranſverſales, the ſerrati poſtici inferiores, and the latiſſimi dorſi: above, the abdomen is bounded by the diaphragm, which ſeparates it from the cheſt: at the lower part are the following muſcles; *viz.* the levatores ani, the coccygei, tranſverſi perinei, acceleratores urinæ, and obturatores; to which might be added thoſe which cover the pelvis.

The arteries in the abdominal parietes are the internal mammary, the epigaſtric, circumflexæ ilii, inferior intercoſtal, lumbar, iliolumbar, lateral ſacral, obturatrices, pudendal, and gluteal. Theſe are accompanied by correſponding veins. The abſorbing veſſels cannot be particularly enumerated.

The nerves are the diaphragmatic, dorſal, lumbar, and ſacral.

Theſe parts are covered externally by the ſkin, which is conſiderably thicker on the back than on the front aſpect. Internally they are lined by the peritoneum, which we ſhall deſcribe below.

There are ſeveral openings in the ſides of the abdomen. On the front we have five, *viz.* the umbilicus, the two abdominal rings, and the crural arches. (See Obliquus.) In the diaphragm there are three, for the vena cava inferior, the œſophagus and par vagum, and the aorta and thoracic duct. (See Diaphragm.) Below, there are two for the obturator veſſels and nerves, and as many for the ſciatic nerves, and large veſſels going to the buttock and hip.

The ſpace circumſcribed by the abdominal parietes deſcribed above repreſents an oval, of which the large end is turned upwards, and the point downwards. Its ſize is accommodated to that of the contained viſcera, and undergoes commonly only thoſe changes which the varying quantity of their contents can produce. The figure of its boundaries, we have already mentioned, is conſtantly changing from the proceſs of reſpiration; in which the alterations affect only the ſuperior and anterior, very ſeldom the lower boundary. But the yielding nature of its ſides enables the abdomen to increaſe conſiderably under various circumſtances, as in pregnancy, in the accumulation of fat in the corpulent, in aſcites, &c. The front is the part moſt affected in theſe enlargements; the abdominal muſcles, particularly the recti, becoming diſtended to a vaſt amount. The ſides are not much enlarged; the upper boundary alſo gives way in thoſe caſes, enlarging the abdomen at the expence of the thorax: hence the affection of the reſpiratory organs in the latter ſtages of pregnancy, and aſcites. When the diſtending cauſe has ceaſed to act, the ſides of the cavity have the power of recovering their former ſize.

The viſcera contained in the abdomen may be arranged in three claſſes: the digeſtive, urinary, and generative. Thoſe of the firſt claſs are the ſtomach, the ſmall inteſtine, the large inteſtine, the liver and gall-bladder, the ſpleen, pancreas, and the omenta. The ſecond are the kidnies, renal capſules, ureters, and urinary bladder. The third, in the male, the ſpermatic chords, vaſa deferentia, and veſiculæ ſeminales; in the female, the vagina, and the uterus, with its ligaments, ovaria, and Fallopian tubes.

The peritoneum is a ſerous membrane, which, beſides lining the cavity of the abdomen, covers the ſurfaces of moſt of the contained viſcera, and forms, in order to arrive at theſe viſcera, duplicatures or folds which fix them in their ſituation, and convey to them their veſſels and nerves. In order to convey a notion of its arrangement with reſpect to the viſcera, it has been compared to a bag without an opening, of which the ſuperior, anterior, and lateral parts are not more extenſive than is ſufficient for covering the correſponding portions of the parietes; while the back, very large, not only covers the poſterior part of the cavity, but is applied over the viſcera, furniſhing them an external inveſtment. Hence it follows, that if it could be diſſected off from all the viſcera, we ſhould have a large and entire bag, and ſee clearly that they are all on the outſide of the bag.

We ſhall proceed, in the next place, to trace the courſe of the peritoneum, and follow it in the formation of its different folds.

It lines the concavity of the diaphragm, and paſſes from the poſterior and inferior edge of the greater muſcle over the appendices, the pſoas, the lumbar vertebræ, aorta and vena cava, the ſpermatic veſſels, the renal capſules, kidnies, and ureters. The three viſcera laſt mentioned are behind the bag, and ſeparated by it from thoſe contained within the peritoneal cavity. It then lines the great hollows of the oſſa innominata, covering the iliaci interni muſcles and ſpermatic chords, and deſcends into the pelvis, covering the rectum entirely above, and about one-half of it below. From the ſides of the rectum it is produced over the ſacrum, the oſſa innominata, the internal iliac veſſels and great nerves, the obturatores interni, coccygei, and levatores ani. At about two inches from the anus, it is reflected from the upper ſurface of the rectum to the lower part of the vagina, and covers its poſterior half. It aſcends over the back of the uterus, and its appendages, envelopes the fundus uteri, and front of the organ, and is then reflected from the front of the cervix to the poſterior and inferior part of the bladder. It mounts over the back of that organ, and deſcends a little from the fundus, particularly if it be full, to the back of the pubes; if it be empty, the membrane aſcends from the bladder to the bone. Between the rectum and the vagina there is conſequently a ſmall proceſs of peritoneum, forming a cul-de-ſac, at the mouth of which there are two lateral folds more or leſs prominent: the end of this cul-de-ſac is the moſt depending part of the peritoneal cavity. A ſimilar but ſhorter pouch, terminating alſo in a blind end, is formed between the uterus and bladder, and there are two lateral folds connecting theſe organs. In the male, too, the peritoneum paſſes over the vaſa deferentia. The correſponding cul-de-ſac in the male ſubject is between the bladder and rectum. Where the rectum deſcends from the fundus of the bladder to the front of the abdomen, a third kind of proceſs is formed. Further deſcriptions of theſe parts will be found in the articles GENERATION and KIDNEY. As the membrane paſſes from the bladder to the abdominal parietes, it forms three folds, incloſing the umbilical arteries and uterus. See KIDNEY.

In the iliac foſſæ the peritoneum is continued over the large inteſtine, covering the cæcum on the right, and the ſigmoid flexure of the colon on the left ſide. To the latter it furniſhes a looſe fold, continuous with that which the rectum has in the pelvis; but it binds the former cloſely in its ſituation. (See INTESTINE.) The membrane is then continued on each ſide into the lumbar region. From the bladder and pelvis the peritoneum riſes to bound the front of the abdominal cavity, and lines the back of the recti, and the internal ſurface of the tranſverſi, and then reaches the edge of the diaphragm, the point from which we commenced the deſcription.

Thus a large membranous bag is formed, ſimple and oval above, and ending in a ſingle, double, or triple proceſſes below; *viz.* the productions between the rectum and bladder, between the bladder and uterus, and vagina and rectum, and between the bladder and pubes, where it exiſts.

The folds of the peritoneum have been partly mentioned in this article: they are all particularly deſcribed, with the viſcera to which they belong, in the various parts of this work. We have only to notice a few of them here ſhortly.

On the left ſide of the diaphragm the peritoneal lining extends, without producing any proceſs, backwards to the ſpine: then it is prolonged over the ſplenic veſſels and the ſpleen, reaches the great end of the ſtomach, and is continued with the anterior layer of the great omentum: with the peritoneum of the lumbar region it forms a ſmall fold under the anterior end of the ſpleen. At the œſophageal opening of the diaphragm, the membrane paſſes over the front of the ſtomach.

On the right ſide of the diaphragm the peritoneum forms folds, connecting the liver to its ſurface, and called the ligaments of the liver. (See LIVER.) From the concave ſurface of this organ, the peritoneum extends to the ſmall curvature of the ſtomach, under the name of the little omentum. (See EPIPLOON.) Under the edge of the latter proceſs is an opening, called the foramen of Winſlow, leading into another peritoneal cavity, in front of the vertebral column, behind the ſtomach, and above the tranſverſe meſocolon, having no other communication with the general cavity. If we ſuppoſe the peritoneum to enter at the opening juſt mentioned, we may trace it forming the back of the little omentum, then over the back of the ſtomach. Uniting to the front layer on the ſtomach, it forms the anterior lamina of the great omentum. This, after covering the arch of the colon, and the ſmall inteſtines, is reflected on itſelf to form the back layer, which is fixed to the arch of the colon, and is continuous with the tranſverſe meſocolon. The latter fold is compoſed of two layers; the ſuperior of which goes in front of the duodenum, the pancreas, the vena cava, and the appendices of the diaphragm, to the opening, from which we commenced the deſcription. For a more particular account of all theſe parts, ſee EPIPLOON. The inferior layer of the tranſverſe meſocolon goes over the lower part of the duodenum, and then is continued on the back of the abdomen.

In the lumbar regions the peritoneum is continued over the aſcending and deſcending colon, without forming any thing like a meſentery: it alſo covers here more or leſs of the kidnies. Having enveloped the colon, it forms in the middle of the abdomen, extending obliquely from above downwards, and from left to right, the broad fold that covers the ſmall inteſtine, called the meſentery. See INTESTINE.

The peritoneum, like all ſerous membranes, has two ſurfaces; an external adherent one, and an internal, which is free. The firſt is applied to the ſides of the cavity, and to the different viſcera; and, where folds are formed of two layers, theſe are applied to each other. The adheſion of the membrane to any of the parts juſt mentioned is not uniform. To the liver, ſpleen, ſtomach, and inteſtines, (excepting a part of the duodenum,) it is moſt cloſely and almoſt inſeparably connected. The union is much leſs firm in the caſe of the pancreas, bladder, uterus, and vagina. To the tendons of the tranſverſi, and of the diaphragm, the connection of the membrane is moſt intimate: it can hardly be ſeparated entire. The adheſion is much leſs firm to the diaphragm, and to the muſcular fibres of the tranſverſus. But the looſeſt attachment of all is in the lumbar regions, in front of the vertebral column, and about the pelvis, where a copious and eaſily lacerable cellular tiſſue joins it to the neighbouring parts. This ſtructure allows the pus of abſceſſes to paſs from one part to another, as in the pſoas abſceſs, &c. Above the pubes, and behind the recti, there is much looſe cellular tiſſue, which allows the peritoneum to quit theſe muſcles, and apply itſelf on the bladder, when that organ, in its dilated ſtate, aſcends into the cavity of the abdomen. At the opening for the vena cava, the peritoneum is ſeparated from the pleura only by cellular tiſſue; the two membranes are alſo near together at the œſophageal and aortic orifices of the muſcle. At the ſide of the enſiform cartilage, and the lower edge of the fibres of the diaphragm, ariſing from the laſt rib, the two membranes come in contact.

Wherever there is much cellular tiſſue on the ſurface of the peritoneum, it contains more or leſs fat. This fluid is alſo copiouſly depoſited in moſt of the folds of the membrane.

The free ſurface of the membrane is diſtinguiſhed by no peculiar character; as in all other ſerous membranes, it is perfectly ſmooth, and moiſtened by an exhalation, which merely gives a lubricity to the parts during life, but is viſible in the form of actual fluid after death.

Unnatural adheſions, the conſequence of inflammation, are much more rare here than in the pleura. Can we explain this phenomenon, by the more numerous and extenſive motions of the abdominal contents? In the violent exertions of the body, in reſpiration, in the natural execution of the digeſtive functions, &c. the relations of the different parts to each other, and to the ſides of the cavity, are inceſſantly changing; and they correſpond to each other only in ſmall points, on account of their rounded outlines. Where there is leſs motion, as in the upper part of the cavity, between the liver and ſpleen and the diaphragm, or in old irreducible herniæ, adheſions are much more common.

The peritoneum is thin, like all organs belonging to the ſerous ſyſtem. It is thickeſt about the loins, and the ſides of the abdomen; thinner in the folds attached to the viſcera, and very thin on the liver, ſpleen, ſtomach, and inteſtines. In the omenta its tenuity is extreme. It is diaphanous, and conſequently allows the colour of the ſubjacent organs to appear through it.

On its organiſation, properties, and uſes, we have nothing to add to the general account of theſe ſubjects in the article Membrane.

In the fiſh kind, the peritoneum, or membrane ſurrounding the abdomen, is very variouſly coloured. In ſome it is of a ſhining ſilvery whiteneſs, as in the cyprini, pearch, eſoces, &c. In others it is of a fine pale fleſh-colour, as in the ſalmon; and in ſome it is wholly black, or elſe variegated with very numerous black ſpots, as in the clupeæ, gadi, cotti, and ſpari.

PERITONITIS, in *Medicine*, an inflammation of the *peritoneum*, or membrane lining the cavity of the abdomen, and inveſting all its viſcera, and alſo extending itſelf to form the omentum.

As the peritoneal membrane occurs in theſe three ſituations, ſomewhat diſtinct from each other, though ſtill but a continuation of the ſame ſtructure, Dr. Cullen divided the diſeaſe into three ſpecies; 1. The peritonitis *propria*, when the inflammation is ſeated in that part of the membrane ſtrictly ſo called, which lines the parietes of the abdomen; 2. Peritonitis *omentalis*, when it is ſeated in the omentum; and 3. Peritonitis *meſenterica*, when it is ſeated in the inveſting membrane of the meſentery. The ſymptoms and method of treatment requiſite for their cure are nearly the ſame under all theſe forms, and we ſhall treat of them under the ſame head.

It muſt be premiſed, however, that the peritoneum is ſubject to two kinds of inflammation; the one acute, and accompanied by ſymptoms of violent conſtitutional diſturbance, which is the proper peritonitis of authors; the other of a more *chronic* form, which we ſhall deſcribe ſeparately.

§ 1. *The acute peritonitis* generally commences, like the other viſceral inflammations, with chills and ſhiverings, though theſe are ſometimes ſlight, and occaſionally abſent altogether: the pulſe becomes quick and frequent; there is conſiderable thirſt; and the general affection, called fever, enſues. Theſe ſymptoms are attended from the very beginning with a ſenſe of heat and pain in the abdomen, at firſt generally confined to ſome one part, though ſometimes diffuſed over the whole of its ſurface. This pain is much increaſed by preſſure, or, in other words, there is a great tenderneſs or ſoreneſs of the belly; but it is not accompanied by any inclination to go to ſtool. The pulſe is at leaſt one hundred in a minute, and ſmall; yet the tongue is not much altered at firſt from its natural appearance.

In the courſe of twenty-four hours, however, the pain and tenderneſs on preſſure increaſe, ſo that even the weight of the bed-clothes ſometimes becomes intolerable, and the pulſe riſes to a hundred and twenty or thirty in a minute: at this time the tongue begins to be covered with a cream-coloured mucus, and, though it is moiſt, there is great thirſt. A conſiderable degree of tenſion and ſwelling now takes place over the whole abdomen, and the patient finds moſt relief from pain by remaining motionleſs upon the back, with the knees in a ſmall degree elevated. This poſition, while it throws the weight of the inteſtines to the ſpine, and therefore removes the preſſure of them from the inflamed membrane, at the ſame time relaxes the abdominal muſcles, and prevents any ſtricture over the outer ſurface of the inflamed part. As theſe muſcles are called into action by any attempt to riſe or even to turn, ſo ſuch a motion neceſſarily aggravates the acute pain; whence abſolute reſt, as juſt ſtated, is moſt eaſy to the patient. The tenſion of the belly continues to increaſe to the ſixth, ſeventh, or eighth day, on one of which days, unleſs proper meaſures have been taken to remove the diſeaſe, the patient moſt commonly expires. Previous to death, the pain often ſuddenly ceaſes, and the inexperienced may conceive that this is an indication of amendment in the diſeaſe: but if the ſymptoms be minutely examined, it is found that, at the ſame time, the pulſe is ſinking in ſtrength and increaſing in rapidity, that the ſtrength of the patient is alſo ſenſibly diminiſhed, the countenance collapſes, cold clammy ſweats break out, the extremities loſe their vital warmth, and at length a laborious reſpiration manifeſts the concluding ſtruggle of life.

A favourable prognoſis, however, is to be deduced from a gradual ceſſation of the pain, eſpecially when it is accompanied by a diminution of tenſion and ſoreneſs, and when at the ſame time the pulſe becomes fuller and leſs frequent, the ſkin leſs parched, ſoft, and moiſt, the reſpiration leſs laborious, and the countenance more open and expreſſive of eaſe.

Inflammation of the peritoneum may be diſtinguiſhed from *colic* by the permanency of the pain, and the frequency of the pulſe, as well as by the tenderneſs on preſſure, even before any tenſion of the abdomen has taken place; and by the abſence of any inclination to go to ſtool, when the pain is ſevere, as well as by the undiminiſhed ſuffering, when an evacuation of the bowels is effected, either ſpontaneouſly or by medicine. It is not ſo eaſily diſtinguiſhed from inflammation of the bowels or *enteritis*. In this latter diſeaſe, however, there is obſtinate conſtipation, and the pain is more acute, and not ſo much aggravated by external preſſure; the ſtomach is alſo commonly affected with vomiting. See Colic and Enteritis.

The *appearances* which preſent themſelves *on the diſſection* of perſons who die of peritoneal inflammation, are, a redneſs of that membrane, which is crowded with a number of very ſmall veſſels, carrying a florid blood, and alſo conſiderably thickened, more pulpy, and leſs tranſparent than natural. When a portion of the inflamed peritoneum is ſeparated from the abdominal muſcles, there is commonly no appearance whatever of the inflammation having ſpread into the muſcles; but where the peritoneum covers the inteſtinal canal, the inflammation is ſometimes found to have penetrated not only into the muſcular coat of the inteſtines, but even into the villous membrane. The reaſon of this difference probably is, that the peritoneum is leſs connected with the abdominal muſcles than with the inteſtinal canal, ſo that the inflammation paſſes more readily from the peritoneum to the former than the latter.

The inflammation of the peritoneum is ſometimes found to have been ſlight and partial; at other times great and univerſal. When it is ſlight, and affects that part of the membrane which is connected with the inteſtinal canal, it often forms broad bands of inflammation, which run along the courſe of the inteſtines, and are bounded by the contact of the different portions of the inteſtines among themſelves. In this caſe, the coats of the inteſtines are not thicker than uſual, the inflammation being ſlight, and confined to the peritoneum itſelf. Where the inflammation is great, the inteſtines are much thicker and more maſſy. This evidently ariſes from the greater accumulation of blood in the ſmall blood-veſſels, as well as from the extravaſation of fluids into the ſubſtance of the inteſtines, in conſequence of the ſtrong inflammatory action of the veſſels. The *meſentery* and *meſocolon* are much thicker than in their natural ſtate, and there is alſo a remarkable change in the *omentum*. It is frequently as thick as a perſon's hand, and lies as a circumſcribed maſs along the great curvature of the ſtomach. The principal cauſe of this change in theſe parts is the extravaſation of the coagulable lymph into the cellular membrane between the laminæ of the peritoneum which form them.

Beſides theſe appearances, there is in many places thrown out a layer of a yellowiſh pulpy matter, gluing different portions of the viſcera together. This is ſometimes a thin layer; at other times it is of conſiderable thickneſs; and appears to be the coagulable lymph of the blood. There is alſo a conſiderable quantity of a browniſh fluid in the cavity of the abdomen, reſembling the ſerum, which is mixed with ſmall ſhreds of the coagulable lymph, and ſometimes with pus, giving it a turbid appearance. The quantity of coagulable lymph and of the fluid is ſometimes large, in proportion to the degree of inflammation: and, in ſome inſtances, inſtead of ſerum, a large quantity of pus is found. The ſtomach and inteſtines are alſo frequently found diſtended with air, which had accumulated in the progreſs of the diſeaſe.

The *cauſes* of peritoneal inflammation are perhaps the ſame with thoſe which give riſe to enteritis: but there is one cauſe of this inflammation, which is peculiar to women, and is ſome ſtate of the uterus after parturition; whence this diſeaſe has been called, when occurring at that period, *puerperal fever*. It occurs, however, both in men, and in women who have not been pregnant.

Of the Cure of Peritonitis.—The nature of the diſeaſe being once aſcertained, the method of cure will be obvious. As in all other acute inflammations, *blood-letting* from the ſyſtem at large is the remedy to be principally depended upon, and ſhould be reſorted to at as early a period as poſſible. Sixteen ounces of blood or more ſhould be taken from an adult, and a proportionably leſs quantity from a patient not arrived at that age. The chief guide in directing this operation muſt be the degree of pain expreſſed by the patient, particularly under the action of preſſure: and if this ſhould not be diminiſhed in eight hours from the former bleeding, the ſame quantity of blood ſhould be taken away again. Soon after this ſecond bleeding the pain will generally be found to be leſs acute; but it may ſtill be right to apply ten or a dozen leeches to the abdomen, and as ſoon as theſe have done their office, its whole ſurface ſhould be covered with a bliſter. It is to be diſtinctly underſtood, however, that neither leeches nor bliſtering ſhould be truſted to, until ſome diminution of pain have actually been produced by the general bleeding. And farther, if it ſhould happen, that the pain is not diminiſhed after the ſecond bleeding, this operation muſt be repeated even to the fourth or fifth time, after intervals of ten or twelve hours each, if the ſtrength of the patient is at all able to ſupport it. If it ſhould be unequivocally manifeſt at any one of theſe bleedings, that the ſtrength of the patient is inadequate to the loſs of ſixteen ounces, a ſmaller quantity may be taken away, and we may reſort, at the ſame time, to the topical application of leeches and bliſters.

It ſeems preferable to delay the application of a bliſter till the conſtitutional effects occaſioned by the local inflammation are partly removed by the general bleeding, and till the diſorder is thus reduced to a ſtate more nearly approaching to a more ſimple topical affection. For by proceeding thus, the double advantage will be obtained, of applying the topical remedies at a period, when their influence will be exerted with the greateſt effect, and the practitioner moreover will not be deprived of the only means of aſcertaining the variations of the diſorder; namely, by preſſure on the abdomen. The firſt ſymptom on which we may pronounce the recovery of the patient, is the ability of remaining in a ſitting poſture, after he had previouſly been confined to the back: this poſition of the body proves that the inflamed peritoneum is now able to bear the weight of the bowels, which perhaps never takes place where the patient does not recover.

With reſpect to internal medicine, it is of ſecondary importance. Nevertheleſs it is neceſſary that the bowels ſhould be kept open, and this ſhould be effected with as little irritation as poſſible. For this purpoſe caſtor oil, or ſmall doſes of the ſulphate of magneſia, may be adminiſtered with advantage; and emollient glyſters may be injected, which, at the ſame time that they procure ſtools, will act as internal fomentations. Fomentations may be alſo applied externally to the abdomen, when the tenderneſs is ſufficiently removed to admit of the preſſure. It is ſcarcely neceſſary to add that the ſtricteſt antiphlogiſtic ſyſtem muſt be adopted, both in reſpect to diet and medicine.

It may be right to mention an irregularity in the complaint, which is apt to miſlead the practitioner, and to deter him from reſorting to thoſe vigorous meaſures, ſo eſſential to counteract the magnitude of the danger. There is now and then, at the very firſt attack, ſo great a degree of proſtration of ſtrength, accompanied likewiſe by a pulſe ſcarcely perceptible at the wriſt, as might induce us to conſider the patient at the point of death, and unequal to undergo the treatment above recommended. The appearances, however, ſeem to ariſe wholly from the inflammation extending to the peritoneal coat of the ſtomach and inteſtines. Here, as in different circumſtances, the pain or preſſure muſt be the criterion to determine our practice; and if the pain ſhould be found exquiſite, no accidental ſymptom ſhould lead us from truſting for relief chiefly to the lancet. Such a deciſion will ſoon be juſtified by a freedom in the action of the arterial ſyſtem, the pulſe becoming fuller and ſtronger, by an abatement of the languor and proſtration of ſtrength, and by a diminution of pain. See Pemberton on Diſeaſes of the Abdom. Viſcera, chap. i. Baillie's Morbid Anatomy, chap. vi.

§ 2. *The chronic peritonitis* was but curſorily noticed by medical writers, until the attention of the profeſſion was called to it by Dr. Pemberton, in the valuable work to which we have juſt referred, and from which we ſhall ſelect our deſcription of the diſeaſe, which is by no means of very uncommon occurrence.

The attack of the chronic inflammation of the peritoneum is very different from that of the acute ſpecies. It advances by degrees, manifeſting itſelf only by occaſional ſuperficial pricking pains over the abdomen, without producing any inclination to go to ſtool: the pulſe is ſomewhat accelerated, and the tongue (particularly in the morning) is ſlightly covered with white fur. There is alſo conſiderable thirſt; yet there is no exacerbation of fever in the evening, nor any hectic fluſhes on the cheeks: on the contrary, the countenance is full of languor, and the face is pale and doughy.

In the early ſtages of the diſeaſe, the patient is capable of performing his ordinary avocations, and only complains, after fatigue, of a certain degree of tightneſs and pricking ſoreneſs acroſs the abdomen, from one *os ilium* to the other. This ſtate will continue, with little variation, for many months, during which the operations of the bowels will ſometimes proceed naturally, though more commonly the patient is coſtive. There is no tenſion of the ſkin of the abdomen, as in the acute ſpecies; on the contrary, the ſkin and abdominal muſcles are ſometimes obſerved to ſit looſely upon the peritoneum, which gives a ſenſation to the touch, as of a tight bandage underneath, over which the ſkin and muſcles may be ſaid (as it were) to play. The patient always complains more of the *tightneſs* than of the *pain*; and as this tightneſs is much increaſed by any congeſtion in the inteſtines, the relief which he experiences from evacuating their contents, leads him to attribute his ſenſations to an habitual coſtiveneſs, for the removal of which ſuppoſed evil all his endeavours are uſually directed.

In the mean time the diſeaſe gains ground, till it aſſumes, from ſome accidental circumſtance, either the acute form above deſcribed, or till coagulable lymph is ſlowly thrown out from the inflamed ſurface, which, becoming in part organized, will glue together the convolutions of the inteſtines. In the former caſe the danger will be extreme, in conſequence of the great debility to which the patient will have been reduced by the duration of the preceding diſeaſe; and in the latter caſe an equal danger will be incurred by the interruption of the periſtaltic motion. Sometimes a reſolution of the inflammation takes place from the effuſion of a fluid, when dropſy in the belly is produced, which renders the ſituation of the patient ſtill more hopeleſs.

The diſeaſe, indeed, is full of danger, as well from the ſlow inſidious progreſs which it makes to undermine of itſelf the conſtitution, as from the accidents to which it expoſes the patient during the long courſe of management required in its treatment. As another cauſe of danger, alſo, may be added, the want of reſolution, which we have ſo often to regret in patients during the cure of a chronic diſeaſe, where the advantages of the plan, from its gradual operation, are not ſo obvious to the ſenſes. The ſymptoms, which indicate recovery, are, an abatement of the pricking pains of the abdomen, and a diminution of the frequency of the pulſe to eighty in a minute: but even under theſe appearances, however favourable, a relapſe is always to be dreaded.

On diſſection, all the convolutions of the inteſtines are ſometimes found blended together into one maſs, ſo that it is impoſſible to ſeparate them from each other, or from the peritoneal coat of the parietes of the abdomen. Sometimes the meſenteric glands are alſo found enlarged, but without any appearance of ſuppuration or of ſcrofula, but apparently in conſequence of the irritation of the inflamed membrane, by which they are ſurrounded.

The treatment of chronic peritonitis conſiſts in forbidding animal food, or broths, and all fermented liquors; in enforcing the abſolute neceſſity of rigidly adhering to a milk and vegetable diet; and, above all, in taking away blood once or twice in the week to the quantity of ſix ounces each time. This plan is to be purſued till all ſenſations of pricking pain, and all whiteneſs of the tongue, have diſappeared. If the conſtitution ſhould ſhew ſigns of conſiderable derangement, it would be preferable to take the blood from the arm: but if, on the contrary, the local diſeaſe has made but little diſturbance in the ſyſtem, then the blood may be taken by the application of ſix or eight leeches to the abdomen, or by cupping. The bowels are to be kept in an open ſtate, ſo that one or two evacuations ſhall take place each day; for which purpoſe ſmall doſes of the ſulphate of magneſia, or caſtor oil, may be given daily. See Pemberton, on Diſ. of the Abdom. Viſcera, chap. i.

PERITROCHIUM, in *Mechanics*, a wheel or circle, concentric with the baſe of a cylinder, and moveable together with it, about an axis. The axis, with the wheel and levers fixed in it to move it, conſtitutes that mechanical power, called AXIS *in peritrochio;* which ſee. See alſo MECHANICAL *Powers*.

PERIVALE, in *Geography*, a town of Hindooſtan, in Marawar; ſeven miles N. of Ramanadporum.

PERJURY, PERJURIUM, in *Law*, the crime of ſwearing wilfully, abſolutely, and falſely, in a lawful oath, adminiſtered in ſome judicial proceeding, by one who has authority, in any matter relating to an iſſue, or cauſe in queſtion; whether it be of the perſon's own accord, or by ſubornation of another.

The law takes no notice of any perjury but ſuch as is committed in ſome court of juſtice, having power to adminiſter an oath, or before ſome magiſtrate or proper officer, inveſted with a ſimilar authority, in ſome proceedings relative to a civil ſuit or criminal proſecution; for it eſteems all other oaths unneceſſary at leaſt, and therefore will not puniſh the breach of them. The perjury muſt alſo be corrupt, (that is, committed *malo animo*,) wilful, poſitive, and abſolute; not upon ſurpriſe or the like: it muſt alſo be in ſome point material to the queſtion in diſpute; for if it be only in ſome trifling collateral circumſtance, to which no regard is paid, it is no more penal than in voluntary extrajudicial oaths.

Subornation is the offence of procuring another to take ſuch a falſe oath as conſtitutes perjury in the principal.

If a man calls another *perjured*, he may have an action upon the caſe. If he calls him *forſworn*, no action lies, becauſe the forſwearing may be extrajudicial.

At common law, the puniſhment of perjury, and ſubornation of perjury, was anciently death; afterwards baniſhment, or cutting out the tongue; then forfeiture of goods; and now it is fine and impriſonment; and the offender is ever afterwards incapable to be a witneſs. (3 Inſt. 163.) By ſtatute 5 Eliz. c. 9, perſons committing wilful and corrupt perjury, in any cauſe depending concerning lands or goods, &c. in any of the courts of record, leet, ancient demeſne court, hundred court, court baron, or court of ſtannary, ſhall forfeit 20*l* and be impriſoned ſix months, and their oaths ſhall not be received in any court of record, ſo that they are diſabled from being jurors or witneſſes; and if the offenders have not goods or chattels to the value of 20*l*. they ſhall be ſet on the pillory in ſome market-place, and have both their ears nailed to it; and unlawful and corrupt procuring and ſuborning a witneſs to give falſe teſtimony in any court of record, &c. or corruptly procuring any witneſs to teſtify *in perpetuam rei memoriam*, incurs a forfeiture of 40*l*. And if the offender be not worth 40*l*. he ſhall ſuffer ſix months impriſonment, and ſtand on the pillory one whole hour in ſome open market near the place where the offence was committed; and he ſhall incur perpetual infamy. But the proſecution is uſually carried on for the offence at common law; eſpecially, as, to the penalties before inflicted, the ſtatute 2 Geo. II. cap. 25. made perpetual by the 9 Geo. II. cap. 18, ſuperadds a power for the court to order the offender to be ſent to the houſe of correction for ſeven years, or to be tranſported for the ſame period; and makes it felony, without benefit of clergy, to return or eſcape within the time. Our ancient law inflicted the puniſhment of deliberate murder on wilful perjury, when it was the cauſe of the death of an innocent perſon; and by the laws of France it was univerſally capital.

But corporal and pecuniary puniſhments, exile and perpetual infamy, are more ſuited to the genius of the Engliſh laws; where the fact is openly diſcuſſed between witneſſes on *both* ſides, and the evidence for the crown may be contradicted and diſproved by thoſe of the priſoner. And with regard to the puniſhment of deliberate murder above-mentioned, as the mere attempt to deſtroy life by other means is not capital, there is no reaſon that an attempt by perjury ſhould; much leſs that this crime ſhould in *all* judicial caſes be puniſhed with death. For, as judge Blackſtone obſerves, to multiply capital puniſhments leſſens their effect, when applied to crimes of the deepeſt dye; and, deteſtable as perjury is, it is not by any means to be compared with ſome other offences, for which only death can be inflicted: and therefore it ſeems already (except perhaps in the inſtance of deliberate murder by perjury) very properly puniſhed by our preſent law; which has adopted the opinion of Cicero (de Leg. 2. 9.), derived from the law of the twelve tables, "perjurii pœna divina, exitium; humana, dedecus."

To convict a man of perjury, a probable evidence is not enough; but it muſt be a ſtrong and clear evidence, and the witneſſes muſt be more numerous than thoſe on the ſide of the defendant, for otherwiſe it is only oath againſt oath. (10 Mod. 194. Str. 1230.) It ſeems that the court will not ordinarily at the prayer of the defendant grant a "certiorari" for the removal of an indictment of perjury; for ſuch crime deſerves all poſſible diſcountenance, and the "certiorari" might delay, if not wholly diſcourage, the proſecution. 2 Hawk. c. 17.

Quakers making ſolemn affirmation wilfully and corruptly ſhall ſuffer as in caſes of perjury. 8 Geo. c. 6.

If perjury be committed in a ſpiritual cauſe, the ſpiritual judge hath authority to inflict canonical puniſhment, and prohibition will not go. But the judge cannot puniſh pro ſalute animæ; and the party grieved by ſuch perjury muſt recover his damages at the common law. In the ſtatute of the 5 Eliz. c. 23, concerning the writ de excommunicato capiendo, perjury in the eccleſiaſtical court is ſpecified as an offence, among others, for which a perſon may be excommunicated; and conviction of perjury, either in the temporal or eccleſiaſtical courts, is cauſe of deprivation of benefice.

PERIWINKLE, in *Botany*. See PERVINCA.

PERIWINKLE, in *Natural Hiſtory*, the Engliſh name of a ſpecies of ſhells, being the turbo littoreus of Linnæus. It has five ſpires; the firſt ventricoſe; in younger ſubjects ſtriated ſpirally; in the old, ſmooth and of a duſky colour. This abounds on moſt rocks, far above low-water mark, and is eaten in great plenty by the poor. The Swediſh peaſants believe, that when theſe ſhells creep high up the rocks, they indicate a ſtorm from the ſouth.

PERIZONIUS, JAMES, in *Biography*, a learned critic, was born in 1651, at Dam, in the province of Groningen, where his father was maſter of a public ſchool. His family name was Varbrek, which, according to the cuſtom of the times, he changed to Perizonius, having a ſimilar ſignification in Greek. He, in his youth, ſtudied at Deventer, and afterwards at Utrecht under Grævius. The invaſion of Lewis XIV. interrupted his academical ſtudies in 1672, but he reſumed them in 1674 at Leyden, where he attended the lectures of Theod. Rychius. His firſt public employment was that of rector of the Latin ſchool at Delft. In 1681 he was appointed profeſſor of hiſtory and eloquence at Franeker, and in 1693 he removed to the ſame profeſſorſhip, with that of the Greek language, at Leyden. He died in his 64th year, in 1715. He was author of a great number of learned works, of which the following are the principal; "Animadverſiones Hiſtoricæ," conſiſting of explanations of many paſſages in the Greek and Latin writers; "Diſſertationes," in ſeveral volumes 4to., chiefly relative to Roman hiſtory; "Orationes;" "Origines Babylonicæ et Ægyptiacæ;" an edition of Ælian's Various Hiſtory, with a Commentary. Perizonius had collected a numerous and well choſen library, and a cabinet of medals, which were ſold after his death. He left to the univerſity of Leyden ſeveral ancient manuſcripts, and ſcarce editions of the claſſics. Moreri.

PERKELSKAREN, in *Geography*, a ſmall iſland in the gulf of Finland. N. lat. 60° 15′. E. long. 27° 24′.

PERKERI, a town of Curdiſtan, on lake Van; 18 miles E. of Argiſh.

PERLEBERG, a town of Brandenburg, and capital of the Mark of Pregnitz, ſituated on the Stipenitz, and containing about 378 houſes, occupied principally by tradeſmen and farmers; 62 miles N.W. of Berlin. N. lat. 53° 8′. E. long. 11° 58′.

PERLICAN, NEW, a noted harbour on the E. coaſt of Newfoundland iſland, eight leagues W.S.W. of Old Perlican, and five leagues from Random head. It has a wide and ſafe entrance, and ſhips may ride in it, locked from all winds, in from 10 to 5 fathoms water.

PERLSTEIN, in *Mineralogy*. See PEARLSTONE.

PERM, in *Geography*, a town of Ruſſia, and capital of a government, on the Kama; 808 miles E. of Peterſburg. N. lat. 57° 40′. E. long. 56° 14′.

PERMACOIL, a town of Hindooſtan, in the Carnatic; 17 miles N.N.W. of Pondicherry. N. lat. 12° 14′. E. long. 79° 55′.

PERMALOOR, a town of Hindooſtan, in the Carnatic; 12 miles S.W. of Corjeveram.

PERMANENT *Air* and *Quantity*. See the ſubſtantives.

PERMEABLE denotes a body conſidered as its pores are capable of letting ſomewhat paſs through them. See PORE.

PERMELLY, in *Geography*, a town of Hindooſtan, in the circar of Aurungabad; 30 miles N.W. of Nander.

PERMIANS, a branch of the Finns, called in the Icelandic Reports "Biarmians," and denominated by the Ruſſians "Permiaki," ſituated in the governments of Perm and Viatka, and in the northern diſtricts of the river Oby. In the middle ages the Scandinavians ſeem to have given the name of Biarmia to the whole country between the White ſea and the Ural. The Permians on the Dwina were diſcovered in the ninth century by Othere of Halgoland, a province at the extremity of Norway, who afterwards entered into the ſervice of Alfred the Great, and drew up an account of this voyage in the Anglo-Saxon language. The Icelandic reports abound with accounts of theſe people. According to theſe reports the Permians on the White ſea, and the parts about the Dwina, were the moſt wealthy, moſt powerful, and moſt remarkable of all the northern Finns. Here the carved image of the god Yummala, who was the univerſal deity of the Finns, as Perune was of the Slavonians and Lettes, and Odin of the Germans, had its far-famed temple, the deſcription of which borders on the marvellous. According to this deſcription the temple was artfully conſtructed of coſtly wood, and ſo richly ornamented with gold and precious ſtones, that it threw a radiance round the whole circumjacent country. The image of the god wore a golden crown ſet with 12 precious ſtones, a necklace worth 300 marks in gold, and a dreſs which outweighed the lading of three of the richeſt ſhips that navigated the Grecian ſea. The figure alſo bore on its knees a golden chalice of ſuch capacity, that four men might quench their thirſt from its contents, and this veſſel was filled with the ſame valuable metal of which its maſs conſiſted. The northern free-booters were tempted by the reports of the wealth of this country to make incurſions into it, and to take away ſome ſpoil from this temple. Even ſeveral Norwegian kings made predatory excurſions into Permia, and uſually returned with rich booty. We find alſo that the Scandinavian mariners viſited this country for the purpoſes of trade, &c. without any piratical views. It is a curious inquiry how theſe Permian Finns accumulated ſo much gold, and how their country became the mart of a great and lucrative commerce. In very remote ages the Permians were already famous for their trade with the Perſians and Indians. Theſe nations brought their commodities over the Caſpian up the Volga, and the Kama, to Tſcherdyn, a trading town of ancient date on the river Kolva; and the Permians tranſported theſe goods as well as their own products along the Petſhora to the Frozen ocean, where they bartered them with the people of thoſe parts againſt furs for their oriental trade. The ruins of ancient towns bear witneſs to the flouriſhing condition and the civilization of this people. The Permians appear, by hiſtorical traces ſtill ſubſiſting, to have been the only race of the Finns, who were a poliſhed and commercial people, and known to other nations, while their kindred tribes were in a ſtate of barbariſm. The reports likewiſe ſpeak of kings and a ſort of political conſtitution in Biarmeland. With the year 1217, the expeditions of the Norwegians to Permia ceaſe; but probably at an earlier period in the 11th and 12th centuries, the republic of Novgorod made itſelf maſter of this country, leading thither Ruſſian colonies to keep the people in ſubjection. About the year 1372 the Chriſtian faith was propagated in Permia by biſhop Stephen. The Novgorodians having renounced all claim to this country, the Permians for a conſiderable period maintained the liberty of chooſing their rulers from their own body. In 1543 the czar Ivan gave them the firſt viceroy, to whom the chief of the inhabitants were to act in a ſubordinate capacity in the affairs of government, and who had his ſeat firſt at Kolmogor, and afterwards at Archangel. At preſent the whole of ancient Biarmia, the borders of which cannot now be accurately defined, is divided into ſeveral governments; and the deſcendants of the Permians, heretofore ſo famous, numerous, and powerful, are dwindled away into an inſignificant remainder, who, amidſt thorough Ruſſians, have loſt almoſt all their national characteriſtics, even to their very language. Tooke's Ruſſia, vol. i

PER MINIMA, in *Medicine*, denotes a perfect mixture of the ſmalleſt particles of ſeveral bodies, or ingredients.

Per minima, in *Pharmacy*, denotes an intimate and perfect mixture of natural bodies; wherein their very *minima*, *i. e.* their atoms, or firſt component particles, are ſuppoſed to be accurately blended together.

If ſilver and lead be melted together, they will thus mingle *per minima*.

PERMISSION, Permissio, in *Rhetoric*, a figure which differs in nothing from conceſſion, except that the latter relates only to argument and pleading, but the former to action. *E.gr.* "Quoniam, omnibus rebus ereptis, ſolum mihi ſupereſt animus et corpus: hæc ipſa, quæ de multis relicta ſunt, vobis et veſtræ condono poteſtati. Vos me quo pacto vobis videtur, utamini, atque abutamini; licebit impune. In me quicquid libet ſtatuite, &c."

PERMISSIVE Waste. See Waste.

PERMIT, a certificate granted by exciſe officers, and ſigned by them, expreſſing the quantity of liquor, the name of buyer and ſeller, and that the duty hath been paid, or that it hath been condemned as forfeited.

PERMITTIT—*quare non Permittit.* See Quare.

PERMSKOE, in *Geography*, a government of Ruſſia, including the province of Perm and Ekaterinburg; bounded on the N. by the government of Vologda and Tobolſk, on the E. by that of Tobolſk, on the S. by Uphimſkoe, and on the W. by Viatſku, about 360 miles from N. to S., and from E. to W. 240—260. N. lat. 55° 15′—61 15′. E. long. 52°—63°. The province of Perm extends from N. lat. 55 30′ to 61° 14′, and from E. long. 52° to 58 .

PERMUTATION, the truck, or exchange, of one thing for another. See Exchange.

Permutation, in the *Canon Law*, a real and actual exchange of two benefices.

Permutation is a means of bringing benefices into commerce without ſimony.

The conditions required to a canonical permutation, are, 1. That there be benefices permuted on either ſide, though the revenues be unequal; and, in caſe of inequality, no compenſation is to be made in money, but only a penſion is to be charged on the greater. 2. That each of the permutants quit their benefices, and make a procuration *ad reſignandum.* 3. That the permutation be followed by a collation of the ordinary. 4. That the ordinary be informed of the cauſe of the permutation. 5. That thoſe, to whom the preſentation or election to the benefices belongs, give their conſent; or, in caſe of their refuſal, that the conſent of the dioceſan be had.

The chief rules of permutation are, that if one of the compermutants cannot enjoy, he re-enters, with full right, into the benefice he has quitted; and that, if he die before he have accompliſhed the permutation, on his part, by the taking of poſſeſſion, the compermutant, who has accompliſhed, retains both benefices, unleſs they fall into the regale.

Permutations *of quantities*, in *Algebra*, the *changes, alternations*, or different *combinations*, of any number of quantities. See theſe ſeveral articles.

Permutatione *Archidiaconitus, et eccleſiæ eidem annexa cum eccleſia et prebenda*, is a writ iſſued to an ordinary, commanding him to admit a clerk to a benefice upon exchange made with another. *Reg. of Writs.*

PER MY & *per tout*—A joint-tenant is ſaid to be ſeized of the land he holds jointly, *per my & per tout, i. e.* he is ſeized by every parcel, and by the whole, *totum tenet, et nihil tenet; ſeu totum conjunctim, et nihil ſeparatim.* Bract.

PERNABIACABA, or Paranonbiacuba, in *Geography* a mountain of Braſil, near the city of St. Paul.

PERNALLA, a town of Hindooſtan, in Guzerat; 38 miles S. of Surat. N. lat. 20° 35′. E. long. 72° 53′.

PERNAMBUCO. See Fernambuco.

PERNANCY, from the French *prendre, to take*, in *Law*, the taking or receiving any thing.

Tithes, in pernancy, are tithes taken, or which may be taken in kind.

PERNES, in *Geography*, a town of France, in the department of Vaucluſes, and chief place of a canton, in the diſtrict of Carpentras. The place contains 3621, and the canton 6358 inhabitants, on a territory of 100 kiliometres, in ſix communes.

PERNETTI, James, in *Biography*, hiſtoriographer of the city of Lyons, and a member of the academy of that place, was a native of Forez. He aſſumed the title of "Miles Eccleſiæ Lugdunenſis;" he was a man of pleaſant manners, and entirely void of pedantry. He died at Paris in 1777. His works are, 1. Hiſtory of Cyrus, in three vols. 12mo.; 2. Counſels of Friendſhip; 3. Letters on Phyſiognomony, three vols.; 4. The Abuſes of Education; 5. Picture of the City of Lyons. He had a relation who was librarian to the king of Pruſſia, and who wrote a dictionary of painting, ſculpture, and engraving; and a diſſertation on America againſt Pauw, in two vols. 8vo.

PERNETY, Antony Joseph, was born in 1716, at Roane, in Forez. He entered into the order of Benedictines, and devoted himſelf to ſtudy, and the compoſition of numerous works, in which he diſplayed a ſyſtematizing ſpirit with a ſingular mode of thinking. Some of the principal of theſe are the following; "Dictionnaire de Peinture, Sculpture, et Gravure," 1757; "Dictionnaire mytho-hermetique," 1758; "Diſcours ſur la Phyſionomie;" "Journal Hiſtorique d'un Voyage faits eux îles Malouines, en 1763 et 1764," two vols. 8vo. 1769; this account of a voyage made by himſelf, contains many curious particulars; it was tranſlated into Engliſh, and read with intereſt at the time of the diſpute with Spain, relative to theſe iſlands, which are the ſame with the Falkland iſlands; "Diſſertation ſur l'Amérique et les Américains:" in this work and in his "Examen des Récherches Philoſophiques de Pauw ſur les Américains," he controverts the opinions of Pauw. He was author of many other works, and communicated ſeveral memoirs to the academy of Berlin, of which he was a member, and in which capital he reſided a long time. He at length returned to Valence, in the department of La Drôme, where he died about the cloſe of the century.

PERNIA, in *Geography*, a town of Croatia; 16 miles S.E. of Carlſtadt.

PERNICIOUS Islands, a cluſter of iſlands in the South Pacific ocean, about 15 miles in circuit, ſo called by Roggewein, on account of the wreck of one of his veſſels on the coaſt of one of them in 1722. S. lat. 16°. W. long. 140° 45′.

PERNIO, from ϖερνα, *the heel*, a chilblain, a kind of complaint frequently affecting the heel. See Chilblain.

PERNO, in *Geography*, a town of Sweden, in the province of Nyland, at the mouth of a river which forms a bay on the N. coaſt of the gulf of Finland; 12 miles E. of Borgo. N. lat. 60° 26′. E. long. 16° 4′.

PERNOR *of Profits*, he who takes or receives the profits of any thing. From the French *preneur*, *taker*.

PERNOV, or Pernau, in *Geography*, a town of Ruſſia, in the government of Riga, on a river near the Baltic, fortified and defended by a caſtle. After ſeveral times changing maſters, it was finally, with the reſt of Livonia, annexed to Ruſſia; 92 miles N. of Riga. N. lat. 58° 30′. E. long. 42° 16′.

PERNSTAIN, a town of Auſtria; 12 miles N.N.W. of St. Wolfgang.

PEROE, a town of Hindooſtan, in Bahar; 45 miles S.W of Patna.

PEROJOA, in *Botany*, Cavan. Ic. v. 4. 29. t. 349. f. 2, was ſo named by Louis Née, who gathered the plant at Port Jackſon, New South Wales, in honour of Francis del Perojo, a Spaniſh apothecary, who had been his botanical companion in a journey over the hills of the north of Spain. Mr. R. Brown however reduces the *Perojoa* to his genus Leucopogon; ſee that article, ſect. 4.

PEROLA. See Momordica.

PERONE, in *Anatomy*, (περονη, Gr.) the fibula.

PERONEAL Artery, an artery of the leg, running near the fibula. See Artery.

PERONES, in *Roman Antiquity*, a kind of high ſhoes formed rudely of raw hides, and reaching up to the middle of the leg; though in the more ancient times of the commonwealth, the ſenators uſed them, yet in later ages they were only uſed by the ploughmen and labourers. Hence *Peronatus Arator*. Perſius, Sat. 5. ver. 192. and Juvenal, Sat. 14. ver. 186.

PERONEUS, in *Anatomy*, a name given to three muſcles which ariſe from the fibula.

The *peroneus longus*, (long péronier latéral, péronéo-tarſien) is a long muſcle, ſituated on the outſide of the leg, and extending from the upper end of the fibula to the poſterior extremity of the firſt metatarſal bone; it is thick in its upper half; thin, narrow, and flattened in the lower. It ariſes from the upper third part of the outer ſurface of the fibula, from two aponeurotic ſepta, of which one ſeparates it from the extenſor digitorum longus communis, and the other from the ſoleus and the flexor longus pollicis pedis, and on the outſide and upper part from the internal ſurface of the faſcia of the leg. The upper extremity reaches as high as the outer part of the upper end of the fibula, and the back of the external tuberoſity of the tibia. It is covered on the outſide by the faſcia of the leg. It deſcends at firſt obliquely from before backwards, increaſing a little in ſize; then it ſoon begins to decreaſe, and forms a tendon firſt viſible on the external and anterior part. This tendon goes behind the external malleolus in a groove, common to it with that of the peroneus brevis, and is confined there by a fibrous ſheath, lined with a ſynovial membrane. Below the malleolus it ſeparates from the tendon of the peroneus brevis, and paſſes downwards and forwards in a groove of the os calcis, where it is again confined by a fibrous ſheath. It then turns over the external ſide of the os cuboides, and runs obliquely inwards and forwards in the channel hollowed out on the under ſurface of that bone, to which it is confined by a very ſtrong fibrous ſheath. It terminates at laſt by an attachment to the under and external part of the poſterior end of the firſt metatarſal bone. Where it rubs againſt the ſurface of the os cuboides, the tendon has a thick and hard knot of a cartilaginous conſiſtence, and ſometimes even bony.

It extends the ankle joint, either by drawing the heel backwards and upwards, or by carrying the leg backwards on the foot. If it acts in the former manner, when we are ſtanding, the elevation of the foot is accompanied by that of the leg and of the reſt of the body. It muſt draw the outer edge of the foot outwards, and thus point the great toe towards the ground. If it acts in company with the tibialis poſticus, the foot will be extended in the ſtraight direction.

The *peroneus brevis* (court péronier latéral, péronéi-fus-metatarſien) is an elongated and flattened muſcle, placed at the outer part of the leg, and extending from the lower two-thirds of the fibula to the fifth metatarſal bone. Its origin commences from the beginning of the ſecond third portion of the fibula from above, and it occupies the outer ſurface of the bone to the lower fourth part, below which it is connected to the bone only by cellular tiſſue. The front edge correſponds to the extenſor communis digitorum longus and peroneus tertius, and the back to the flexor longus pollicis, to which muſcles it is connected by aponeurotic ſepta. The upper end of the muſcle is narrow and pointed, it increaſes in ſize as it deſcends, but diminiſhes again at the bottom of the leg, where it forms a tendon, paſſing behind the malleolus internus in the ſame groove with that of the former muſcle. Having arrived at the bottom of the fibula, it turns forwards and a little downwards along the outer ſurface of the os calcis, and is inſerted into the poſterior extremity of the fifth metatarſal bone. Sometimes a ſmall production is detached from it, to run along the metatarſal bone, and join the extenſor tendon of the little toe.

The peroneus brevis is covered externally by the faſcia of the leg. Its uſe is the ſame with that of the preceding muſcle.

The *peroneus tertius* (nonus Veſalii, péronier antérieur, péronéo-ſus-metatarſien) does not always exiſt. It lies on the anterior and inferior part of the leg, and extends from the lower third part of the fibula, to the poſterior end of the fifth metatarſal bone. It is elongated, and flattened laterally. Its origin, which is confounded with that of the extenſor digitorum longus, occupies the lower third part of the front of the fibula; the muſcular fibres paſs obliquely downwards and inwards, and end in a tendon, which goes under the tranſverſe ligament at the ankle, in company with the tendons of the extenſor digitorum longus. It then turns outwards, runs over the extenſor brevis digitorum, and is expanded before its inſertion into the poſterior part of the fifth metatarſal bone. The outer ſurface of this muſcle, which is inclined forwards, is covered by the faſcia of the leg; the inner ſurface correſponds to the extenſor longus pollicis,

pollicis. The outer edge is ſeparated by a ſmall aponeuroſis from the peroneus brevis. It bends the ankle joint, either by moving the foot on the lower end of the leg, or by carrying the leg forwards on the foot. In bending the foot, it will raiſe the outer edge particularly; but, if it acts in conjunction with the tibialis anticus, the foot will be bent without any inclination to either ſide.

PERONNE, in *Geography*, a town of France, and principal place of a diſtrict, in the department of the Somme, ſurrounded by marſhes and ſtrongly fortified. It has been called "Pucelle," becauſe, though often beſieged, it has never been taken. It is a very ancient place, and the kings of the Merovingian race had a palace here. The place contains 3706, and the canton 14,215 inhabitants, on a territory of 162½ kiliometres, in 22 communes. N. lat. 50° 22′. E. long. 3° 1′.

PEROQUETTE, in *Ornithology*, a name of a ſmall ſpecies of the pſittacus or parrot kind, with a long tail. See Psittacus.

There are ſeveral kinds of this bird. 1. The common, which is green, red, and yellowiſh, and was the firſt ſpecies of parrot brought into Europe, and well known among the ancients. 2. The peroquette, which is green all over, without any variegation. 3. The pale, green, and red kind. 4. The red and green-creſted kind. 5. The red kind, with wings variegated with black and green.

Beſide theſe, Margrave has deſcribed ſeven other Braſilian kinds, called the *tuiaputejuba*, *tuitirica*, *jendaya*, *tuiete*, *tuipara*, *anaca*, and *quijubatui*, and two others, to which no particular name has been given; one of the ſize of a ſwallow, all over green, with a black beak, and a very long tail; and the other of the ſize of a ſtarling, of a deep green on the back, and paler green on the belly, and with a ſhorter tail. Ray.

PERORATION, Peroratio, or *Concluſion*, in *Rhetoric*, the epilogue, or laſt part, of an oration; wherein, what the orator had inſiſted on through his whole diſcourſe, is urged afreſh, with greater vehemence and paſſion.

The peroration conſiſts of two parts: 1. Recapitulation, wherein the ſubſtance of what was diffuſed throughout the whole ſpeech, is collected briefly and curſorily, and ſummed up with new force and weight.

2. The moving of the paſſions; which is ſo peculiar to the peroration, that the maſters of the art call this part *ſedes affectuum*.

The paſſions, to be raiſed in the peroration, are various, according to the various kinds of orations; in a panegyric, love, admiration, emulation, joy, &c. In an invective, hatred, contempt, &c. In a deliberative, hope, confidence, or fear.

The qualities required in the peroration are, that it be vehement and paſſionate; and that it be ſhort; becauſe, as Cicero obſerves, tears ſoon dry up.

The peroration was Cicero's maſter-piece: here that great orator not only ſet his judges and auditors on fire, but even ſeemed to burn himſelf; eſpecially when he was to raiſe pity and commiſeration towards the accuſed; where, as he himſelf tells us, he frequently filled the forum with weeping and lamentation. He adds, that, where there were ſeveral orators to ſpeak for the ſame perſon, the peroration was always reſerved to him; and ſubjoins, that if he excelled herein, it was not owing to genius, but the grief himſelf ſhewed. This is abundantly evident in his Milonian peroration, where he ſays, "ſed finis ſit: neque enim præ lacrymis jam loqui poſſum, & hic ſe lacrymis defendi vetat:" and in that for Rabirius Poſthumus: "Sed jam, quoniam, ut ſpero, fidem quam potui, tibi præſtiti, Poſthume, reddam etiam lacrymas quas debeo—jam indicat tot hominum fletus, quam ſis carus tuis, & me dolor debilitat, includitque vocem."

The peroration, or concluſion of an oration or diſcourſe, muſt vary according to the ſtrain of the preceding part. Sometimes the whole pathetic part is moſt properly introduced in the peroration. (See Pathetic.) Sometimes, when the diſcourſe has been entirely argumentative, it is fit to conclude with ſumming up the arguments, placing them in one view, and leaving the impreſſion of them full and ſtrong on the mind of the audience. For the great rule of a concluſion, and what nature obviouſly ſuggeſts, is to place that laſt in which we chooſe that the ſtrength of our cauſe ſhould reſt. Sermons commonly conclude with inferences; when this is the caſe, they ſhould riſe naturally, and ſo much agree with the ſtrain of ſentiment throughout the diſcourſe, as not to break the unity of the ſermon. Dr. Blair obſerves, that, in all diſcourſes, care ſhould be taken to conclude at the proper time, ſo as to bring our diſcourſe juſt to a point; neither ending abruptly and unexpectedly; nor diſappointing the expectations of the hearers, when they are looking for a cloſe; and hovering round and round the concluſion, until they become heartily tired of us. We ſhould endeavour to go off with a good grace; not to end with a languiſhing and drawling ſentence; but to cloſe with dignity and ſpirit, that we may leave the minds of the hearers warm; and diſmiſs them with a favourable impreſſion of the ſubject, and of the ſpeaker. Blair's Lect. vol. ii.

PEROS Bankos, in *Geography*, a range of ſmall iſlands in the Eaſt Indian ſea. S. lat. 5° 30′. E. long. 72° 10′.

PEROSINA, an iſland in the Adriatic, about 12 miles in circumference. N. lat. 45° 17′. E. long. 14° 22′.

PEROT, an iſland of Canada. See Ottawas.

PEROTA, a town of Mexico, in the province of Tlaſcala; 45 miles E. of Puebla de los Angelos.

PEROTIS, in *Botany*, ſo named by the late Dr. Solander, from πηρος, *deficient*, becauſe the calyx was ſuppoſed to be wanting. Ait. Hort. Kew. ed. 1. v. 1. 85. v. 3. 506. ed. 2. v. 1. 136. Brown Prodr. Nov. Holl. v. 1. 172. Schreb. 786. Willd. Sp. Pl. v. 1. 324. Mart. Mill. Dict. v. 3.—Claſs and order, *Triandria Digynia*. Nat. Ord. *Gramina*.

Gen. Ch. *Cal.* Glume of two equal, acute, awned valves, containing a ſingle flower. *Cor.* of two minute, awnleſs, membranous valves, much ſhorter than the calyx. Nectary of two minute ſcales, at the baſe of the germen. *Stam.* Filaments three, capillary; anthers oblong. *Piſt.* Germen ſuperior, oblong; ſtyle capillary, deeply divided, ſhorter than the calyx; ſtigmas feathery, widely ſpreading. *Peric.* none, except the cloſed permanent calyx. *Seed* one, linear-oblong.

Eſſ. Ch. Calyx of two equal awned valves, ſingle-flowered. Corolla of two minute awnleſs valves. Style deeply divided.

Obſ. The characters of this genus of graſſes were erroneouſly given by Dr. Solander, who miſtook the calyx for a corolla. Willdenow copies this error, ſuperadding another, that the "corolla is encompaſſed with woollineſs," which laſt is, without any remark, adopted by Mr. Dryander in the ſecond edition of Hort. Kew. The miſtake aroſe from the quotation, in the firſt edition of *Saccharum ſpicatum*, Linn. Sp. Pl. 79, as a ſynonym to *Perotis latifolia;* for though Willdenow, even without ſeeing the plants, ſuſpected a ſpecific difference, it appears that he took his generic character from that *Saccharum*, which is no *Perotis* at all. Mr. Brown has not thought proper to point out theſe errors particularly, but he has, for the firſt time, given a correct definition of *Perotis*, which we have adopted.

1. P. *latifolia*. Broad-leaved Perotis. Ait. n. 1. Willd. n. 1, α. (Anthoxanthum indicum; Linn. Sp. Pl. ed. 1. 28. ed. 2. 40. A. n. 25; Linn. Zeyl. 10. Gramen geniculatum brevifolium criſpum, ſpicâ purpuro-ſericeâ maderaſpatanum; Pluk. Phyt. t. 119. f. 1. Alopecuros malabarica, foliis undulatis, ſpicâ prætenui; Scheuchz. Agroſt. 91. t. 2. f. 9, G, H. Tsjeria-Kurenpullu; Rheede Malab. v. 12. 117. t. 62.)—Stems aſcending, much branched. Leaves ovate-lanceolate, wavy, with ſpinous teeth.—Native of the Eaſt Indies, from whence Dr. Solander is ſaid to have procured it for Kew garden, in 1777. It is annual, flowering in the ſtove in Auguſt and September. *Root* of many long, whitiſh, wavy, downy fibres, apparently adapted to a ſandy ſoil. *Stems* numerous, aſcending, a foot high, much branched, copiouſly jointed, leafy, round, ſmooth. *Leaves* numerous, hardly an inch long, ſpreading, ovate, acute, rather pungent, glaucous, ſtriated, ſmooth on both ſides, rough at the edges with minute ſpinous teeth; ſheaths cloſe, ribbed, about the length of each leaf, except the upper ones, which are five times longer. *Spikes* ſolitary, terminal, purpliſh, three inches long, of very numerous *flowers*, which are imperfectly whorled, and ſtand on ſhort ſtalks. *Calyx* minutely downy, ſtrongly keeled, above half an inch long including the awns. Scheuchzer's excellent deſcription, and correct figure, leave no doubt as to his ſynonym. That of Rheede, not having examined, we take upon Scheuchzer's authority chiefly, for every other writer who has touched upon this graſs has made ſome miſtake. Willdenow's variety β is the true *Saccharum ſpicatum* of Linn. Sp. Pl. ed. 1. 54, where Plukenet's t. 92. f. 5 is rightly cited for it, and Burmann has repreſented the genuine plant in Fl. Ind. t. 9. f. 3. That graſs ſeems to us really a *Saccharum;* or at leaſt an *Imperata* of Brown. In Linn. Sp. Pl. ed. 2. 79, its ſynonyms are totally perverted, for every one there mentioned belongs to *Perotis latifolia.*

2. P. *rara*. Narrow-leaved Perotis. Br. n. 1.—"Stem erect, ſomewhat branched. Leaves linear, ſmooth; the lower ones flat; the upper involute."—Gathered by Mr. Brown in the tropical part of New Holland. We have ſeen no ſpecimen of this.

Willdenow's *P. polyſtachya*, which is *Saccharum paniceum*, Lamarck Illuſtr. v. 1. 155. t. 40. f. 3, and perhaps *Andropogon crinitum*, Thunb. Jap. 40. t. 7, is judged by Mr. Brown to be a plant of a genus by itſelf, very nearly related to his *Imperata*, (*Saccharum cylindricum* of Lamarck, Willdenow, and Sm. Fl. Græc. Sibth. t. 54. *Lagurus cylindricus* of Linnæus,) but differing in having awns to the calyx, no inner valve to the hermaphrodite floret, and only one ſtamen, marks which perhaps are not ſufficient in this caſe to found a genus upon. See SACCHARUM and LAGURUS.

PEROTTI, NICOLO, in *Biography*, one of the early Italian literati, was born in 1430. He was educated under Volpe at Bologna, and after finiſhing his ſtudies, became himſelf a profeſſor in that city, firſt of polite literature, and then of philoſophy. He made himſelf known by various tranſlations of Greek authors into the Latin language. As early as 1452, or 1453, he ſent to pope Nicholas V. his verſion of the three firſt books of Polybius, to which he afterwards added two more, all that were then known of that author. He ſubſequently tranſlated Epictetus's Enchiridion, the Commentary of Simplicius upon Ariſtotle's Phyſics, and Tatian's Oration to the Greeks. He was made poet laureat to the emperor Frederic III., and was employed in high official ſituations by ſeveral of the popes. He was particularly attached to cardinal Beſſarion, whoſe conclaviſt he was after the death of Paul II. On this occaſion, it has been ſaid that ſome cardinals coming to wait on Beſſarion with the purpoſe of ſaluting him pope, were refuſed admiſſion by Perotti, on the plea that he was engaged in his ſtudies; and that after the election of cardinal Riario, Beſſarion coolly ſaid to him, "By your untimely care, you have loſt me the tiara, and yourſelf a hat." He was, however, appointed to honourable offices under the court of Rome, being made governor of Umbria in 1465; of Spoleto in 1471; and of Perugia in 1474. He died in 1480. His writings are numerous, but his moſt celebrated work was entitled "Cornucopia," being a diffuſe and learned Commentary on Martial's book on Spectacles, and the firſt book of his epigrams. It was not publiſhed till after his death; it contains a treaſure of erudition reſpecting the Latin language. Moreri. Bayle.

PEROUR, in *Geography*, a town of Hindooſtan, in the circar of Gooty; 24 miles S.S.W. of Anantpour.

PEROUSA, LA, a town of France, in the department of the Po, on the river Cluſon; it gave name to one of the four vallies of Piedmont; ſix miles N. of Pinerolo.

PEROUSE, J. F. G. DE LA, in *Biography*, a celebrated but unfortunate navigator, was born at Toulouſe in 1741. He entered into the French navy when he was only in his fifteenth year, in which he paſſed a life of almoſt conſtant ſervice. By the firmneſs of his character, and his profeſſional ſkill, he was regarded as fit for the moſt arduous enterpriſes. The triumphs of the French marine were few in his time; yet he commanded in the ſucceſsful attempt to deſtroy the Engliſh ſettlement in Hudſon's Bay in the year 1782. On the reſtoration of peace, it was reſolved by the French miniſtry that a voyage of diſcovery ſhould be undertaken to ſupply what had been left defective in the voyages of our illuſtrious navigator captain James Cook, and his aſſociates. Lewis XVI., who may well be ſtyled the *unfortunate*, drew up the plan of the intended expedition with great judgment and intelligence, and La Perouſe was the perſon fixed upon to conduct it. With two frigates, la Bouſſole, et l'Aſtrolabe, the firſt under his own command, the ſecond under that of M. de Langle, but ſubject to his orders, they ſailed from Breſt in Auguſt 1785; touched at Madeira and Teneriffe, and in November anchored on the coaſt of Brazil. Thence they proceeded round Cape Horn into the South ſea, and in February 1786 caſt anchor in the bay of Conception, on the coaſt of Chili. At this time, ſo well had the means of preſerving health been employed, that they had not a man ſick. The ſhips reached Eaſter iſland in the month of April, and thence ſailed, without touching at any land, to the Sandwich iſlands. On June 23d they anchored on the American coaſt, in lat. 58 37′, and landed on an iſland to explore the country and make obſervations. At this place, M. Perouſe had the misfortune of having two boats wrecked, with the loſs of all their crew. Thence he ran down to California, and in September anchored in the bay of Monterey, whence they took their departure acroſs the Pacific ocean, and in January 1787 arrived in the Macao roads. In February they reached Manilla, which they quitted in April, ſhaping their courſe for the iſlands of Japan. Paſſing the coaſts of Corea and Japan, they fell in with Chineſe Tartary, in lat. 42½°, and ran to the northward. They anchored in a bay of the iſland of Sagalien, and thence proceeded up the ſhallow channel between that iſland and the continent as far as 51° 29′. Returning thence they reached the ſouthern extremity of Sagalien in Auguſt, and paſſed a ſtrait between it and Jeſſo, ſince named Perouſe ſtrait, into the North Pacific. On the 6th of September they anchored in the harbour of St. Peter and Paul in

Kamtſchatka. The ſhips having refitted they ſet ſail, and arrived at the Navigators iſlands in December. In the bay of Maouna they met with a friendly reception from numerous natives, and began to take in refreſhments. A party of ſixty, under the command of M. de Langle, went aſhore to procure freſh water, when a moſt unfortunate occurrence took place, in which they were attacked by the natives, and M. de Langle and eleven of his men loſt their lives. Quitting this place without any attempts at vengeance, Perouſe proceeded to New Holland, and arrived at Botany Bay in January 1788, and here terminates all that is known of the voyage of this navigator, from the journal which he tranſmitted to France. He had many and very important objects of reſearch remaining, but was never more heard of. The veſſels were probably wrecked, and all the crews periſhed, in that ocean which ſhall hereafter be called to give up its dead. Many efforts were made to obtain information of them, but they were fruitleſs. In 1798 was publiſhed, at the expence of the French nation, and for the benefit of the widow of Perouſe, "Voyage autour du Monde par J. F. G. de la Perouſe," in three vols. 4to. It was tranſlated into the Engliſh. The diſcoveries of this navigator are chiefly in the ſeas between Japan and China, and China and Tartary.

PEROUSE, *Straits of La*, in *Geography*, a narrow channel of the North Pacific ocean, between the iſlands of Sagalien and Jeſſo; about 20 miles in breadth.

PERPENAGARDE, a town of Hindooſtan; 20 miles S. of Calicut.

PERPENDICULAR, in *Geometry*, a line falling directly on another line, ſo as to make equal angles on each ſide; called alſo a *normal* line.

Thus the line I G (*Plate* XI. *Geometry*, *fig.* 4.) is perpendicular to the line K H; *i. e.* makes right and equal angles with it.

From the very notion of a perpendicular, it follows, 1. That the perpendicularity is mutual; *i. e.* if a line, as I G, be perpendicular to another, K H; that other is alſo perpendicular to the firſt.

2. That only one perpendicular can be drawn from one point in the ſame plane.

3. That if a perpendicular be continued through the line to which it was drawn perpendicular; the continuation will alſo be perpendicular to the ſame.

4. That if there be two points of a right line, each of which is at an equal perpendicular diſtance from two points of another right line; that line is parallel to the other.

5. That two right lines perpendicular to one and the ſame line, are parallel to each other.

6. That a line, which is perpendicular to another, is alſo perpendicular to all the parallels of the other.

7. That perpendiculars to one of two parallel lines, terminated by thoſe lines, are equal to each other.

8. That a perpendicular line is the ſhorteſt of all thoſe which can be drawn from the ſame point to the ſame right line.

Hence the diſtance of a point from a line, is a right line drawn from the point perpendicular to the line or plane; and hence the altitude of a figure is a perpendicular let fall from the vertex to the baſe.

To erect a Perpendicular G I on any given point G, in a right line M L; one foot of the compaſſes being in G, with any interval at pleaſure, cut off equal parts on each ſide G H and G K; from the points K and H, with an interval greater than the half of K H, ſtrike two arcs interſecting in I; the right line G I is perpendicular to M L.

Perpendiculars are beſt deſcribed in practice by means of a ſquare: one of whoſe legs is applied along that line, to or from which the perpendicular is to be let fall or raiſed.

To erect a Perpendicular on the end of a given line, ſuppoſe at P; open your compaſſes to any convenient diſtance, and, ſetting one foot in C, deſcribe the arc R P S: lay a ruler from S through C, it will find the point R in the arc, whence draw P R, which is perpendicular to P S.

To let fall a Perpendicular on a given line M P, from a given point L (*fig.* 5.); ſet one foot of the compaſſes in L, and with the other croſs the given line in the points M and G. Then ſetting the compaſſes in G and M, ſtrike two arcs interſecting each other in *a*: then lay a ruler from L to *a*, and the line K L, deſcribed thereby, is the perpendicular required.

A line is ſaid to be perpendicular to a plane, when it is perpendicular to all right lines, that can be drawn in that plane, from the point on which it inſiſts.

A plane is ſaid to be perpendicular to another plane, when all right lines drawn in the one, perpendicular to the common ſection, are perpendicular to the other.

If a right line be perpendicular to two other right lines, interſecting each other at the common ſection, it will be perpendicular to the plane paſſing by thoſe two lines.

Two right lines perpendicular to the ſame plane are parallel to each other.

If, of two parallel right lines, the one is perpendicular to any plane, the other ſhall alſo be perpendicular to the ſame plane.

If a right line be perpendicular to a plane, any plane paſſing by that line will be perpendicular to the ſame plane.

Planes, to which one and the ſame right line is perpendicular, are parallel to each other: hence all right lines perpendicular to one of two parallel planes, are alſo perpendicular to the other.

If two planes, cutting each other, be both perpendicular to a third plane, their common ſection will alſo be perpendicular to the ſame plane.

PERPENDICULAR to a curve, is a right line cutting the curve in the point in which any other right line touches it, and is alſo itſelf perpendicular to that tangent.

PERPENDICULAR, in *Fortification.* See *Military* CONSTRUCTION, *according to M. Vauban's method, and according to count Pagan's method.*

PERPENDICULAR, in *Gunnery*, is a ſmall inſtrument uſed for finding the centre line of a piece in the operation of pointing it to a given object. See *Pointing of a* GUN.

PERPENDICULAR *Roots.* See FIBROUS *Roots.*

PERPENDICULARITY *of Plants*, in *Vegetable Phyſiology*, or the tendency which the ſtems of plants in general have to aſcend, while their roots deſcend, is a curious phenomenon, firſt particularly noticed by M. Dodart, who laboured without much ſucceſs to explain it; nor was M. de la Hire more happy in his theory on the ſubject. Dr. Darwin has, in our opinion, given the beſt explanation. He ſuppoſes that the root is moſt ſtimulated by moiſture, the aſcending part of the plant by air, and that each extends itſelf in the direction in which it meets with its requiſite ſtimulus. This theory accounts, not only for the general direction of the ſtem and root, but for the occaſional variations obſervable in both.

PERPENSUM, in *Botany*, a name applied by the younger Burmann to the *Gunnera* of Linnæus; whether adopted from Pliny, whoſe *Perpenſa* is ſynonimous with *Bacchar*, or *Baccharis*; or whether in alluſion to the conſideration and trouble it coſt him, in trying to underſtand the ſtructure of the very ſingular flowers, we are uninformed. See Gunnera.

PERPETUA, Cape, in *Geography*, lies on the N.W. coaſt of North America. N. lat. 44° 6'. E. long. 235° 52'. This is the northern extreme of the projecting land; and the ſouthern extreme was called by Cook cape Gregory, in N. lat. 43° 30'. E. long. 235° 57'.

PERPETUAL, ſomething that endures always, or that laſts for ever.

Perpetual is ſometimes alſo uſed for a thing that laſts, or holds, during a perſon's life.

Thus offices, &c. held *durante vita*, are ſometimes called perpetual offices. In this ſenſe, M. Fontenelle was ſaid to be perpetual ſecretary of the Royal Academy of Sciences. Hence the French called him abſolutely, *M. le Perpetuel.*

Perpetual *Action*. See Action.

Perpetual *Curate*. See Curate.

Perpetual *Glands*, in *Anatomy*, are thoſe which are natural; thus diſtinguiſhed from the adventitious ones. See Glands.

Perpetual *Lamp*. See Lamp.

Perpetual *Motion*, in *Mechanics*. See Motion.

Perpetual *Occultation* and *Apparition*, *Circle of*. See Circle.

Perpetual *Pills*, *Pilulæ Perpetuæ*, among *Phyſicians*, are pills made of regulus of antimony; which, being ſwallowed and voided fifty times, will purge every time with undiminiſhed force. See Antimony.

Perpetual, or *Endleſs Screw*. See Screw.

Perpetual *Virginity*. See Virgin.

PERPETUATING *the Teſtimouy of Witneſſes*. See Proving *a Will in Chancery*.

PERPETUITY, in *Annuities*, denotes the number of years' purchaſe which is to be given for an annuity that is to laſt for ever, and it is always the quotient of unity divided by the intereſt of 1*l.* for a year, or 100*l.* divided by the rate of intereſt. Thus, the perpetuity is 33.33, 28.57, 25, 20, or 16.666, according as intereſt is reckoned at 3, 3½, 4, 5, or 6 *per cent.* See Annuities and Aſſurances.

Perpetuity, *Perpetuitas*, in the *Canon Law*, the quality of a benefice that is irrevocable, or whoſe incumbent cannot be deprived, except in certain caſes determined by law. It is aſſerted with reaſon, that the perpetuity of benefices is eſtabliſhed by the ancient canons; and that prieſts are inſeparably attached to their churches, as by a ſpiritual marriage. It is true, by the corruption of the times, the ſecular prieſts being fallen into great diſorder, and even contempt, the biſhops anciently called the religious to their aſſiſtance, and committed to them the cure of ſouls, and the adminiſtration of pariſhes; ſtill remanding them back again to their cloiſters, when they thought fit, and again revoking them *ad nutum*.

But this vague and uncertain adminiſtration only laſted to the twelfth century, when benefices returned to their eſſential perpetuity.

Perpetuity *of the King*. See King.

PERPIGNAN, in *Geography*, a city of France, principal place of a diſtrict, and capital of the department of the Eaſtern Pyrenées; and, before the revolution, the capital of Rouſillon, and the ſee of a biſhop; ſituated on the river Tet, about a league from the ſea. The walls are of brick and ſtone, very high and thick, with ſeveral baſtions; and its citadel is upon an eminence, commanding the town. It was founded in 1068 by Guinard, earl of Rouſillon, and is ſaid to have derived its name from that of an inn-keeper, *viz.* Bernard Perpignan. The eaſtern and weſtern diviſions contain, each of them, 5550 inhabitants: the canton of the former has 9440, on a territory of 85 kiliometres, in 14 communes; and that of the latter 8824, on a territory of 202½ kiliometres, in 6 communes. It has been often conteſted by the French and Spaniards. N. lat. 42° 41'. E. long. 2° 59'.

PERPURA, a river of Braſil, which runs into the Atlantic, S. lat. 3° 50'. W. long. 38° 16'.

PER QUÆ Servitia, in *Law*, is a writ judicial, iſſuing on the note of a fine; and lies for the cognizee of a manor, ſeignory, chief rent, or other ſervices, to compel the tenant of the land, at the time of the fine levied, to attourn to him.

PERQUAIM, or Pelham, in *Geography*, a ſmall iſland on the ſouth coaſt of England, in Pool harbour.

PERQUIMINS, a river of North Carolina, which runs into the Atlantic, N. lat. 36° 5'. W. long. 76° 32'.

Perquimins, a county of Edenton diſtrict, in North Carolina, bounded weſt by Chowan county, and eaſt by Paſquotank, from which laſt it is ſeparated by the river Paſquotank, a water of Albemarle ſound. It contains 5609 inhabitants, of whom 1980 are ſlaves.

PERQUISITE, Perquiſitum, any thing gotten by a man's own induſtry, or purchaſed with his own money; in contradiſtinction to that which deſcends to him from his father or his anceſtors.

Perquiſites *of Courts*, are thoſe profits which ariſe to a lord of a manor, by virtue of his court-baron, over and above the certain yearly profits of his lands; as fines of copyholds, heriots, amerciaments, waifes, ſtrays, &c.

PER QUOD *conſortium amiſit*, or *Per Quod ſervitium amiſit*, are words neceſſary in declarations for treſpaſs, &c. where a man's wife or ſervant is beaten or taken from him, and he loſes their ſervices, &c. 2 Lil. Abr. 595, 596.

PERRAHGUNGE, in *Geography*, a town of Bengal; 87 miles N. of Dinagepour.

PERRANGUNGE, a town of Bengal; 66 miles N. of Dacca.

PERRAULT, Claude, in *Biography*, an eminent architect, was born at Paris in 1613. He was brought up to the medical profeſſion, and took his degree as doctor of the faculty of Paris in 1641. He practiſed little, however, excepting among his friends and the poor; and having a decided taſte for drawing, and the fine arts, he turned his attention to the ſcience of architecture, in which he became greatly diſtinguiſhed. When the Academy of Sciences was founded, under the patronage of Colbert, in the year 1666, Perrault, who was one of the firſt members, was appointed to ſelect a ſpot for an obſervatory; and he alſo gave a plan of the building, which was to be executed. When it was reſolved, under Lewis XIV., to proceed in completing the palace of the Louvre, all the eminent architects were invited to give in deſigns of the façade; and that of Perrault was preferred. This is accounted the maſter-piece of French architecture, and it would alone ſuffice to tranſmit his name with honour to poſterity. It was in vain that perſons, jealous of his reputation, endeavoured to make the public believe that the real deſigner was Le Veau: they entirely failed in their proof, and the glory of Perrault remained untarniſhed. When Colbert, after the king's firſt conqueſts, propoſed to conſtruct a grand triumphal arch to his honour, Perrault's deſign had the preference, and the edifice was commenced. It was, however, never finiſhed. In its maſonry, Perrault employed the practice of the ancients, of rubbing the ſurfaces of the ſtones together with grit and water, ſo as to make them cohere without mortar. Other works of this architect were the chapel at Sceaux, that of Notre Dame in the church of the Petits Peres in Paris, the water-alley at Verſailles, and moſt of the deſigns of the vaſes in the park of that palace. By the king's command, he undertook a tranſlation of Vitruvius, with notes, publiſhed in 1673. All the deſigns for the plates of this work were drawn by himſelf, and have been eſteemed as maſter-pieces of the kind. He afterwards publiſhed an abridgment of that author, for the uſe of ſtudents. He likewiſe facilitated the ſtudy of architecture by a work, entitled "Ordonnance des cinq Eſpèces de Colonnes, ſelon la Méthode des Anciens." In the preface to this work, he maintains that there is no natural foundation for the architectural proportions; but that they may be infinitely varied, according to taſte and fancy; an opinion which gave much offence, though juſtified by the practice of the ancients themſelves. A collection of the drawings of ſeveral machines, which he at different times invented, was publiſhed after his death, in 4to. This excellent artiſt holds a reſpectable place among writers in his original profeſſion, and, beſides various memoirs on this ſubject, communicated to the Academy of Sciences, he publiſhed "Memoires pour ſervir a l'Hiſtoire naturelle des Animaux," in 2 vols. His other writings of this claſs are contained in his "Eſſais de Phyſique," 4 vols. One of theſe volumes relates entirely to the organ of hearing, under the title of "Traite de Bruit." Another relates to the mechaniſm of animals, in which he anticipated Stahl in ſome of his opinions reſpecting the functions of the animal ſoul. In other parts of theſe eſſays he treats on the periſtaltic motion, on the ſenſes, on nutrition, &c. He died in Paris in 1688, aged 75. He had three brothers, of whom the youngeſt, Charles, deſerves a particular notice.

Perrault publiſhed a "Diſſertation upon the Muſic of the Ancients," in 1680, which is chiefly employed in proving that counterpoint was unknown to antiquity. He has manifeſted himſelf to have been perfectly maſter of the ſubject; he had read all the ancient authors who have written expreſsly upon it; he had examined the paſſages which have been thought the moſt favourable to it, in ſome authors who have only mentioned it occaſionally; and had conſidered the marvellous effects attributed to it in others. He reaſons forcibly, and the facts he alleges in ſupport of the ſide he has taken, are ſtrong and well ſtated. This work was neither the cauſe nor conſequence of the quarrel between Boileau and his brother, Charles Perrault, which did not break out till ſeven years after the publication of the "Eſſays in Natural Philoſophy," in the ſecond volume of which the "Diſſertation upon the Muſic of the Ancients" firſt appeared. Our author had indeed given his opinion upon the ſubject very freely, in the notes to his excellent tranſlation of Vitruvius in 1673; where, in his commentary of the chapter upon "Harmonic Muſic, according to the Doctrine of Ariſtoxenus," he declares that "there is nothing in Ariſtoxenus, who was the firſt that wrote upon concords and diſcords, nor in any of the Greek authors who wrote after him, that manifeſts the ancients to have had the leaſt idea of the uſe of concords in muſic of many parts." Les dix Liv. d'Architecture de Vitruve, liv. v. p. 161, 2d edit. 1684.

Perrault, Charles, was born at Paris in 1633. He was placed at an early age in the college of Beauvais, where he ſoon attracted notice by his facility in making verſes. A quarrel with the principal of the college obliged him to quit the college, and interrupted the ordinary courſe of his ſtudies. He, however, by no means deſerted literary purſuits, but aſſociating himſelf with a friend of the ſame age, they read the beſt authors together, diſcuſſing their merits, as they went along; and this ſecond education was, in his opinion, much more uſeful than the firſt. They alſo indulged in the burleſque, which was then much in vogue; and they joined in a traveſtie of the ſixth book of the Æneid. Perrault was brought up to the profeſſion of the law, and was admitted an advocate. He was, however, taken from this career by the miniſter Colbert, who choſe him ſecretary to a ſmall ſociety of men of letters, which aſſembled twice a week at his houſe. Their buſineſs was to plan devices for medals, and other memorials, at the king's requiſition, and commemorative of the glories of his reign; and this was the foundation of the celebrated Academy of Inſcriptions and Belles Lettres. Charles Perrault had a ſingular talent for inventions of this kind, and thoſe which he propoſed commonly obtained the preference. His influence with the miniſter was conſtantly employed in the ſervice of ſcience and literature. He procured for the French academy apartments in the Louvre; and his brother Claude ſhared in the eſtabliſhment of the Academy of Sciences. When Colbert cauſed a ſum to be ſet apart in the treaſury, for penſioning, in the king's name, the moſt eminent men of letters, as well in foreign countries as in France, its diſtribution was principally confided to Perrault. For his great ſervices in the cauſe of ſcience and literature, the French academy manifeſted its gratitude, by admitting him a member in 1671; and his diſcourſe at his reception gave ſo much ſatisfaction to that body, that it thenceforth became a cuſtom to print the admiſſion harangues. His connection with Colbert was interrupted by ſome mortifications to which the miniſter expoſed him. Perrault retired, and refuſed to return when invited. He withdrew to a houſe in one of the ſuburbs of Paris, in the neighbourhood of the colleges, which he choſe for the purpoſe of ſuperintending the education of his two ſons. Here he paſſed his time in literary leiſure, and in the enjoyment of domeſtic happineſs. He exerciſed himſelf in writing, and compoſed ſeveral poems: of theſe one was entitled "Le Siècle de Louis XIV." It laid the foundation of a controverſy, which divided all the wits in France. In enumerating the glories of the reign, he had enhanced them by a depreciation of the ancients, in every point of compariſon; and as this was regarded by the votaries of antiquity in the light of a profanation, he ſupported his opinion by an elaborate proſe work, entitled "Parallele des Anciens, et des Moderns," 4 vols. 12mo. After Perrault had withdrawn himſelf perſonally from the controverſy, he occupied himſelf in drawing up his "Eloge Hiſtorique d'une Partie des grands Hommes qui ont paru dans le xvii Siècle." Of this work he publiſhed two volumes, folio, in 1697, 1700, with the portraits of the ſubjects of his eulogy. This eſtimable writer, who invariably maintained the character of a man of worth, died in 1703, at the age of 70. Memoirs of Charles Perrault, written by himſelf, were publiſhed 60 years after his death, which have been highly valued for their frankneſs, and for the anecdotes which they contain. Moreri.

PERRE, in *Ancient Geography*, a town of Aſia, in Comagene, ſituated at the confluence of two ſmall rivers, which diſcharged themſelves into the Euphrates, ſouth of this town.

PERREL, in *Geography*, a ſmall iſland in the gulf of Tonquin, near the coaſt. N. lat. 20° 59′. E. long. 106° 58′.

PERRENOT, Antony, in *Biography*, uſually known by the name of cardinal Granvelle, a celebrated ſtateſman, was the ſon of Nicholas Perrenot, lord of Granvelle, chancellor to the emperor Charles V. He was born in 1517 at Beſançon, and, after ſtudying in the univerſities of Louvain and Padua with great reputation, entered into holy orders. He was brought to court by his father. and was employed by Charles V. in various embaſſies, in which he acquitted himſelf ſo well, that he gained the confidence of his maſter.

He was made biſhop of Arras at the age of 25, and upon the reſignation of Charles, was recommended ſo ſtrongly by that ſovereign to his ſon Philip II., that he became his moſt confidential miniſter. From Arras he was tranſlated to the archbiſhopric of Mechlin, and in 1561 was created cardinal by Pius IV. Granvelle was unqueſtionably a great man, and poſſeſſed very commanding talents: he is ſaid to have occupied five ſecretaries at once, dictating to them in different languages, of which he thoroughly poſſeſſed ſeven. When Margaret of Auſtria was placed by Philip at the head of the government in the Low Countries, Granvelle was her principal counſellor, and in reality exerciſed the whole authority. He is repreſented by Grotius as a compound of induſtry, vigilance, luxury, and avarice; and as equally ſurpaſſing the common meaſure both in good and bad qualities. He was at all times anxious to extend the royal prerogative, and to cruſh the Proteſtants. His rule, at length, grew ſo odious to the nobles and people, that, in 1566, public complaints againſt him were tranſmitted to Philip, who thought it prudent to recall him, though he ſtill had a great attachment to him. Having retired for ſome time to Benſançon, of which city he was made archbiſhop, Philip again employed him in public affairs. He was ſent to Rome at the election of Pius V., and was commiſſioned to negociate a league againſt the Turks. After this, he reſided ſome time at Naples, in quality of viceroy; and finally, he was nominated ambaſſador, to conclude the marriage of the infanta Catharine with the duke of Savoy. The fatigue attendant upon the journey threw him into an illneſs on his return, which carried him off at Madrid, in 1586, in the 70th year of his age. Moreri.

PERREUX, in *Geography*, a town of France, in the department of the Loire, and chief place of a canton, in the diſtrict of Roanne; 3 miles E. of Roanne. The place contains 2480, and the canton 6806 inhabitants, on a territory of 167½ kiliometres, in 9 communes.

PERRHÆ, in *Ancient Geography*, one of the twelve principal towns of Etruria.

PERRHÆBI, a people who inhabited the eaſtern part of Theſſaly, in the vicinity of the ſea and of the mouth of the river Peneus, according to Strabo, lib. ix. In the wars between theſe people and the Lapithæ, Ixion and his ſon Pirithous took poſſeſſion of their country: many of them retired into Epirus, and the reſt withdrew into the interior of the country, near the river Peneus, and the environs of mount Olympus, and the river Titareſe, where they were blended with the Lapithæ. Simonides calls them "Pelaſgiotes." The migration of the Perrhæbi into Epirus took place about 30 years before the laſt war of Troy.

PERRITIO, in *Geography*, a river of Naples, which runs into the Crate, in the province of Calabria Citra.

PERRIWIG. See PERRUKE.

PERRON, in *Architecture*, a ſtaircaſe lying open, or withoutſide the building: properly, the ſteps before the front of the building, which lead into the firſt ſtory when raiſed a little above the level of the ground.

Perrons are made of different forms and ſizes, with regard to the ſpace and height they are to lead to. Sometimes the ſteps are round, or oval; more uſually they are ſquare.

PERRON, JAMES DAVY DU, in *Biography*, a learned and celebrated cardinal, deſcended from two ancient and noble families of Lower Normandy, which, on account of their adherence to the Proteſtant faith, had ſought an aſylum in Switzerland, and ſettled in the canton of Berne, where the ſubject of this article was born in the year 1556. He was a youth of conſiderable talents, and taught himſelf the Greek language and philoſophy. After this he applied to the Hebrew, and ſoon became ſuch a proficient in it, that he could read it with facility, and delivered a courſe, of lectures upon it before the Proteſtant miniſters. In 1576 he was carried to the court of Henry III., which was then ſitting at Blois, where the ſtates were aſſembled, and was introduced to the king as a young man of extraordinary acquirements. Upon the breaking up of the ſtates he went to Paris, where he mounted the roſtrum in the great hall of the Auguſtines, in the habit of a cavalier, and held public conferences upon the ſciences. About this time he changed his religious ſentiments, and became reader to king Henry III., who appears to have been much attached to him. No ſooner had he become a convert to the Catholic church, than he aſſiduouſly laboured for the converſion of others, and this even before he had embraced the eccleſiaſtical profeſſion. When he entered into holy orders he was conſecrated biſhop of Evreux: this was in 1595, and in 1604 he was tranſlated to the archbiſhopric of Sens. In the ſame year, in conſequence of a letter written by the king to pope Clement VIII., that pontiff conferred on him the dignity of cardinal. After this he was employed by the pope in the moſt important councils and congregations. After the murder of Henry IV. he devoted himſelf entirely to the intereſts of the court of Rome, and by his ſubſerviency to its policy, excited the indignation and hatred of the friends to the independence of the Gallican church. Towards the cloſe of his life he paſſed his time chiefly in retirement, employing himſelf in putting his laſt hand to his works, which were printed in a preſs ſet up in his own houſe, that he might be ſatisfied of their correctneſs, by carefully reviſing every ſheet before it was worked off. He died at Paris in the year 1618, in the ſixty-third year of his age. He poſſeſſed a lively and penetrating genius, and a wonderful memory. He delivered his ſentiments with eaſe and force, and wrote purely and eloquently. His works, which were printed ſeparately in his life-time, were collected after his death, and publiſhed in three vols. folio, in the years 1622 and 1623. His ſecretary, Cæſar de Ligni, added to them a fourth volume, compriſing his embaſſies and negociations. Moreri.

PERRONET, JOHN RODOLPHUS, director of the bridges and roads of France, was born in 1708. He was brought up to the profeſſion of architecture in the city of Paris, and made great progreſs in the art. In 1745 he became inſpector of the ſchool of engineers, of which he was afterwards a director. France is indebted to him for ſeveral of its fineſt bridges and beſt roads, the canal of Burgundy, and other great works. He was, for his public ſervices, honoured with the order of St. Michael, and admitted a member of the Academy of Sciences at Paris; of the Royal Society of London; and of the Academy of Stockholm. He died at Paris in 1794. He wrote a deſcription of the bridges which he had conſtructed, 2 vols. 12mo.; "Memoirs on the Method of conſtructing Grand Arches of Stone from 200 to 500 Feet in ſpan."

PERROS GUERIC, in *Geography*, a town of France, in the department of the North Coaſts, and chief place of a canton, in the diſtrict of Lannion; 4 miles N. of Lannion. The place contains 1477, and the canton 8440 inhabitants, on a territory of 157½ kiliometres, in nine communes.

PERROT, *Sir* JOHN, in *Biography*, an eminent ſtateſman, was born of an ancient family in Pembrokeſhire about the year 1527. He was bred up in the houſe of the marquis of Wincheſter, that he might profit by the diſcourſes and example of that great man. He was one of the knights of the Bath at the coronation of Edward VI., who had a great partiality for him. At the beginning of the reign of Mary he was ſent to priſon for harbouring Proteſtants, but, by the interference of friends, he was diſcharged. He aſſiſted at the coronation of Elizabeth, who ſent him, in 1572, to Ireland, as lord preſident of Munſter, which was in a ſtate of rebellion, but by his promptitude was quickly reduced to obedience. He was next appointed admiral of a fleet on the coaſt of Ireland, which was threatened to be invaded by the Spaniards. In 1583 he was made lord deputy of Ireland, where he carried things with ſo high a hand, as to give very great offence, and he was recalled in 1588, and ſent to the Tower. In 1592 he was tried by a ſpecial commiſſion, brought in guilty of high treaſon, and ſentenced to die. He was, however, reſpited by favour of the queen, but died in confinement the ſame year. Biog. Brit.

PERROT D'ABLANCOURT, NICHOLAS, a diſtinguiſhed French writer, was born, in 1606, at Chalons-ſur-Marne. His father, who was a convert to Proteſtantiſm, ſent him for education to the college at Sedan. He afterwards ſtudied philoſophy at home under a private tutor, and then went to Paris, where, at the age of 18, he was admitted an advocate. For a time he abjured the Proteſtant religion, but returned to it again. His acquiſitions were very extraordinary: he was well verſed both in the ſciences and belles lettres, underſtood the ancient and ſeveral modern languages, and diſplayed quick parts and a penetrating judgment. He was keen in debate, but mild and eaſy in the commerce of life. He was admitted into the French academy in the year 1637. He began a tranſlation of Tacitus, but before he had proceeded far in the undertaking he was obliged to go to his province to take care of his ſmall property. Retiring with his ſiſter to his eſtate of Ablancourt he paſſed the reſt of his life upon it, only occaſionally ſpending the winter at Paris, for the purpoſe of printing his works. He was appointed, by Colbert, hiſtoriographer to the king, with a penſion of 1000 crowns; but when his majeſty was informed that he was a Proteſtant, the appointment was ſuperſeded. The penſion was not formally taken away, but he probably received very little of it, as he is ſaid to have died, very poor, in the year 1664. It is chiefly as a tranſlator that d'Ablancourt has obtained a name among polite writers, and his induſtry in this office was remarkable. He publiſhed verſions of Minutius Felix, four of Cicero's Orations, Tacitus, Lucian, Xenophon's Anabaſis, Arrian's Hiſtory of Alexander, Cæſar's Commentaries, Thucydides, &c. D'Ablancourt had ſtudied Hebrew at Leyden, and the bible was one of the books on which he beſtowed the cloſeſt attention. He relied wholly on revelation for his hopes of immortality, and on this ſubject he wrote a diſcourſe to his friend Patru, which is publiſhed in the works of the latter. Moreri.

PERRUKE, or PERRIWIG, was anciently uſed for a long head of natural hair: ſuch, particularly, as there was care taken in the adjuſting and trimming of it.

Menage derives the word, by a long detour, from the Latin *pilus, hair*. The ſeveral ſtages of its paſſage, according to the critic, are, *pilus, pelus, pelutus, peluticus, pelutica, perutica, peruca, perruque.*

The Latins called it *coma;* whence part of Gaul took the denomination of *Gallia Comata*, from the long hair which the natives wore as a ſign of freedom. An ancient author ſays, that Abſalom's perruke weighed two hundred ſhekels.

PERRUKE is now uſed for a ſet of falſe or borrowed hair, curled, buckled, woven on ſtrong thread, and ſewed together on a frame, or cawl; anciently called *capillamentum*, or falſe perruke. See HAIR.

It is doubted, whether or not the uſe of perrukes was known among the ancients. It is true, they uſed falſe hair. Martial and Juvenal make merry with the women of their time, for making themſelves look young with their borrowed hair: with the men who changed their colours according to the ſeaſons; and with the dotards, who hoped to deceive the Deſtinies by their white hair.

But theſe ſeem to have ſcarcely had any thing in common with our perrukes; and were, at beſt, only compoſed of hair painted, and glued together. Nothing can be more ridiculous than the deſcription Lampridius gives of the emperor Commodus's perruke; it was powdered with ſcrapings of gold, and oiled (if we may uſe the expreſſion) with glutinous perfumes for the powder to hang by. In effect, the uſe of perrukes, at leaſt in their preſent mode, is not more than two hundred years old: the year 1629 is reckoned the epocha of long perrukes; at which time they began to appear in Paris; whence they ſpread, by degrees, throughout the reſt of Europe. At firſt it was reputed a ſcandal for young people to wear them, becauſe the loſs of their hair at that age was attributed to a diſeaſe, the very name of which is a reproach: but at length the mode prevailed over the ſcruple, and perſons of all ages and conditions have worn them; foregoing, without any neceſſity, the conveniencies of their natural hair.

However, it was ſome time before eccleſiaſtics came into the faſhion: the firſt who aſſumed the perruke were ſome of the French clergy, in the year 1660; nor is the practice yet well authorized. The cardinal Grimaldi, in 1684, and the biſhop of Lavaur, in 1688, prohibited the uſe of the perruke to all prieſts, without a diſpenſation, or neceſſity. M. Thiers has a treatiſe expreſs, to prove the perruke indecent in an eccleſiaſtic, and directly contrary to the decrees and canons of councils. A prieſt's head, embelliſhed with an artificial hair curiouſly adjuſted, he eſteems a monſter in the church; nor can he conceive any thing ſo ſcandalous as an abbot with a florid countenance, heightened with a well-curled perruke.

PERRY, JOHN, *Captain*, in *Biography*, an eminent Engliſh engineer, was recommended to the czar Peter during his abode in England, as a proper perſon to aſſiſt him in his favourite ſcheme of forming a navy, and promoting inland navigation within his dominions. He was taken into the czar's ſervice with a liberal ſalary, and was employed three ſummers in making a communication between the rivers Don and Volga. The czar's ill ſucceſs againſt the Swedes at the battle of Narva, and other circumſtances of diſcouragement, cauſed an interruption of the work in 1707, and during the two following years he was engaged in refitting the ſhips at Voronetz, and making navigable the river of that name. He experienced many diſappointments reſpecting the recompence of his labours, and was finally indebted to the protection of the Engliſh ambaſſador for the privilege of quitting the country in 1712. After his return, he publiſhed "The State of Ruſſia," and in a few years afterwards he was employed in ſtopping the alarming breach of the embankment of the Thames at Dagenham, which he accompliſhed, and of which he publiſhed an account in 1721. He died in 1733.

PERRY, in *Rural Economy*, the name of a pleaſant and wholeſome liquor made from the juice of pears, by means of fermentation, ſomewhat in the ſame manner as cider is made from apples. See APPLE, CIDER, ORCHARD, PEAR, and PEAR-*Tree*.

The beſt pears for perry, or at leaſt the ſorts which have been hitherto deemed the fitteſt for making this liquor, are ſo exceſſively tart and harſh, that no one can think of eating them as fruit; for even hungry ſwine will not eat them; nay, hardly ſo much as ſmell to them. Of theſe the Boſbury pear, the Bareland pear, and the horſe pear, are the moſt eſteemed for perry in Worceſterſhire, and the ſquaſh pear, as it is called, in Glouceſterſhire; in both which counties, as well as in ſome of the adjacent parts, they are planted in the hedge rows and moſt common fields.

Mr. Knight ſtates, that in the making of this ſort of liquor, the pears are ground and preſſed in exactly the ſame manner, as thoſe of apples in the manufacturing of cider; but that it is not uſual for the reduced pulp to be ſuffered to remain any length of time without being preſſed. It has never been the practice in Herefordſhire, or the counties in the vicinity of it, to blend the juices of the different varieties of the pear in order to correct the defects of one kind, by the oppoſite properties of the other. It is, however, he allows, more eaſy to find the required portion of ſugar and of aſtringency as well as flavour, in three or four varieties than in one; hence, he ſuppoſes, a judicious mixture of fruits affords a proſpect of great benefit.

In grinding, the pulp and rind of the pear, as in the apple, ſhould be perfectly reduced, and though no benefit is ſaid to have been derived from the reduced pulp remaining ſome hours unpreſſed, he has no doubt but that where all other circumſtances are the ſame, that portion of liquor will for the moſt part be found the beſt, which has remained the longeſt under the power of the mill-ſtone.

The juices of the pear and the apple are conſtituted of the ſame component parts, but the proportions are different. In the juice of the pear the tanning principle is predominant, with a leſs portion of ſugar, mucilage, and tinging matter.

And the method of managing this ſort of liquor during the proceſs of fermentation, is likewiſe nearly the ſame as that in cider; but that it does not afford the ſame indications by which the proper period of racking it off may be known. The thick ſcum that collects on the ſurface of cider rarely appears on the juice of the pear, and during the time of the ſuſpenſion of its fermentation, the exceſſive brightneſs of the former liquor is ſeldom ſeen in the latter; but where the fruit has been regularly ripe, its produce will generally become moderately clear and quiet in a few days after it is made, and it ſhould then be drawn off from its groſſer lees. An exceſs of fermentation is prevented by the means uſed in the making of cider, and the liquor is rendered bright by iſinglaſs. The power this ſubſtance poſſeſſes of fining liquors appears to be purely mechanical: it is compoſed of innumerable fibres, which being diſperſed over the liquor, attach themſelves to, and carry down, its impurities. For this purpoſe it ſhould be reduced to ſmall fragments by being pounded in a mortar, and afterwards ſteeped twelve or fourteen hours in a quantity of liquor ſufficient to produce its greateſt degree of expanſion. In this ſtate it muſt be mixed with a few gallons of the liquor, and ſtirred till it is diffuſed and ſuſpended in it; and it is then to be poured into the caſk, and incorporated with the whole by continued agitation for the ſpace of two hours. This proceſs muſt be repeated till the required degree of brightneſs is obtained, the liquor being each time drawn off, on the ſecond or third day, from its precipitated lees. Not more than an ounce and a half, or two ounces of iſinglaſs, are generally put into a caſk of a hundred and ten gallons, at once; but were its mode of action purely mechanical, there could be no objection to a larger quantity; but it has alſo a chemical action on the liquor. It combines with and carries down the tanning principle, and hence, during the proceſs of fining, the liquor is deprived of a large portion of its aſtringency. This ſubſtance is moſt readily diffuſed in liquors by boiling; but by this it is diſſolved, and converted into glue; and its organization, on which alone its powers of fining depend, is totally deſtroyed. The application of it is ſometimes alſo neceſſary in the manufacture of cider; though colour is ſeldom wanting in that liquor.

But when perry or cider can be made ſufficiently bright without it, the above cited writer would not by any means recommend its uſe. The liquor is rendered extremely agreeable to the eye by it; but has always appeared to him to become more thin and acid by its action.

In the after-management of perry the method is the ſame as that of cider; but it does not bear ſituations where it is expoſed to much change of temperature ſo well, and its future merit cannot ſo well be judged of by its preſent ſtate. In the bottle it almoſt always retains its good qualities, and in that ſituation he would always recommend it to be put, if it remains ſound and perfect at the concluſion of the firſt ſucceeding ſummer. On the whole, the pear furniſhes a leſs popular liquor than the apple, but the tree is capable of being grown on a greater variety of ſoil, and is more productive, furniſhing in the proportion of 600 gallons of liquor to the acre, where the trees are full grown and in good bearing.

PERRYHAZAR, in *Geography*, a town of Perſia, in the province of Ghilan, on the Caſpian ſea; 2 miles N. of Reſhd.

PERSA, in *Ancient Geography*, a town of Aſia, near the Euphrates, and in the vicinity of Samoſata.

PERSA, in *Geography*, a town of Hindooſtan, in Oude; 60 miles E. of Bahraitch.—Alſo, a town of European Turkey, in the province of Servia, on the Danube; 45 miles E. of Paſſarovitz.

PERSAC, a town of Perſia, in the province of Irak; 25 miles S.S.E. of Sultania.

PERSAH, a town of Hindooſtan, in the circar of Surgooja; 10 miles N.N.E. of Surgooja,—Alſo, a town of Mocaumpour; 36 miles S.S.W. of Mocaumpour.

PERSAIN, or BASSIEN, an old town of Pegu, ſituated on the weſtern branch of the river Irrawady; 132 miles S.W. of Pegu N. lat. 16° 45′. E. long. 94° 55′.—Alſo, a river of Pegu, which runs near the town of the ſame name, and diſcharges itſelf into the bay of Bengal, S.E. of cape Negrais.

PERSANTE, a river which riſes in a ſmall lake, about four miles N.W. from New Stettin, croſſes Pomerania, and runs into the Baltic, a little below Colberg.

PERSAW, a town of Pruſſia, in Pomerelia; 7 miles N.W. of Marienburg.

PERSCHLING, a town of Auſtria, on a river of the ſame name, that runs into the Danube; three miles above Tullo. The town is eight miles S.W. of Tullo.

PERSCOVARI, a town of Walachia; 8 miles S.W. of Brancovani.

PER SE, in the *Schools*, is ſometimes oppoſed to *per accidens*. In which ſenſe, a thing is ſaid to agree with another *per ſe*, when the agreement is not owing to any accidental event, but is found in the intrinſic principles of things themſelves.

PER SE is ſometimes alſo oppoſed to *per aliud*. In which ſenſe, God alone is ſaid to have a being *per ſe*, as not deriving it from any other, but having it neceſſarily, and of himſelf.

Per se, again, ſometimes ſignifies as much as, of its own nature, or in virtue of its own entity. Thus the ſun is ſaid to give light *per ſe* ; and thus quantity is extended *per ſe*.

Per se, among *Logicians*. A thing is ſaid to be known *per ſe*, or *per ſe notum*, when we immediately perceive it upon the firſt propoſing of the terms. As, that the whole is greater than its parts.

Philoſophers go ſo far as to conſider the mode of a thing exiſting *per ſe*, or that which conſtitutes its exiſtence ſuch ; which they call *perſeity*, *perſeitas*.

Per se, *Object*. See Object.

Per se, in *Chemiſtry*. When a body is diſtilled ſingly, and without the uſual addition of another matter to it, it is ſaid to be diſtilled *per ſe*.

The genuine ſpirits of hartſhorn are thoſe raiſed *per ſe*, in oppoſition to thoſe diſtilled with the addition of lime.

PERSEA, in *Botany*, an oriental fruit, mentioned by Pliny, book 15. chap. 13, and compared by him to the Red Myxa, or *Cordia* of Linnæus. The latter gives the ſpecific name of *Perſea* to a South American ſpecies of *Laurus*.

PERSECUTION, Persecutio, literally imports any pain, affliction, or inconvenience, which a perſon deſignedly inflicts on another.

Persecution more particularly denotes that tyranny which the ſovereign power of any country exerciſes, or permits to be exerciſed, againſt thoſe who adopt different opinions from its own in matters of religion. This kind of perſecution is no leſs contrary to reaſon and ſound policy, than to the forbearing, comprehenſive ſpirit of Chriſtianity, and the laws of humanity.

It is hardly neceſſary to obſerve, that the founder of Chriſtianity never gave any directions to his diſciples to propagate his religion by external force and violence. He was too well acquainted with the human heart to imagine that theſe were ſuitable means of making converts ; and he well knew, what the experience of all ages has confirmed, that ſuch methods diſſerve any cauſe in which they are employed, and that they are adapted only to make hypocrites or martyrs. Beſides, perſecution is altogether inconſiſtent with the diſtinguiſhing character of his religion, which is “ peace on earth, and good will towards men.” It is likewiſe altogether incredible, and even impoſſible, that the founder of a religion, who was himſelf crucified, and then raiſed from the dead and exalted to heaven, in confirmation of the truth of his doctrine, and as an example of fidelity to God, patience, reſignation, and fortitude, and to raiſe the thoughts of his diſciples and followers to things heavenly and divine :—it is impoſſible that ſuch a teacher of religion ſhould give any directions to his apoſtles and miniſters to propagate his religion by force and violence.

What is religion but an exerciſe of the underſtanding and of the heart, the principles and affections of which are to regulate the conduct ? Perſecution, therefore, is altogether incompatible with its nature and deſign, and tends rather to obſtruct than to promote its influence ; to excite prejudices againſt it, than to gain proſelytes to its intereſt. Should it be ſaid that Chriſtians have perſecuted, and that “ the weapons of their warfare,” with a profeſſed view of extending the ſpread, and maintaining the purity of religion, have been ſometimes, and, indeed, in too many inſtances, “ carnal,” and not “ ſpiritual ;”—it is allowed and lamented. But to adopt the words of an excellent prelate of the laſt age, “ let either the bittereſt zealot, or the moſt bigotted infidel, ſhew, if they can, one inſtance in which the goſpel gives the leaſt pretence for pious cruelty. Every where it breathes mildneſs, patience, forbearance ; enjoins Chriſtians of ever ſo different opinions, to receive one another in mutual charity, and even thoſe who are no Chriſtians it permits us not to judge hardly, much leſs to uſe them unmercifully. If, then, ſome who profeſs this faith will act in defiance to it, let them bear their condemnation : but to charge their guilt upon Chriſtianity, would be like cenſuring the legal conſtitution of any government, becauſe they who rebel againſt it behave unjuſtifiably. For indeed the ſpirit of perſecution is rebellion againſt Chriſt, under a pretence of a commiſſion from him ; it is *the man of ſin ſitting as God in the temple of God*, 2 Theſſ. ii. 3, 4. And where it is not deſigned impiety, it is the groſſeſt ignorance both of the attributes of our Maker and the precepts of our Redeemer.” We may obſerve farther, that all wiſe and underſtanding men, of every ſect and religion, recommend moderation, and condemn force and compulſion in things of religion. This is true both of Chriſtians and Gentiles, as Dr. Lardner in particular has ſhewn in a variety of inſtances, both of ancient and modern date. See Heresy.

Persecution, as a term, is reſtrained to the ſufferings of Chriſtians, in behalf of their religion ; particularly to thoſe of the primitive Chriſtians, under the heathen emperors Nero, &c. See Martyr.

We uſually reckon ten of theſe perſecutions : Nero ſet on foot the firſt, A.D. 65 ; the ſecond happened under Domitian, A.D. 90 ; the third began under Trajan, A.D. 100 ; the fourth under Adrian, A.D. 126 ; which was continued under Antoninus Pius, A.D. 140 ; the fifth under Marcus Aurelius, A.D. 162 ; the ſixth under Severus, A.D. 203 : the ſeventh under Maximinus, A.D. 236 ; the eighth under Decius, A.D. 251 ; the ninth under Valerian, A.D. 258 ; and the tenth under Diocleſian, A.D. 303.

It has long been a prevailing opinion, that Chriſtians ſuffered ten perſecutions under heathen emperors. But a learned and grave writer, deſervedly much reſpected, has made ſome exceptions to this opinion. “ If you ſpeak,” ſays Moſheim, “ of heavy perſecutions that prevailed every where, there were not ſo many ; if of leſſer troubles, there were more than ten. The number of ten general perſecutions is no more than a popular error, which aroſe in the fifth century, deſtitute of good foundation in hiſtory, and founded on a fanciful interpretation of ſome texts of the Old Teſtament, where the Chriſtian perſecutions have been thought to be foretold. Lactantius, in his book “ Of the Deaths of Perſecutors,” makes but ſix perſecutions : Euſebius, in his “ Eccleſiaſtical Hiſtory,” does not number the perſecutions, though nine perſecutions may be made out from it. Upon the whole, the notion of ten heathen perſecutions had its riſe in the fifth century.” Moſheim de Reb. Chriſtianor.

Mr. Gibbon, in the ſixteenth chapter of the ſecond volume of his “ Hiſtory of the Decline and Fall of the Roman Empire,” ſeems diſpoſed to mitigate the ſeverities exerciſed againſt the Chriſtians in the different parts of the Roman empire, and he ſays that the primitive Chriſtians lamented, and perhaps magnified, their own ſufferings. The ingenious parallels of the ten plagues of Egypt, and of the ten horns of the Apocalypſe, ſays this author, after Oroſius, Moſheim, and others, firſt ſuggeſted the calculation of ten perſecutions to their minds : “ and in their application of the faith of prophecy to the truth of hiſtory, they were careful to ſelect thoſe reigns which were indeed the moſt hoſtile to the Chriſtian cauſe.” After a reference to Moſheim (ubi ſupra) he adds that Sulpicius Severus was the firſt author of this computation ; though he ſeemed deſirous of reſerving the tenth and greateſt perſecution for the coming of the antichriſt. He alſo obſerves, that, "the indifference of ſome princes, and the indulgence of others, permitted the Chriſtians to enjoy, though not perhaps a legal, yet an actual and public toleration of their religion." How far this was the caſe, will appear in the ſequel of this article. The queſtion with regard to the number of perſecutions has been examined with judgment and candour by Dr. Lardner: and he has ſtated the reſult with his uſual impartiality. From the book "Of the Deaths of Perſecutors," erroneouſly aſcribed to Lactantius (ſee his article), we can expect to derive no ſatisfaction on this head. It was the deſign of the author to ſpeak of ſuch perſecutors only as came to an untimely end; accordingly he writes concerning the perſecutions of Nero, Domitian, Valerian, and Aurelian, who ſuffered a violent death; and he alſo mentions the misfortunes and calamities that befell Diocleſian, Maximian, Galerius and Maximin. But from this book no argument can be formed for determining the number of perſecutions which Chriſtians endured from heathen emperors. Euſebius, in his "Eccleſiaſtical Hiſtory," has mentioned eleven perſecutors, *viz.* Nero, Domitian, Trajan, Marcus Antoninus, Severus, Maximin the firſt, or the Thracian, Decius, Gallus, Valerian, Aurelian, Diocleſian, and his colleagues. But as the ſeveral perſecutions of the heathen emperors did not terminate before the commencement of the fourth century, they could not be numbered till they all took place. Oroſius, who compares the ten perſecutions of the Chriſtians with the ten plagues of Egypt, ſtates their number to be ten, and expreſsly calls Diocleſian's the tenth and laſt. Auguſtine likewiſe reckons ten heathen perſecutions, which he thus numbers: *viz* the firſt, Nero's; the ſecond, Domitian's; the third, Trajan's; the fourth, Marcus Antoninus's; the fifth, Severus's; the ſixth, Maximin's; the ſeventh, Decius's; the eighth, Valerian's; the ninth, Aurelian's; the tenth, Diocleſian's. Theſe two learned writers lived partly in the fourth and partly in the fifth century; and we may therefore conclude, that this mode of computing was in uſe before the end of the fourth century, and therefore did not originate, as ſome have ſaid, in the fifth century. We have other poſitive teſtimony to the contrary. Jerom's book "Of Illuſtrious Men, or Eccleſiaſtical Writers," was publiſhed in the year 392, and he there ſometimes numbers the perſecutions. In one place he calls Domitian's the ſecond perſecution; in another he expreſsly mentions, though he does not number, Trajan's perſecution; elſewhere, ſpeaking of Polycarp, he ſays that he ſuffered in the time of the fourth perſecution, under Marcus Antoninus: he expreſsly calls Decius's the ſeventh, and Cyprian's martyrdom he places in the eighth perſecution, in the time of Valerian and Gallienus: and in his Latin edition of the Chronicle of Euſebius are ten perſecutions, all expreſsly mentioned and numbered, as in Auguſtine's. Upon the whole we may ſay that, though ſome trifling affectation may have been manifeſted in numbering the perſecutions, yet ſome have actually computed nine, others ten or eleven; but ten was a round number, and has generally prevailed.

It may be obſerved, that the primitive Chriſtians called thoſe troubles perſecutions, which were ordered by edicts of emperors. Of ſuch edicts or reſcripts there were ten or eleven; and it is reaſonable to ſuppoſe that all perſecutions ordered by imperial edicts were general: they were intended for the whole Roman empire ſubject to their government, but poſſibly they did not all actually reach to every part of the empire.

It has been ſaid, however, that all theſe ten perſecutions will not prove, that Chriſtians were all along in a ſtate of perſecution till the converſion of Conſtantine. The lives of ſome of the perſecuting emperors were ſhort, and when they were dead, their edicts were little regarded, and then peace was reſtored to the churches. Dr. Lardner allows that there is ſome truth in this allegation; nevertheleſs he ſhews, by an appeal to hiſtorical facts and records, that Chriſtians might be ſaid, in a mild and qualified ſenſe, to be in a ſtate of perſecution during this period.

Some writers have taken pleaſure in contraſting the perſecuting temper of the Chriſtians with the mild toleration of the ancient heathens; and in extolling the humanity of the Roman magiſtrates, deviſing apologies for their conduct in doubtful or cenſurable inſtances, and expoſing the enthuſiaſm of thoſe deluded Chriſtians, who were ſolicitous for obtaining the crown of martyrdom. M. de Voltaire was one of the number to which we now refer; and we ſhould be glad if we could altogether exempt an hiſtorian, whoſe works we have read with pleaſure and improvement, from the ſame charge. Mr. Gibbon ſays, "it is not improbable that ſome of thoſe perſons who were raiſed to the dignities of the empire might have imbibed the prejudices of the populace, and that the cruel diſpoſition of others might occaſionally be ſtimulated by motives of avarice or of perſonal reſentment. But it is certain, and we may appeal to the grateful confeſſions of the firſt Chriſtians, that the greateſt part of thoſe magiſtrates, who exerciſed in the provinces the authority of the emperor, and of the ſenate, and to whoſe hands alone the juriſdiction of life and death was intruſted, behaved like men of poliſhed manners and liberal education, who reſpected the rules of juſtice, and who were converſant with the precepts of philoſophy. They frequently declined the odious taſk of perſecution, diſmiſſed the charge with contempt, or ſuggeſted to the accuſed Chriſtian ſome legal evaſion by which he might elude the ſeverity of the laws. Whenever they were inveſted with a diſcretionary power, they uſed it leſs for the oppreſſion, than for the relief and benefit of the afflicted church. They were far from condemning all the Chriſtians who were accuſed before their tribunal, and very far from puniſhing with death all thoſe who were convicted of an obſtinate adherence to the new ſuperſtition." In other places our author ſeems diſpoſed to vindicate the conduct of perſecuting emperors, and on ſome occaſions the hiſtorian aſſumes the character of an apologiſt. On the other hand, the conduct of the ſuffering Chriſtians is ſo ſtated, as if their perſecutors had conferred an obligation upon them, by condemning them to priſon, torture, and death. See Martyr.

The learned biſhop of Landaff, in his excellent "Apology for Chriſtianity," expreſſes a wiſh for the credit of human nature, that he could find reaſon to agree with the claſſical hiſtorian, to whom we have now referred, in what he has ſaid of the "univerſal toleration of polytheiſm; of the mild indifference of antiquity; of the Roman princes beholding, without concern, a thouſand forms of religion ſubſiſting in peace under their gentle ſway." But Dr. Watſon is induced, by ſome paſſages in the Roman hiſtory, to heſitate at leaſt in this point, and almoſt to believe, that the Romans were exceedingly jealous of all foreign religions, whether they were accompanied with immoral manners or not. The Romans, indeed, were accuſtomed to invite the tutelary gods of the nations which they intended to ſubdue, to abandon their charge, and to promiſe them the ſame, and even a more auguſt worſhip in the city of Rome; and their triumphs were graced as much in the exhibition of their captive gods, as with the leſs humane one of their captive kings. But this cuſtom, though it filled the city with hundreds of gods of various deſcriptions, cannot be alleged as a proof of Roman toleration: it may indicate the exceſs of their vanity, the extent of their ſuperſtition, or the refinement of their policy; but it can never ſhew that the religion of individuals, when it differed from public wiſdom, was either connived at as a matter of indifference, or tolerated as an unalienable right of human nature." We learn from Livy, the Roman hiſtorian, that the ruling powers at Rome were careful in preventing any ſacrifices from being offered after a new or foreign manner; and that the ædiles had it in particular charge, that no gods ſhould be worſhipped except the Roman gods, and that the worſhip of theſe ſhould only be conducted after the eſtabliſhed manner of the country. Dion Caſſius informs us, that Mecænas recommends it to Cæſar, to worſhip the gods himſelf, according to the eſtabliſhed form; and to force all others to do the ſame; and to *hate* and to *puniſh* all thoſe who ſhould attempt to introduce foreign religions. This ſyſtem of Mecænas contained no new doctrine; it was correſpondent to the practice of the Roman ſenate, in the moſt illuſtrious times of the republic; and ſeems to have been generally adopted by the emperors, in their treatment of Chriſtians, whilſt they themſelves were Pagans; and in their treatment of Pagans, after they themſelves became Chriſtians. In the inveſtigation of the motives which induced the Roman emperors to perſecute, and the Roman people to hate the Chriſtians, our author conceives, that Mr. Gibbon was miſled by the erroneous idea of the extreme tolerance of Pagan Rome.

PERSEES, or PARSEES, a name given to thoſe ancient Perſians and their deſcendants, who were worſhippers of fire; for an account of whom we refer to the articles FIRE, *Everlaſting*, GABRES, MAGI, MITHRA, ZEND, and ZOROASTER. See alſo PERSIA. Theſe innocent idolaters have been almoſt extirpated in Perſia by Mahometan fanaticiſm, that has propagated every ſcandal which malice could invent, repreſenting them as devourers of children, and guilty of other atrocities. In Perſia there are few or no remains of them, except perhaps a ſmall number of viſitors of the fiery eruptions of naphtha near Baku, on the weſtern ſhores of the Caſpian. (See *Everlaſting* FIRE.) We learn from Mr. Hanway that they here worſhip the everlaſting fire as an emblem of Ormuzd, or the ſupreme ineffable creator; while the evil principle believed to have ſprung from matter was ſtyled Ahriman. But the chief worſhippers of the fire of Baku came from Hindooſtan, to which the Perſees retreated, on occaſion of various perſecutions which they ſuffered from the Mahometans, under the caliph Omar and his ſucceſſors, and alſo by the ſhah Abbas. On occaſion of the perſecution under Omar, who compelled all his new ſubjects to abandon the religion of their forefathers, ſome of them fled to the moſt diſtant parts of the province of Caramania, or Kerman, in which, though belonging to Perſia, the Mahometan ſovereigns of the country ſuffered them to remain unmoleſted, with regard to their religion. Thevenot, who was in Perſia in the year 1665, ſays, that they dwelt there, and alſo in other parts of Perſia, exerciſing their religion without diſturbance. Mr. Hanway ſays, that when he viſited the country, there were ſome worſhippers of fire at a place called Gueberabad, near Iſpahan. The Perſees who left their native country in conſequence of perſecution, ſettled in conſiderable numbers near Bombay and Surat, where they obtained permiſſion of the Hindoos to take up their abode, and to exerciſe their religion without reſtraint; ſtipulating as a condition, that they ſhould never kill an ox or a cow, which, it is ſaid, they have uninterruptedly obſerved. Their number, in and round Surat, is eſtimated, according to Stavorinus, at about 100,000 perſons, who almoſt all maintain themſelves by agriculture and manufactures; and theſe, as Valentyn ſays, are the poſterity of about 18,000 of their countrymen, who, flying from Omar, came by ſea from Cape Jaſk, in the gulf of Perſia, Gombroon, and Ormus, to Guzerat. Diſtinguiſhed by their induſtry, they have among them no mendicants; and many of them are domeſtics in the ſervice of the Europeans who arrive in the city. Their numbers daily increaſe, and they occupy many entire wards in the ſuburbs; and along the ſea-coaſt from Baroche to Bazaim they have eſtabliſhed ſeveral large and wealthy villages. Several of them, who reſide at Surat, are rich, and may be reckoned among the principal merchants. In complexion, they are much fairer than either the Moors or Gentoos, and differ little from the Spaniards: they have, in general, large eyes, aquiline noſes, and are well-proportioned. Their women are fair, tall, handſome, and lively. Theſe people, it is ſaid, are addicted to ſenſual pleaſures of the groſſeſt kind. By marrying wives of their own nation, their race has been preſerved pure and unmixed to the preſent day. Adultery and fornication they puniſh among themſelves, and even by death; giving cognizance of any capital puniſhment to the Mooriſh government: the execution is performed in ſecret, either by lapidation, drowning in the river, caſtigation, or beating to death, and ſometimes by poiſon. Their females are marriageable before they are twelve years old; but though their marriages are contracted at an early age, yet it is not conſummated till the above-mentioned age of puberty. It is not cuſtomary to give any portion with the bride; but every relation and friend of the bridegroom is obliged to preſent him with ſome articles of houſhold furniture, money, or clothes, as ſoon as the intended nuptials are announced to them. When a Perſian dies, the body is waſhed clean and dreſſed in the oldeſt clothes belonging to the deceaſed; it is then laid upon an iron bier, and carried out of the city to one of their receptacles of the dead, where it lies to be devoured by birds of prey.

The Perſees live temperately; but, contrary to the cuſtom of the Gentoos, they eat all kinds of fleſh meat, except that of oxen and hares, that they may not give offence to that nation; but it muſt be killed and prepared by their own people. Theſe Perſees at Surat allege, that they poſſeſs a genuine copy of the inſtitutes of Zoroaſter: they likewiſe pretend, that the holy fire, which they brought with them at the time of the flight from Perſia, has remained burning to the preſent day, without being extinguiſhed, in their largeſt and principal temple, which ſtands near the Portugueſe city of Daman. This holy fire is expoſed to the vulgar only once a-year, on a feſtival in the month of October, which marks the commencement of their year: beſides this feſtival, they have one every month, of a religious nature; in which they offer up devout ſupplications to their divinity. Every Perſee likewiſe offers up a prayer every morning, turning towards the riſing ſun, and another every evening, preſenting himſelf towards the moon, if ſhe be viſible. The element of water is alſo an object of reverence; and their reverence for fire is carried ſo far, that they will not extinguiſh it on any occaſion, even by putting out a candle or lamp. When a fire takes place in the town, they do not endeavour to quench it with water, but pull down the houſes and buildings liable to be conſumed by the flames, that the fire may go out for want of combuſtibles to maintain it. Theſe people have ſix or ſeven houſes appropriated to their religion, which we may call churches, as well within as out of the town, in which a prayer, ſermon, or exhortation is every day pronounced by their prieſts, and in which fire is kept conſtantly burning, and kept up by the moſt coſtly wood that can be procured. None but a Perſee may enter one of theſe buildings. The Perſees, it is ſaid, never attempt to make proſelytes. The Moors, Gentoos, and Perſees, notwithſtanding the difference of their religions, exerciſe toward one another the greateſt toleration and indulgence. They may be ſeen together in, or near the river, offering up their reſpective prayers, without mutual contempt or moleſtation. When the holy fire of the Perſees is exhibited to the people, no Gentoo will either approach or touch fire, no more than the Perſees themſelves. This mutual forbearance exhibits an example worthy of imitation. Stavorinus's Voyages, vols. ii. & iii.

PERSEPOLIS, in *Ancient Geography*, a town of Perſia, was formerly called "Elymais," now known only by its ruins and monuments, which have been deſcribed by many travellers, from Chardin to Niebuhr and Franklin. They are ſituated at the bottom of a mountain, fronting the S.W. about 40 miles to the N. of Shiraz. They command a view of the extenſive plain of Merdaſht, and the mountain of Rehumut encircles them, in the form of an amphitheatre. The nature of theſe ruins may be ſeen in the numerous plates that have been publiſhed; and without theſe plates, any deſcription of the grand portals, halls, and columns, and numerous relievos and devices, muſt be very unſatisfactory, and almoſt unintelligible. Here are many inſcriptions in a character not yet explained; but which Niebuhr ſeems to have repreſented with great accuracy. The letters ſomewhat reſemble nails, diſpoſed in various directions, in which ſingularity they approach to what are called the Helſing runes of Scandinavia, but the form and diſpoſition ſeem more complex, and perhaps a clue might ariſe from comparing the Uchen character of Thibet. Behind the ruin to the N. there is a curious apartment cut out in the rock, and a ſubterraneous paſſage, which ſeems to extend a conſiderable way. The front of the palace is 600 paces N. to S., and 390 E. to W.; and the mountain behind has been deeply ſmoothed to make way for the foundation. About three miles and a half to the N.E. of theſe rivers is the tomb of Ruſtan, the ancient Perſian hero. Pinkerton's Geog.

The temple or palace at Perſepolis, now called "the throne of Jemſhid," is ſuppoſed to have been erected in the time of Jemſhid, and to have been poſterior to the reign of the Hindoo monarchs. The figures at Perſepolis differ from thoſe at Elephanta, which are manifeſtly Hindoo; and ſir William Jones conjectures, that they are Sabian, which conjecture is confirmed by a circumſtance, which he believes to have been a fact, *viz.* that the "Takhti Jemſhid" was erected after the time of Cayúmers, when the Brahmans had migrated from Irán, and when their intricate mythology had been ſuperſeded by the ſimpler adoration of the planets and of fire. Chardin, who obſerved the inſcriptions on theſe ancient monuments on the ſpot, obſerves, that they bear no reſemblance whatever to the letters uſed by the Gabres, in their copies of the Vendidád; whence ſir William Jones inferred that the Zend letters were a modern invention; and in an amicable debate with a friend, named "Bahman," that friend inſiſted that the letters, to which he had alluded, and which he had often ſeen, were monumental characters never uſed in books, and intended either to conceal ſome religious myſteries from the vulgar, or to diſplay the art of the ſculptor, like the embelliſhed Cúfick and Nágari on ſeveral Arabian and Indian monuments. With regard to the unknown inſcriptions in the palace of Jemſhid, ſir W. Jones ſuggeſts, that it may be reaſonably doubted, whether they contain a ſyſtem of letters, which any nation ever adopted; in *five* of them the letters, which are ſeparated by points, may be reduced to forty, or at leaſt he could diſtinguiſh no more eſſentially different; and they all ſeem to be regular variations and compoſitions of a ſtraight line and an angular figure like the head of a javelin or a leaf (to uſe the language of botaniſts) "hearted and lanced." Many of the Runick letters appear to have been formed of ſimilar elements; and it has been obſerved that the writing at Perſepolis bears a ſtrong reſemblance to that which the Iriſh call "Ogham," (which ſee). The word "Agam" in Sanſcrit means myſterious knowledge: but ſir William Jones dares not affirm, that the two words had a common origin; and he only means to ſuggeſt, that if the characters in queſtion be really alphabetical, they were probably ſecret and ſacerdotal, or a mere cypher, perhaps, of which the prieſts only had the key. In all the other inſcriptions of the ſame ſort, the characters are too complex, and the variations of them too numerous, to admit of an opinion, that they could be ſymbols of articulate ſounds; for even the Nágari ſyſtem, which has more diſtinct letters than any known alphabet, conſiſts only of forty-nine ſimple characters, two of which are mere ſubſtitutions, and four of little uſe in Sanſcrit or in any other language; while the more complicated figures, exhibited by Niebuhr, muſt be as numerous at leaſt as the Chineſe keys, which are the ſigns of *ideas* only, and ſome of which reſemble the old Perſian letters at Perſepolis. The Daniſh traveller was convinced from his own obſervations, that they were written from the left hand, like all the characters uſed by Hindoo nations. Sir William Jones concludes with obſerving, that the ſquare Chaldaic letters, a few of which are found in the Perſian ruins, appear to have been originally the ſame with the Dévanágari, before the latter were encloſed, as they are now ſeen, in angular frames. Sir W. Jones's Sixth Diſcourſe in vol. ii. of Aſiatic Reſearches; or in his Works, vol. iii. 8vo. ed. See PERSIA.

Perſepolis is now called *Iſtakhr*, or *Iſtakar*; which ſee.

PERSES, or PERSEUS, in *Biography*, the laſt king of Macedon, was the ſon of Philip V. by a concubine. He had a younger brother, Demetrius, who was the offspring of a legitimate marriage, and who on this and other accounts was regarded by Perſes with jealouſy and diſlike. Demetrius, having been given by his father as a hoſtage to the Romans, had received moſt of his education at Rome, and had acquired a predilection for that people. Perſes made a handle of this to deprive him of his father's affection, in which he too well ſucceeded: Demetrius was put under an arreſt, under the pretence of a conſpiracy, and was by the order of Philip poiſoned. The king diſcovered the fraud that had been practiſed on him, and in a paroxyſm of grief determined to exclude Perſes from the throne, and to appoint Antigonus in his ſtead, but death put an end to his projects. Perſes ſucceeded to the crown in the year 178 B.C. and his firſt act was to cauſe his competitor, Antigonus, to be put to death. He, however, attempted to extinguiſh the odium of this execution by a mild and prudent government. He ingratiated himſelf with his own ſubjects, by adminiſtering juſtice with impartiality, and he gained the good-will of the Grecian ſtates by relinquiſhing certain claims made by his houſe upon their cities. To the Romans he ſent an embaſſy of friendſhip, which they returned by the miſſion of ambaſſadors, who took upon themſelves to controul him as a dependent, rather than treat him as a ſovereign prince. Miſunderſtandings, therefore, ſoon aroſe between them; and in the proſpect of a war Perſes cultivated the friendſhip of the Greek ſtates, and the neighbouring princes. He alſo made ample proviſion of money and military ſtores, and kept on foot a numerous and well-diſciplined army. With theſe laudable meaſures of policy he did not ſcruple to join baſe and treacherous attempts againſt his enemies. Eumenes, king of Pergamus, his great enemy, and who had made complaints againſt him before the Roman ſenate, having paid a viſit to the temple at Delphi, was attacked by aſſaſſins on his return, and left for dead. This villainous deed was traced to Perſes, who was ſoon afterwards accuſed of a plot for poiſoning the principal perſons in Rome, who oppoſed the Macedonian intereſt. To the Roman ambaſſadors, who charged him with theſe crimes, he gave ſuch an anſwer, that they left his kingdom, and every thing tended to immediate hoſtilities. Perſes ſtill negociated for peace, but was haughtily anſwered, that he might treat with the conſul, who would ſhortly arrive in his kingdom with an army. When war was declared, he put himſelf at the head of a finer army than had been ſeen in Macedon ſince the expedition of Alexander the Great, and marched into Theſſaly. He inſulted in his camp the Roman conſul, who was much inferior in force, and gained conſiderable advantage in a battle. Feeling, however, that he was not equal to cope with ſo formidable an enemy, he renewed his offers of peace upon very humiliating terms, which were not accepted. Perſes was obliged to retreat, and at Pydna he was under the neceſſity of putting his fate to the hazard of a general engagement, in which he was totally defeated. This took place in the year 168 B.C., and it is affirmed by Polybius and Livy, that during the battle Perſes was employed in ſacrificing to Hercules in the city of Pydna; this has, it muſt be admitted, been contradicted by Poſidonius, a Greek writer, who being preſent affirms, that Perſes, notwithſtanding he had been diſabled by a kick from a horſe, inſiſted upon being conveyed into the field, where he encouraged his men during the combat, till a wound from a dart compelled him to withdraw. He fled, ſlenderly accompanied, to Pella, where, being remonſtrated with by his two chamberlains, he ſtabbed them both with his own hand. Thence he retreated to Amphipolis, where having mounted the tribunal to addreſs the people, his tears flowed ſo faſt as to prevent his utterance. From Amphipolis he ſailed to the iſle of Samothrace, and took refuge in the temple of Caſtor and Pollux, which was regarded as an inviolable ſanctuary. Doubting his ſafety there, he hired a mariner of Crete to carry him with his family and treaſures to that iſland, but the man, having got the money on board, ſet ſail, and left Perſes to regain admiſſion into the temple. At length he ſurrendered himſelf to Octavius the Roman admiral, who conveyed him to the camp of Æmilius. The conſul reproached him ſeverely for his errors, but afterwards treated him with reſpect and kindneſs. He was, however, brought to Rome, thrown into priſon, and reſerved to decorate the triumph of the victor. To this diſgraceful ſcene he came, clad in deep mourning, and followed by his two ſons, his infant daughter, their attendants, and the principal Macedonian nobles. After this exhibition, he was thrown into a loathſome dungeon, and reduced to ſuch wretchedneſs as to be obliged to beg a ſhare of the ſmall pittance allowed to his fellow priſoners. He died about two years after he had been led in triumph, but the manner of his death is not known, and in him ended the kingdom of Macedon, which had ſubſiſted ſix hundred years from the time of Caranus the firſt king. His ſon Alexander was at firſt placed with a mechanic, a worker in wood, and is ſaid to have become a very ingenious workman, after which he was promoted to be a clerk to the Roman ſenate. In theſe inferior occupations he probably enjoyed a greater ſhare of happineſs than he would have had in the ſuperior rank of ſovereign. Univer. Hiſt.

PERSEVERANCE, in *Theology*, a Chriſtian virtue, by which, as ſome have maintained, we are enabled to perſiſt in the way of ſalvation to the end: or, by means of which, all who have ever believed in Chriſt, ſo as to be in a ſtate of ſalvation, are never ſuffered finally to periſh, but either continue in that ſtate to the end of their lives, or if they fall from it are again recovered to it.

The final perſeverance of the ſaints is an article much controverted between the Arminians and Calviniſts, the latter of whom maintain it impoſſible for grace to be loſt; and therefore make perſeverance to the end, a neceſſary conſequence thereof, which the former deny; eſteeming the moſt confirmed believers never to be out of a poſſibility of falling.

Thoſe who deny this doctrine allege againſt it the following arguments. 1. That there are various threatenings denounced againſt thoſe who apoſtatize, both under the Old and under the New Teſtament; *e. g.* Ezek. iii. 20. xviii. 24. Heb. vi. 4—8. 29. Pſalm, cxxv. 3, 4, 5. 2. That it is foretold as a future event, that ſome *true* Chriſtians ſhall fall away. Matt. xxiv. 12, 13. John, xv. 6. Matt. xiii. 20, 21. 3. That many have in fact fallen away, as David and Solomon, and thoſe mentioned 1 Tim. i. 19, 20. 2 Tim. iv. 10. Phil. iv. 3. Col. iv. 24. Philem. v. 24. 2 Pet. ii. 18. 4. That the doctrine of perſeverance ſuperſedes the uſe of means, and renders thoſe exhortations and motives inſignificant, which are ſo often to be found in ſcripture; *e. g.* Luke, xii. 5. Rom. xi. 10. 1 Cor. ix. 27. Heb. iii. 12. iv. 1. Rev. ii. 10. iii. 11. 2 Tim. ii. 12. 5. That the doctrine of final perſeverance gives great encouragement to carnal ſecurity and preſumptuous ſin.

In favour of this doctrine it has been alleged, 1. That it is warranted by the promiſes of perſevering grace. Jer. xxxii. 38—40. John, iv. 14. vi. 39. x. 28. xi. 26. 2. That it may be argued from the cheerful hope and perſuaſion which the apoſtles often expreſs of their own perſeverance, and that of their fellow-ſaints. Rom. viii. 35. 39. Phil. i. 6. 1 Pet. i. 4, 5. 1 Cor. 1. 8, 9. 1 Theſſ. v. 23, 24. 3. Thoſe paſſages are pleaded, in which this doctrine is ſaid to be expreſsly aſſerted; Rom. viii. 28—30. Matt. xxiv. 24. 1 John, iii. 29. Matt. vii. 25. Compare Prov. iv. 18. Job, xvii. 9. Pſ. xcii. 12—15. Iſ. xl. 31. 4. There are many paſſages, in which it is aſſerted, that thoſe who have fallen away from their profeſſion were never ſincere in it, which, it is ſaid, plainly implies, that thoſe who are ſincere never fall away. 1 John, ii. 19, compared with Deut. xiii. 13. Matt. vii. 23. Luke, viii. 4—15. Thoſe who wiſh to examine the arguments for and againſt this doctrine may conſult Doddridge's Lectures, pt. viii. prop. 140, and the authors to whom he refers. The ſtrongeſt argument, perhaps, in favour of the doctrine of perſeverance, philoſophically conſidered, is that which is deduced from the influence of habits: but to this argument it may probably be replied, that habits are not invincible.

PERSEUS, in *Aſtronomy*, a conſtellation of the northern hemiſphere; whoſe ſtars, in Ptolemy's Catalogue, are 29; in Tycho's as many; in Hevelius's, 46; and in the Britannic Catalogue, 59. See CONSTELLATION.

PERSEUS, in *Mythology*, the ſon of Jupiter and Danaé. Danaé, according to the fable, was the daughter of Acriſius, who, having learned from the oracle, that at a future time his grandſon would bereave him of his life and crown, ſhut her up in a tower of braſs, and declined attention to every propoſal of marriage for her. In the mean time Prætus, his brother, being deſperately in love with his niece, by means of money, corrupted the fidelity of the keepers of the princeſs, and having gained acceſs to her through the roof of the priſon, made her the mother of Perſeus. This fable has been compriſed by Ovid (Met. l. 6.) in a ſingle verſe:

> "Perſea quem pluvio Danaé conceperat auro."

Thoſe who have written the hiſtory of this adventure, wiſhing

ing to palliate the diſgrace which this intrigue entailed upon the royal family, reported, that Jupiter, enamoured of Danaé, had transformed himſelf into a ſhower of gold: and this was the more probable, as Prætus, if we may believe Voſſius (De Orig. &c. Idol. l. i.), aſſumed the ſurname of Jupiter. Pauſanias (in Corinth.) mentions the tower, or rather apartment of braſs, in which Danaé had been ſhut up, and aſſures us that it ſubſiſted till the time of Perilaus, the tyrant of Argos, who demoliſhed it; adding that even in his time ſome remains were ſtill to be ſeen of the ſubterraneous palace, of which Danaé's chamber formed a part. Such is the ſtory of Perſeus's birth, which, conſidering all the circumſtances attending it, is not improbable. When the princeſs was delivered of Perſeus, Acriſius ordered her to be expoſed upon the ſea, with her child, in a mean barge, which, after long conflict with the winds and waves, ſtopped near the little iſland of Seriphus, one of the Cyclades in the Ægean ſea. Polydectes, king of the iſland, hoſpitably received the mother and child, and took great care of the education of the young prince. But afterwards falling in love with Danaé, and fearing the reſentment of Perſeus, advancing to maturity, he ſought a pretext for diſmiſſing him. Under a pretence of wooing one of the Grecian princeſſes, he determined to make a magnificent feaſt for the celebration of the nuptials, and actually invited the princes of the neighbouring iſles, each of whom was to bring with him a preſent of the beſt things which his country ſupplied. In order to prolong Perſeus's expedition, he ordered him to fetch the head of Meduſa, one of the Gorgons. Perſeus, having reſcued Andromeda from the monſter that was ready to devour her, married her, and carried her to Seriphus, where, after he had put Polydectes to death, he went with her and his mother into Greece, and there ſlew Prætus, who, not content with his own inheritance, which was the city of Tyrinthia, Mydea, and the whole coaſt of Argolis, had dethroned Acriſius. Perſeus re-eſtabliſhed his grandfather in his dominions; but as he was endeavouring to ſhew his dexterity in playing at the quoit, he unfortunately ſlew him. Thus was accompliſhed the prediction delivered by the oracle before his birth. Perſeus, having repaired to Argos, where he deeply regretted the parricide which he had thus accidentally committed, induced Megapentes, the ſon of Prætus, to exchange kingdoms with him, and he built Mycenæ, which became the capital of his dominions. As our hero in his lifetime had been a patron of learning, and built an academy on mount Helicon; and as he was farther diſtinguiſhed by his glorious exploits, he was advanced to heaven in the panegyrics made to his honour, and after his death became a demigod. Of this prince and all his wife's family, were alſo formed the conſtellations called Caſſiopeia, Perſeus, and Andromeda: and the very monſter, which he was ſaid to have killed, was placed in the heavens, where it formed the ſign of the whale. They intermixed the recital of his actions with all the ſupernatural adventures they could deviſe; and it was fabled, that the gods had lent him their arms; Mercury, his wings and winged ſhoes, to denote the celerity of his voyages; Pluto, his helmet, a ſymbol of his prudence and policy, which made him conceal all his deſigns in deep ſecrecy; Pallas, his buckler, to ſignify the good fortune which always accompanied him.

Pauſanias (in Corinth. c. 18.) ſays, this prince was worſhipped as a hero at Argos, and ſtill more in the iſle of Seriphus and at Athens, where he had a temple, in which was an altar conſecrated to Dictys and Clymene, who were reckoned his preſervers. This Dictys was the brother of Polydectes; and he, together with his wife Clymene, had the care of his education by the king's order, when he was driven by the waves into the iſland of Seriphus. If we may place any dependance on the hiſtory of the fabulous ages, Perſeus lived about 100 or 120 years before the Trojan war. Accordingly, Perſeus preceded Bellerophon ſeveral years, ſince the latter lived only 40 or 45 years at moſt before the deſtruction of Troy. Banier's Mythology, vol. iii.

PERSHORE, or PEARSHORE, in *Geography*, an ancient market town in the upper diviſion of the hundred of Perſhore, Worceſterſhire, is ſituated on the north ſide of the river Avon, 103 miles N.W. by W. from London. It conſiſts of two parochial diviſions; *viz.* the vicarage of St. Andrew, and the chapelry of Holy Croſs. The road from London to Worceſter paſſing through it, has occaſioned a conſiderable increaſe in its ſize and population. Perſhore is a town of great antiquity, and is ſaid to have derived its name from the number of pear-trees which grew in its vicinity, and from its poſition on the ſhore, or bank of a river. According to biſhop Tanner, Oſwald, one of the nephews of Ethelred, king of Mercia, founded a monaſtery here in 689; but Willliam of Malmſbury aſſerts that Egelward, duke of Dorſet, in the reign of Edgar, was the firſt founder. Gough, in his additions to Camden's Britannia, accounts for the diſcrepancy, by ſtating that it was ſo conſiderably enlarged and increaſed in its endowments by Egelward, that he was conſidered a new founder. It conſiſted at firſt of ſecular clerks, then monks, who were diſmiſſed by king Edgar in 984, from which time it became an abbey of Benedictine monks, dedicated at firſt to the bleſſed Virgin and the apoſtles Peter and Paul, but afterwards to St. Edburga. Belonging to the abbey was a large church, called the Holy Croſs, 280 feet in length, and 120 broad. Of the abbey itſelf there are but few veſtiges; but the church has been modernized, repaired, and uſed for parochial purpoſes. It has a lofty ſquare tower, and contains ſeveral antique monuments. The church and convent, being originally built of wood, were ſeveral times deſtroyed by fire: on St. Urban's day, in the year 1223, and again in 1287, when an accidental conflagration reduced not only the abbey to aſhes, but alſo conſumed the greateſt part of the town. In ancient times, the principal approach to the abbey was through Lice-ſtreet, a Saxon appellation derived from the corpſes for interment being carried along that ſtreet. A ſmall part of the gateway, on the north ſide, is ſtill in exiſtence; near it was the chapel of St. Edburga, the eighth daughter of king Edward the Elder, who reigned about the year 900. Perſhore has two churches at preſent, that of Holy Croſs, above-mentioned, and All Saints, which is ſmall, but kept in neat order, and has a ſquare tower. The pariſh is extenſive, and contains ſeveral manors and chapelries. The town is principally ſituated in one ſtreet, about three-quarters of a mile in length, and has many reſpectable houſes. Perſhore formerly ſent members to parliament, but none have been returned ſince the 23d year of Edward I. It has a market on Tueſday, and three annual fairs. By the cenſus of 1811 the number of houſes was 408, containing 1910 inhabitants, the greater part of whom are employed in the manufactory of ſtockings.

In the neighbourhood of the town are ſeveral villages of minor importance. Defford is a chapelry to Perſhore, where are ſome ſalt ſprings; and near it is Coppin's court, which formerly had a magnificent edifice, now razed. At Wicton, near Wych, according to biſhop Tanner, a priory of canons of the order of St. Auguſtine was founded by Peter de Corbizon, alias Studley, in the pariſh church of St. Peter, about the latter end of the reign of Henry I. It was afterwards removed to Studley, in Warwickſhire; and, excepting the pariſh church, no traces of any eccleſiaſtical eſtabliſhment remain. Wadborough, three miles N.W. of Perſhore,

ſhore, was formerly called Abbot-wood, from the abbots of the monaſtery having had a park there. Near it is a conſiderable tract of woodland, called "Naſh's plantation." Naſh's Hiſtory of Worceſterſhire, 2 vols. folio. Beauties of England, vol. xv.

PERSIA, or **Persis**, in *Ancient* and *Modern Geography*, a country of Aſia, the limits of which have been various at different periods. Its ancient name was "Elam," or "Elymais," and its inhabitants were denominated "Elamites," as the deſcendants of Elam, the ſon of Shem, and under this appellation they formed, about the time of Abraham, in the 18th or 19th century B.C. a powerful ſtate. The name of Perſia is derived from the oriental term *Pares*, and originating with the province "Pars" or "Fars," it at length comprehended the whole mighty empire. It has been alſo ſometimes called Achemenia, from the name of Achemenes, one of its ancient kings; but more commonly by the natives, and alſo the more intelligent Muſſulmans, "Iran," under which denomination were included all the wide regions to the S. and W. of the Oxus or Gihon; and the countries beyond that river ſubject to Perſia were, in ancient times, denominated "Aniran." Perſia extended, according to the geography of Ptolemy, between Media towards the N., and the Sinus Perſicus or Perſian gulf on the S.; it was ſeparated from Babylonia by Suſiana, and on the W. was Caramania. In ſettling the largeſt boundaries between which it lies, ſir William Jones directs us to begin with the ſource of the Euphrates, and thence deſcend to its mouth in the Perſian gulf, including in our line ſome conſiderable diſtricts and towns on both ſides the river; then coaſting Perſia, properly ſo named, and other Iranian provinces, we come to the delta of the Sindhu or Indus; whence aſcending to the mountains of Caſhgar, we diſcover its fountains, and thoſe of the Iaihun, down which we are conducted to the Caſpian, which formerly perhaps it entered, though it loſes itſelf now in the ſands and lakes of Khwárezm; we next are led from the ſea of Khozar, by the banks of the Cur, or Cyrus, and along the Caucaſian ridges, to the ſhore of the Euxine, and thence, by the ſeveral Grecian ſeas, to the point whence we took our departure, at no conſiderable diſtance from the Mediterranean. We cannot but include the lower Aſia within this outline, becauſe it was unqueſtionably a part of the Perſian, if not of the old Aſſyrian, empire. Thus, ſays our author, we may look on Iran as the nobleſt iſland (for ſo the Greeks and the Arabs would have called it), or at leaſt as the nobleſt peninſula on this habitable globe. The limits aſſigned by nature to Perſia, and which naturally ſubſiſted in the reign of Artaxerxes, the illuſtrious founder of the houſe of Saſſan, are the ſea of Oman or Perſian gulf and Indian ocean to the S.; the Indus and Oxus to the E. and N.E.; the Caſpian ſea and mount Caucaſus to the N.; and the rivers Tigris and Euphrates to the W.; which boundaries comprehend many extenſive provinces and ſeveral kingdoms.

The extent of Perſia, according to the ſtatement of Mr. Pinkerton, is as follows. From the mountains and deſerts, which, with the river Araba, conſtitute the eaſtern frontier towards Hindooſtan, Perſia extends more than 1200 miles in length, to the weſtern mountains of Elwend, and other limits of Aſiatic Turkey. From S. to N., from the deſerts on the Indian ſea, in all ages left to the Icthyophagi, or wild tribes of Arabs who live on fiſh, to the other deſerts near the ſea of Aral, are about 1000 Britiſh miles. The dominion of the preſent king is reſtricted to the provinces of Fars and Irak, Lar, Chuſiſtan, part of Curdiſtan, Adjerbijan, Ghilan, Mazanderam, the weſtern parts of Khoraſan, with the cities of Meſhed, Niſhapour, and Turſhiſh, and the weſtern diviſion of Kerman, including the capital of that province.

It may ſeem ſtrange that the ancient hiſtory of ſo diſtinguiſhed an empire ſhould be ſo imperfectly known; but this is principally owing to the ſuperficial knowledge of the Greeks and Jews, and the loſs of Perſian archives and hiſtorical compoſitions. The firſt Perſian emperor, with whoſe life or character the Grecian writers before Xenophon had any accurate acquaintance, was the great Cyrus, called by ſir W. Jones "Caikhoſrau." After various inquiries and diligent inveſtigation the learned ſir William concludes, that the Iranian monarchy muſt have been the oldeſt in the world; and he has taken conſiderable pains to aſcertain to what race of kings, whether Hindoo, Arabian, or Tartar, or any other, thoſe of Iran belonged. Our author was once of opinion, with other chronologers, that the firſt monarchy eſtabliſhed in Iran was the Aſſyrian; that the Aſſyrian monarchs began to reign about 200 years after Solomon; and that, in all preceding ages, the government of Iran had been divided into ſeveral petty ſtates and principalities. But upon farther reſearch he changed his opinion, and concluded that a powerful monarchy had been eſtabliſhed for ages in Iran before the acceſſion of Cayúmers (ſaid to be the great grandſon of Noah) to the throne of Perſia, in the 8th or 9th century B. C.; that it was called the Mahábádian dynaſty from Mahábád, ſuppoſed by the beſt informed Perſians to be the firſt monarch of Iran and of the whole earth; and that many princes had raiſed their empire to the zenith of human glory. Mahábád, whoſe name is apparently Sanſcrit, divided the people into four orders, *viz*. the religious, the military, the commercial, and the ſervile, to which he aſſigned names unqueſtionably the ſame in their origin with thoſe now applied to the four primary claſſes of the Hindoos. Cayúmers was probably of a different race from the Mahábádians, and his acceſſion ſeems to have been accompanied by a conſiderable revolution both in government and religion. The monarchy eſtabliſhed in Iran long before the Aſſyrian government was, in our author's opinion, a Hindoo monarchy, or as ſome may probably chuſe to call it, Cuſian, Caſdean, or Scythian; and he thinks, that it ſubſiſted many centuries, and that its hiſtory has been ingrafted on that of the Hindoos. At the earlieſt dawn of hiſtory our author diſcovers the three diſtinct races of men, whom he has deſcribed as poſſeſſors of India, Arabia, and Tartary. Conſidering the central poſition of Iran, which is bounded by Arabia, by Tartary, and by India, whilſt Arabia lies contiguous to Iran only, but is remote from Tartary, and divided even from the ſkirts of India by a conſiderable gulf; no country but Perſia ſeems likely to have ſent forth its colonies to all the kingdoms of Aſia. The Brahmans could never have migrated from India to Iran, becauſe they are expreſsly forbidden by their oldeſt exiſting laws to leave the region which they inhabit at this day: the Arabs have not even a tradition of an emigration into Perſia before Mahomet, nor had they indeed any inducement to quit their beautiful and extenſive dominions; and as to the Tartars we have no trace in hiſtory of their departure from their plains and foreſts, till the invaſion of the Medes, who, according to etymologiſts, were the ſons of Madai, and even they were conducted by princes of an Aſſyrian family. The three races already mentioned migrated from Iran, as from their common country: and thus the Saxon Chronicle, as ſir W. Jones preſumes, from good authority, brings the firſt inhabitants of Britain from Armenia, while, according to a very learned writer, who has made laborious reſearches, the Goths or Scythians came from Perſia; and another writer contends with great force, that both the Iriſh and old Britons proceeded ſeverally

rally from the borders of the Caſpian. We may, therefore, ſays ſir William, hold this propoſition firmly eſtabliſhed, that Iran, or Perſia in its largeſt ſenſe, was the true centre of population, of knowledge, of languages, and of arts; which, inſtead of travelling weſtward only, as it has been fancifully ſuppoſed, or eaſtward, as might have been aſſerted with equal reaſon, were expanded in all directions to all the regions of the world, in which the Hindoo race had ſettled under various denominations.

Upon the whole there is reaſon to believe, that the original population of the mountainous country of Perſia was indigenous, or at leaſt no preceding nation can be traced; and in the opinion of the moſt learned and ſkilful inquirers from Scaliger and Lipſius to ſir W. Jones, this nation is Scythian or Gothic, and the very ſource and fountain of all the celebrated Scythian nations. While the ſouthern Scythians of Iran gradually became a ſettled and civilized people, the barbarous northern tribes ſpread around the Caſpian and Euxine ſeas; and beſides the powerful ſettlements of the Getæ and Maſſagetæ, the Gog and Magog of oriental authors, and others on the N. and E. of the great ridge of mountains called Imaus, or Belur Tag, they detached victorious colonies into the greater part of Europe, many centuries before the Chriſtian era.

The ancient Medes and Parthians, in the north of Perſia, ſays Mr. Pinkerton, appear, however, to have been of Sarmatic, or Slavonic origin, and to have ſpread from their native regions on the Volga towards the Caucaſian mountains, along which ridge they paſſed to the S. of the Caſpian, the ancient ſcite of Media and Parthenia. The grand chain of Caucaſus forms a kind of central point of immigration and emigration from the E. and W., whence the great variety of nations and languages, that are traced even in modern times, proceeded.

In tracing the chief hiſtorical epochas of the Perſian empire, Mr. Pinkerton, in his "Geography," firſt mentions the Scythians, as barbarous inhabitants of Perſia, who, according to Juſtin's account, conquered a great part of Aſia, and attacked Egypt about 1500 years before the reign of Ninus, the founder of the Aſſyrian monarchy. (See Monarchy.) Ninus, with whom the hiſtory of the Aſſyrian monarchy commences, is ſaid to have formed an alliance with the king of Arabia, and, in conjunction with him, to have ſubdued all Aſia, except India and Bactriana; or, according to ancient knowledge, he ſubdued Aſia Minor, and the weſt of Perſia. Contemporary with him was Zoroaſter, king of Bactriana, who is ſaid to have invented magic. As Babylon, the capital of Aſſyrian power, was not far to the S. of Bagdad, it is likely that this power extended over great part of weſtern Perſia; and Nineveh, the foundation of which is aſcribed to Ninus, was ſituated oppoſite to Moſul, about 300 Britiſh miles to the N. of Babylon. But the darkneſs and uncertainty of remote antiquity obſcure this part of the hiſtory of Perſia. When Cyrus founded the Perſian empire, 559 years B. C., our knowledge of the ſtate of Perſia becomes more certain and ſatisfactory; and much leſs intermingled with fables than that which is derived from the native Perſian hiſtories, which carry us back to Kayumarras, (Cayúmers,) great grandſon of Noah, and from ancient traditions referring to wars againſt Touran and India, which indicate the primitive eaſtern poſition of the people, and to the foundation of cities in the weſt, as Shiraz, Perſepolis, &c. which could not have had their riſe, conſidering the proximity of the Aſſyrian power, before Cyrus led the Perſians from the N. and the E. to the S.W. The overthrow of the Perſian empire, by Alexander, B. C. 331, (ſee Monarchy), was followed by the Greek monarchs of Syria, and the Grecian kingdom of Bactriana, which commenced about 248 years B. C., and contained ſeveral ſatrapies, among which was Sogdiana. The Perſian empire was revived under the new name of the Parthian, which commenced about 248 years B. C. About the year 220 of the Chriſtian era, Ardſhur, or Artaxerxes, reſtored the Perſian line of kings; and this dynaſty was called Saſſanides. The conqueſt of Perſia by the Mahometans took place A. D. 636. The native kingdom was revived in Coraſan or Khoraſan, A. D. 820; and after ſeveral revolutions reſumed its former ſituation. The acceſſion of the houſe of Bouiah occurred A. D. 934; and that of the houſe of Sefi or Sofi, A. D. 1501, which was the origin of the title of Sofis of Perſia. In this abſtract we paſs over the conqueſts of Zingis and Timur, together with the diviſions and revolutions occaſioned by them: and proceed to the reign of Shah Abbas, the great, A. D. 1586, (ſee Abbas,) to the conqueſt of the Afghans in 1722, and to the conſequent extinction of the houſe of Sofi, and to the elevation of Nadir, ſurnamed Thamas Kouli Khan A. D. 1736. (See Kouli Khan.) The power of the ſucceſſors of Nadir Shah was of ſhort duration: and at length the government of weſtern Perſia was happily ſettled for a conſiderable ſpace of time in the perſon of Kerim Khan, who died in 1779, as ſome ſay in the 30th year of his reign, or according to Dr. Pallas, in his 83d year, after an unconteſted reign of only 16 years. He was acknowledged as ſovereign of Perſia by the Turkiſh emperor, and by the Hindoo ſultan, Hyder Aly. His character was that of a mild and benevolent prince, and the people of Shiraz embalmed his memory with benedictions and tears of gratitude. After a ſcene of confuſion and conteſt, Ali Murad, a kinſman of Kerim, took peaceable poſſeſſion of the Perſian throne: but in advancing againſt Aga-Mamet, or Akau, who had, after the death of Kerim, aſſumed an independent ſway in the Caſpian province of Mazanderam, he fell from his horſe, and inſtantly expired. At the cloſe of Mr. Franklin's narration, Akau held poſſeſſion of the province of Mazanderam, with the cities of Tebriz and Hamadan, and even that of Iſpahan in the ſouth, ſo that his ſway might be ſaid to extend over one-half of weſtern Perſia, while Iaafar, who had returned from an ineffectual expedition, to Shiraz in October 1787, poſſeſſed this city, or the province of Fars, with thoſe of Beabun, and Shuſter in the W., perhaps, ſays Pinkerton, the Kiab and Toſtar of the maps, and he received tribute from Kerman and Lar or Lariſtan, and Abuſhehr or Buſheer in the S., and the city of Yezd in the N. The wide province of Mekran is, probably, with Segiſtan, tributary to the kings of Candahar. The armies of Iaafar and Akau did not each exceed 20,000 men; and they were conſidered as the ſole candidates for the throne of weſtern Perſia. In 1792, as Dr. Pallas informs us, Akau collected an army and conquered the cities of Kaſbin, and Tekheran or Tahiran; and being reinforced with the troops of Ali, khan of Hamſa, advanced againſt Iaafar, who retreating to Shiraz, was killed in an inſurrection. Hidaet, khan of Ghilan, the only remaining rival of Akau, was forced to fly from Raſht, his place of reſidence, but was killed near the port of Sinfili. By theſe events Akau became monarch of all weſtern Perſia; and being an eunuch, he nominated for his ſucceſſor his nephew Baba Serdar.

Eaſtern Perſia is ſeparated in a great degree by high ridges of mountain and ſandy deſarts; and this ſeparation has occaſioned great obſcurity in the ancient hiſtory of the country; as the eaſtern half remains diſtinct and independent, of the ſame general name with the weſtern, but with limits and hiſtory totally different. The ſeries of events after the Mahometan conqueſt; the kingdoms of Coraſan, Samarcand,

cand, and Ghizni; and in recent times that of Candahar, may lead to ſafe concluſions concerning a ſimilar diviſion in remote periods. See CANDAHAR.

The provinces of Perſia are Georgia; Erivan; Aderbijan, or Aiderbeitzan, including Mogan; Ghilan; Mazanderam, or Mazanderan, to the E. of which was the noted province of Hyrcania, now Corcam and Dahiſtan; Irac, or Irac-Agemi; Choſiſtan, or Chuſiſtan; Fars, or Farſiſtan; Kerman; Lariſtan; Mekran, or Mecran; Segiſtan; and Coraſan, or Koraſan; which ſee reſpectively. Beſides theſe provinces, and excluſive of Aſiatic Turkey on the W., the ancient Perſian empire compriſed Bactriana, or Balk, and on the other ſide of the Oxus, Sogdiana. See each in its proper place. Beſides, the fifteenth ſatrapy of Herodotus compriſed the Sacæ and Caſpii, and ſome other tribes nearer the Caſpian ſea. The province of the Sacæ and Caſpii adjoined on the W. to Coraſmia, which belonged to the ſixteenth ſatrapy, and is now the deſart ſpace of Khariſm, with the ſmall territory of Khiva. Herodotus's account of the twenty ſatrapies, or great provinces of the Perſian empire, in the reign of Darius Hyſtaſpes, or Ghuſhtaſp, has been well illuſtrated in a late work of major Rennell, to which we refer the reader.

The principal *religion* of Iran, if we rely on the authorities adduced by Moſhani Fáni, a Mahometan traveller and native of Caſhmire, who compoſed a tract on twelve different religions, entitled the "Dabiſtán," was that, which Newton calls the oldeſt, and it may be juſtly called the nobleſt, of all religions; *viz.* "a firm belief, that one Supreme God made the world by his power, and continually governed it by his providence; a pious fear, love, and adoration of him; a due reverence for parents and aged perſons; a paternal affection for the whole human ſpecies, and a compaſſionate tenderneſs ever for the brute creation." So pure and ſublime a ſyſtem of devotion could not long remain among mortals unperverted; and we learn from the Dabiſtan, that the popular worſhip of the Iranians under Huſhang, long anterior to that of Zeratuſht (Zoroaſter) was purely Sabian, a word which grammarians have deduced from "ſaba," a hoſt, and particularly the hoſt of heaven, or the celeſtial bodies, in the adoration of which the Sabian ritual is believed to have conſiſted. In the learned work juſt mentioned, we have a deſcription of the ſeveral Perſian temples dedicated to the ſun and planets, of the images adored in them, and of the magnificent proceſſions to them on preſcribed feſtivals, one of which is probably repreſented by ſculpture in the ruined city of Jeſhmid at Perſepolis; but the planetary worſhip in Perſia ſeems to be only a part of a far more complicated religion, which we find in the Indian provinces. Mahábád, it is ſaid, received from the creator, and promulgated among men, "a ſacred book in a heavenly language," to which the Muſſulman author gives the Arabic title of "defatir," or regulations, without aſcertaining its original name; and they ſay, that fourteen Mahábáds had appeared or would appear in human ſhape for the government of this world. As we know, ſays ſir W. Jones, that the Hindus believe in fourteen Menus, or celeſtial perſonages with ſimilar functions, the firſt of whom left a book of "regulations" or "divine ordinances," which they held equal to the Véda, and the language of which they believe to be that of the gods, we can hardly doubt, that the firſt corruption of the pureſt and oldeſt religion was the ſyſtem of Indian theology, invented by the Brahmans, and prevalent in the territories, where the book of Máhabád, or Menu, is at this time the ſtandard of all religious and moral duties. The acceſſion of Cayúmers, already mentioned, produced a revolution both in government and religion; he was probably of a different race from the Mahábádians, who preceded him, and began perhaps the new ſyſtem of national faith, which Huſhang, whoſe name it bears, completed; but the reformation was partial; for while they rejected the complex polytheiſm of their predeceſſors, they retained the laws of Mahábád, with a ſuperſtitious veneration for the ſun, the planets, and fire; thus reſembling the Hindu ſects, called "Saurás" and "Sagnicás," the ſecond of which is very numerous at Benares, where many "agnihotrás" are continually blazing, and where the "Ságnicás," when they enter on their ſacerdotal office, kindle, with two pieces of the hard wood "Semi," a fire, which they keep lighted through their lives for their nuptial ceremony, the performance of ſolemn ſacrifices, the obſequies of departed anceſtors, and their own funeral pile. This remarkable rite was continued by Zeratuſht; who reformed the old religion by the addition of genii, or angels, preſiding over months and days, of new ceremonies in the veneration ſhewn to fire, of a new work, which he pretended to have received from heaven, and, above all, by eſtabliſhing the actual adoration of one Supreme Being. He was born, according to Moſhan, in the diſtrict of Rai; and it was he, and not, as Ammianus aſſerts, his protector Gaſhtaſb, who travelled into India, that he might receive information from the Brahmans in theology and ethics. Pythagoras might poſſibly have ſeen him in the capital of Irak; but the Grecian ſage muſt have been then far advanced in years, and we have no certain evidence of an intercourſe between the two philoſophers. The reformed religion of Perſia continued in force till that country was ſubdued by the Muſſulmans; and without ſtudying the Zend, we have ample information concerning it, in the modern Perſian writings of ſeveral who profeſſed it. Bahman, whom we have already mentioned, always named Zeratuſht with reverence; but he was in truth a pure Theiſt, and ſtrongly diſclaimed any adoration of the fire or other elements; he denied, that the doctrine of two coeval principles, ſupremely good and ſupremely bad, formed any part of his faith; and he often repeated with emphaſis, the verſes of Ferduſi, on the proſtration of Cyrus and his paternal grandfather before the blazing altar: "Think not, that they were adorers of fire; for that element was only an exalted object, on the luſtre of which they fixed their eyes; they humbled themſelves a week before God; and, if thy underſtanding be ever ſo little exerted, thou muſt acknowledge thy dependence on the being ſupremely pure." Sir Willian Jones cloſes this detail with avowing as firm a conviction, that the doctrines of the Zend were diſtinct from thoſe of the Veda, as that the religion of the Brahmans, with whom (he ſays) we converſe every day, prevailed in Perſia before the acceſſion of Cayúmers, whom the Parſis, from reſpect to his memory, conſider as the firſt of men, although they believe in an univerſal deluge before his reign.

With the *religion* of the old Perſians, their *philoſophy* was intimately connected; for they were aſſiduous obſervers of the luminaries, which they adored, and eſtabliſhed, according to Moſhan, who confirms in ſome degree the fragments of Beroſus, a number of artificial cycles with diſtinct names, which ſeem to indicate a knowledge of the period, in which the equinoxes revolve; they are ſaid alſo to have known the moſt wonderful powers of nature, and thence to have acquired the fame of magicians and enchanters. Our author proceeds to make ſome remarks on that metaphyſical theology, which has been profeſſed immemorially by a numerous ſect of Perſians and Hindus, was carried in part into Greece, and prevails even now among the learned Muſſulmans, who ſometimes avow it without reſerve. The modern philoſophers of this perſuaſion are called "Sufis," either from the

Greek word for a *Sage*, or from the *woollen* mantle, which they uſed to wear in ſome provinces of Perſia. Their fundamental tenets are, that nothing exiſts abſolutely but God; that the human ſoul is an emanation from his eſſence; and though divided for a time from its heavenly ſource, will be finally reunited with it; that the higheſt poſſible happineſs will ariſe from its reunion, and that the chief good of mankind, in this tranſitory world, conſiſts in as perfect an union with the eternal ſpirit, as the incumbrance of a mortal frame will allow: with other particulars, for which we refer to ſir William Jones's Sixth Diſcourſe. See PERSEES and MAGI.

The *religion* of Perſia at this time is the Mahometan, which, as it was introduced by the ſword, has been followed by its uſual effects, the deſtruction and depopulation of the country. Nevertheleſs the Perſians are ſaid to adopt a milder ſyſtem of this creed, than that which is followed by the Turks and Arabs. As they reject ſeveral abſurdities, they are regarded by the other Mahometans as heretics, and are denominated "Chias," or Schiites, while the pretended true believers aſſume the name of "Sunnis." Chardin has particularly deſcribed the Perſian ſyſtem of Mahometaniſm. The prieſts of this religion, or Mullas, are in Perſia often ſtyled "Akonds," ſignifying leaders; and they not only preach in the moſks, but are often ſchoolmaſters. The Pachnamas are ſuperior Mullas, or vicars of the Imams. The Fakirs or Calenders are wandering monks, or rather ſturdy beggars; who, under the pretext of religion, compel the people to maintain them in idleneſs. See FAKIR.

The *language* of the firſt Perſian empire was the mother of the Sanſcrit, and conſequently of the Zend and Parſi, as well as of Greek, Latin, and Gothic. When Anuſhiravan ſat on the throne of Perſia, two languages ſeem to have been generally prevalent in the great empire of Iran; that of the court, thence named "Deri," which was only a refined and elegant dialect of the "Parſi," ſo called from the province Pars or Fars, of which Shiraz is the capital, and that of the learned, in which moſt books were compoſed, and which had the name of "Pahlavi" or "Pehlavi," either from the heroes, who ſpoke it in former times, or from Pahlu, a tract of land, which is ſaid to have included ſome conſiderable cities of Irak. The ruder dialects of both theſe languages were, and ſtill are, ſpoken by the ruſtics in ſeveral provinces; and in many of them, as Hérat, Zábul, Siſtán, and others, diſtinct idioms were vernacular, as it happens in every kingdom of great extent. Beſides the Párſi and Pahlavi, a very ancient and abſtruſe tongue was known to the prieſts and philoſophers, called "the language of the Zend," becauſe a book on religious and moral duties, which they held ſacred, and which bore that name, had been written in it; while the "Pázend," or comment on that work, was compoſed in Pahlavi, as a more popular idiom; but Bahman, a learned follower of Zerátuſht, and Perſian reader to ſir W. Jones, aſſured him, that the letters of his prophet's book were properly called "Zend," and the language "Aveſta," as the words of the Vedas are Sanſcrit, and the characters "Nagari." The Zend, appropriating the name to the ſacred language of Perſia, and the old Pahlavi, are almoſt extinct in Iran; for among 6 or 7000 Gabres, who reſide chiefly at Yezd, and in Kerman, there are very few who can read Pahlavi, and ſcarcely any who even boaſt of knowing the Zend; while the Parſi, which remains almoſt pure in the "Sháhnámah," has now become, by the intermixture of numberleſs Arabian words, and many imperceptible changes, a new language, exquiſitely poliſhed by a ſeries of fine writers in proſe and verſe, and analogous to the different idioms gradually formed in Europe, after the ſubverſion of the Roman empire. Sir W. Jones aſſures us, that hundreds of Parſi nouns are pure Sanſcrit, with no other change than ſuch as may be obſerved in the numerous vernacular dialects of India; that very many Perſian imperatives are the roots of Sanſcrit verbs; and that even the moods and tenſes of the Perſian verb ſubſtantive, which is the model of all the reſt, are deducible from the Sanſcrit by an eaſy and clear analogy. Hence he concludes, that the Parſi was derived, like the various Indian dialects, from the language of the Brahmans; and he adds, that in the pure Perſian he finds no trace of any Arabian tongue, except what proceeded from the known intercourſe between the Perſians and Arabs, eſpecially in the time of Bahram, who was educated in Arabia, and whoſe Arabic verſes are ſtill extinct, together with his heroic line in Deri, which many ſuppoſe to be the firſt attempt at Perſian verſification in Arabian metre. But beſides, "the compoſition of words," in which the genius of the Perſian delights, and which that of the Arabic abhors, is a deciſive proof that the Parſi ſprung from an Indian, and not from an Arabian, ſtock. After full conſideration, both ſir William Jones and his reader Bahman were convinced, that the Zend bore a ſtrong reſemblance to Sanſcrit, and the Pahlavi to Arabic. The Pahlavi our author conceives to be a dialect of the Chaldaic. By the nature of the Chaldæan tongue moſt words ended in the firſt long vowel, like "Shamià," heaven; and that very word, unaltered in a ſingle letter, is found in the Pazend; together with a multitude of others, all Arabic or Hebrew with a Chaldæan termination. In Pahlavi the verbal terminations of the Perſian are added to the Chaldaic root. All the words cited by the learned judge are integral parts of the language, not adventitious to it, like the Arabic nouns and verbs engrafted on modern Perſian; and this diſtinction convinces him, that the dialect of the Gabres, which they pretend to be that of Zerátuſht, is a late invention of their prieſts, or ſubſequent at leaſt to the Muſſulman invaſion. Our author has further ſhewn, that the language of the *Zend* (which ſee) was at leaſt a dialect of the Sanſcrit, approaching perhaps as nearly to it as the Prácrit, or other popular idioms, which are known to have been ſpoken in India two thouſand years ago. Upon the whole ſir William Jones concludes, that the oldeſt diſcoverable languages of Perſia were Chaldaic and Sanſcrit; and that, when they had ceaſed to be vernacular, the Pahlavi and Zend were deduced from them reſpectively, and the Parſi, either from the Zend, or immediately from the dialect of the Brahmans; but all had perhaps a mixture of Tartarian; for all the beſt lexicographers aſſert, that numberleſs words in ancient Perſian are taken from the language of the Cimmerians, or the Tartars of Kipchak. See PERSIAN *Tongue*.

The more ancient monuments of Perſian *literature* unhappily periſhed when the Mahomedan fanatics conquered the country in the 7th century. One of the oldeſt remains is the famous "Shahnamah," or hiſtory of kings, a long heroic poem of Ferduſi. Sadi, an excellent and entertaining moraliſt, writes in proſe mingled with verſe, like ſeveral of the Icelandic ſages; and a tranſlation of his works is very deſirable. The Anacreon of the Eaſt is Hafiz, whoſe tomb is venerated in the vicinity of Shiraz, and a ſplendid copy of whoſe works is chained to his monument. But the arts and ſciences in general are little cultivated by the Perſians, who are ſaid to be loſt in abject ſuperſtition, and fond believers in aſtrology, a proud ſophiſtry, as Pinkerton juſtly expreſſes it, which connects the little brief deſtiny of man with the vaſt rotation of innumerable ſuns and worlds. The education of the modern Perſians is chiefly military; and their groſs flatteries and obliquity of expreſſion, evince, that they have totally forgotten the noble ſyſtem of their anceſtors, who, in the firſt place, taught their children to ſpeak the truth. The low ſtate of the arts and ſciences in Perſia is the more ſurpriſing, as education is exceedingly cheap. Children are taught at the ſchools, and afterwards at the "Madraſſas," or colleges, to read and write their native tongue, Arabic, moral philoſophy, metaphyſics, and the principles of their religion. Some of theſe colleges are magnificent and richly endowed: they are built in a quadrangular form, with an open court in the centre, divided into a number of cells, which are appropriated to the uſe of the maſters and their ſcholars. Theſe colleges are principally indebted for their origin to kings and other great men, who look upon it as meritorious in the eyes of God and the prophet, to employ their wealth in pious and charitable foundations.

The *poetry* of the Perſians abounds with the moſt ſublime and varied images, as well as the moſt pathetic deſcriptions. There is no country, as it is ſaid, where ſo conſiderable a knowledge of their beſt writers in poetry deſcends even to the loweſt claſſes of the people. The moſt celebrated of the Perſian poets are, as we have ſaid, Sadi, Hafiz, and Ferdúſi. The writings of Sadi inculcate the doctrines of morality. Hafiz ſings of love and wine; but many of his odes are received by his countrymen in a myſtical ſenſe, and are ſuppoſed to allude to the inſtability of the earthly happineſs, and the duties which mortals owe to their creator. In the Shahnamah, the great production of Ferdúſi, the oriental ſcholar will diſcover paſſages, which would not, perhaps, diſgrace the moſt eminent claſſical authors.

In *hiſtorical* compoſition, the Perſians claim little conſideration. All their works of this kind are written ſince the time of Mahomet, and are written, with few exceptions, in an inflated ſtyle, full of exaggeration and embelliſhment. Some of the Perſian *romances* are very beautiful; but the moſt entertaining ſtories have never, for the moſt part, been committed to paper, and are only known from oral tradition. Story-tellers are common in this country, and the king always keeps one to amuſe his leiſure hours.

With regard to *ſcience*, their knowledge is very limited; they poſſeſs ſome knowledge of algebra and geometry, and the moſt learned either really are, or pretend to be, acquainted with the writings of Euclid, Ariſtotle, and Plato, which have been tranſlated into Arabic. Aſtronomy they regard as the moſt ſublime of all ſtudies, probably from its connection with aſtrology, to which they are, as we have ſaid, much addicted. In phyſic and ſurgery they are groſsly ignorant. In ſculpture and painting the Perſians have at no time attained to any degree of perfection. In architecture, as well as ſculpture, the ancient Perſians would appear to have ſurpaſſed their deſcendants, in proof of which we may refer to the ruins of Perſepolis, Shuſter, and Cteſiphon.

The general outlines of all the cities in Perſia are the ſame. They are ſurrounded by a mud, and ſometimes a brick wall, flanked at regular diſtances with round or ſquare towers. The ſtreets are narrow and dirty, having a gutter through the centre; and the houſes, which are low, flat-roofed, and built of brick or mud, have each a ſmall court ſurrounded by a high wall. They have ſeldom any windows to the ſtreet. The palaces of the nobility, though mean in their exterior appearance, are convenient and elegant within: they are divided into ſeveral courts, in the moſt retired of which is the "haram," or apartments of the women. The centre court is uſually ſquare, divided into parterres of flowers, with a jet d'eau continually playing before the window of the "dewan kana," or public hall. The walls and ceilings of this hall are ornamented with a profuſion of paintings, and inlaid with looking-glaſſes; the floor is covered with carpets and numuds; and one entire ſide of the room is occupied by large ſaſh windows of painted glaſs. The apartments of the haram are often fitted up with great taſte and magnificence; but the ſleeping rooms allotted to ſtrangers are generally ſmall. The bazars, or market places, in ſome cities, particularly thoſe of Lar and Shiraz, may be accounted handſome buildings; but the moſques, minarets, and colleges, are the chief ornaments of the Perſian cities.

For an account of the manners and cuſtoms of the Perſians in the 17th century, we refer to Chardin, Thevenot, Sanſon, and other travellers; and an idea of modern manners may be derived from the travels of Gmelin in Ghilan. The Perſians ſtill pride themſelves in univerſal politeneſs and hoſpitality. With a conceit of their ſuperior wiſdom and ſagacity, they blend a paſſionate temper; and their recent commotions have tainted their national character with cruelty. Their temperament is ſanguine; and both rich and poor are generally gay, and indulge immoderate mirth after the moſt violent quarrels.

A late writer deſcribes the Perſians as "a remarkably handſome race of men; brave, hoſpitable, patient in adverſity, affable to ſtrangers, and highly poliſhed in their manners. They are gentle and inſinuating in their addreſs, and, as companions, agreeable and entertaining; but, in return, they are totally devoid of many eſtimable qualities, and profoundly verſed in all the arts of deceit and hypocriſy. They are haughty to their inferiors, obſequious to their ſuperiors, cruel, vindictive, treacherous, and avaricious, without faith, friendſhip, gratitude, or honour." "Frugal in his diet, robuſt in his conſtitution, capable of enduring aſtoniſhing fatigue, and inured, from his infancy, to the extremes of heat and cold, hunger and thirſt, nature ſeems to have formed the Perſian for a ſoldier."

They are much attached to the fair ſex, and not averſe from wine. Their general complexion is fair, with a tint of olive; but thoſe ſouth about Shiraz, in Candahar, and in the provinces towards India, are of a dark brown. They are commonly fat, with black hair, high forehead, aquiline noſe, full cheeks, and a large chin; and the form of the countenance is frequently oval. A Perſian beauty is moſt eſteemed when of middle ſtature, with long black hair, black eyes and eyebrows, long eye-laſhes, fair complexion with very little red, ſmall noſe, mouth, and chin, white teeth, long neck, breaſt not full, ſmall feet and hands, ſlender ſhape, and extremely ſmooth ſkin. In the purchaſe of Georgian and Circaſſian ſlaves, it is probable that theſe marks are as familiar as thoſe of a beautiful horſe among jockies. Thoſe females that are Georgian ſlaves are extremely beautiful and highly animated, but they excel more in the grace and elegance of their perſons than in the regularity of their features. They are ſometimes brought from their native country, as an article of trade; but moſt of them are carried away by the Perſian armies in their predatory incurſions into Georgia. Their price varies according to the ſupply of the market. In 1810 a young and beautiful Georgian girl might be purchaſed for about 80*l.* ſterling. In this country courtezans are not only common, but encouraged by the government; they are regularly licenſed, and pay a duty to the ſtate.

The men are generally ſtrong and robuſt, and inclined to martial exerciſes; but they are particularly ſubject to diſorders of the eyes. They commonly ſhave the head; but the beard is ſacred, and an object of careful attention. To talk diſreſpectfully of his beard, is the greateſt inſult that can be offered to a native of this country; and an attempt to touch it would probably be followed by the inſtant death of the offender. The dreſs of the Perſians conſiſts of a long robe, reaching nearly to the feet, and a high cap, which, when covered with a ſhawl, has ſome reſemblance to the ancient tiara. A ſaſh is bound round the waiſt, in which a ſmall dagger is ſtuck; and no perſon conceives himſelf dreſſed without a ſword. They often wear three or four light dreſſes over one another, faſtened with a belt or ſaſh; and they are fond of large cloaks of thick cloth. The dreſs of the women is extremely ſimple: it is compoſed, in the ſummer ſeaſon, of a ſilk or muſlin ſhift, a looſe pair of velvet trowſers, and an “ulkhaliq,” or veſt. The head is covered with a large black turban, over which a Caſhmirian ſhawl is gracefully thrown, ſo as to anſwer the purpoſe of a veil. In the cold weather, a cloſe-bodied robe, reaching to the knees, and faſtened in front by large gold buttons, is worn over the veſt. This is made of velvet, or “kimcob,” and ſometimes ornamented with jewels.

The natives of Perſia do not recline on cuſhions, in the luxurious manner of the Turks, but ſit in an erect poſture on a thick felt, called a “numud.” They ſeldom or ever have fire in their apartments in the coldeſt ſeaſon; but in order to be warm, fold themſelves in a fur peliſſe, or a “kerounee,” which is a handſome robe of crimſon cloth, lined with ſhawls or velvet. They riſe with the ſun, and having dreſſed and ſaid their prayers, take a cup of coffee, or ſome fruit. They then enter on the buſineſs of the day, if they have any; or elſe ſmoke and converſe until about 11 o'clock, at which time they uſually have their breakfaſt, and then retire into the haram. Here they remain until about 3 o'clock, when they return to the hall, ſee company, and finiſh their buſineſs. Between 9 and 10, the dinner, or principal meal, is ſerved up. Boiled rice variouſly prepared, currie or pillaws, and mutton and fowl differently dreſſed, conſtitute their moſt uſual diſh; of which they eat moderately, but in a manner diſguſting to European delicacy. Their meat is boiled to exceſs, and the meal is enlarged with pot-herbs, roots and fruits, cakes, hard eggs, and above all ſweet-meats, of which they are very fond. Wine they never taſte before company; although in private they are notorious drunkards, and invariably drink before they eat. They are paſſionately fond of tobacco, which they ſmoke almoſt inceſſantly through the whole day; and this conſtitutes the principal amuſement of a man of fortune. Hunting and hawking, as well as various gymnaſtic exerciſes, are their favourite amuſements. By theſe means their bodies become hardened and active; and as they are taught to ride from their youth, they manage their horſes with great boldneſs and addreſs. They frequently uſe the warm bath, but ſeldom change their linen. They are remarkable for cleanlineſs both in their perſons and habitations. Circumciſion is performed by a ſurgeon, ſometimes within ten days after the birth, and at others ten years; but that of girls is unknown, and confined to the Arabs. Marriages are conducted by female mediation, and the ceremonies ſomewhat reſemble the Ruſſian. Polygamy is allowed, but the firſt married is the chief wife. Burials are conducted with little ſplendour, and the day of death is commonly that of ſepulture. They believe that a particular angel is the ſole author of death, by the ſpecial command of God: hence ſuicide is very rare, and duels abſolutely unknown. The wives of the peaſantry are employed in the management of the houſe; they never go abroad without covering the lower part of the face with a veil. In the higher circles, they are almoſt always confined to their cell in the haram, and chiefly paſs their time in drinking coffee, and ſmoking the “calcan;” but agreeably to the practice of the Mahometans, little attention is paid to the improvement of their minds.

The *government* of Perſia appears to have been always deſpotic. That of eaſtern Perſia, or the kingdom of Candahar, is repreſented as mild; and it is to be hoped, that of weſtern Perſia, when firmly eſtabliſhed, will aſſume the ſame character. The preſent monarch rules with an abſolute ſway, and he is under no reſtraint in the exerciſe of his power; and has an uncontrolled dominion over the lives and property of his ſubjects. Here is no ſenate or national aſſembly of any kind. The functions of government are exerciſed by the ſovereign and his two principal miniſters, the “vizier azem,” or grand vizier, and the “ameen a doulah,” or lord high treaſurer. The former ſuperintends every thing connected with foreign relations, and even commands the armies, in the abſence of the king or the prince. The latter, who is ſubordinate to the other, principally attends to internal arrangements, ſuch as the collection of the revenues, and the cultivation of the lands. Subordinate to the miniſtry is a regular gradation of officers, who occupy poſts in the houſehold, army, and revenue departments. The governors of the provinces aſſume the title of “beglerbegs;” thoſe of the diſtricts that of “hakim,” or “zakit;” and each village is under the management of a “khet khodah.” The juriſprudence of this empire is founded, as in other Mahometan ſtates, on the doctrines of the Koran. The “ſchiek ool iſlam” is the nominal judge of civil and criminal law; but the governors of the different towns and provinces are, in reality, the perſons who decide in caſes of importance. In the capital the king himſelf daily ſits in judgment, and the award is not always conſonant to juſtice. The moſt common puniſhments to men of exalted rank are death and deprivation of ſight; and to thoſe of the lower orders, mutilation and the baſtinado on the ſoles of the feet. Theft is a crime always puniſhed with the moſt unrelenting ſeverity. The body of the culprit is ſometimes torn aſunder, by being bound to the branches of trees afterwards ſeparated. Trifling diſputes are, in general, ſettled by the “cazi” and “daroga” of the bazars.

The ſtanding *army* of the empire, as it may be called, conſiſts of the king's body guard, amounting to about 10,000 men, and the “gholaums,” or royal ſlaves, who are about 3000. But the military force of the Perſian empire is conſtituted by the number and bravery of the wandering tribes. When the ſovereign wiſhes to aſſemble an army the chiefs of the different tribes are commanded to ſend to the royal camp a number of men, proportioned to the power and ſtrength of each tribe. The army, thus aſſembled, conſiſts chiefly of cavalry; and as they ſeldom receive either clothing or pay, they are only kept together by the hope of plunder. The preſent king, by an extraordinary effort, might probably, in this way, be able to collect together a force of 150,000 or perhaps 200,000 men. The rulers of Perſia have entruſted the defence of their dominions to the cavalry, which is excellent. Their arms are a ſcymetar, a brace of piſtols, a carabin, and ſometimes a lance, or a bow and arrow, all of which they uſe alternately, at full ſpeed, with the utmoſt dexterity. The piſtols are either ſtuck in the girdle, or in the bolſters of the ſaddle; the carabin or the bow is ſlung acroſs the ſhoulder; and the lance, which is light and ſhafted with bamboo, is wielded in the right hand. As the Perſian armies receive no regular pay, but are kept together merely by the hope of plunder, it is conſidered as incumbent on the king to take the field once a year, againſt the Ruſſians, Afghans, or Turcomans, his immediate neighbours. But they know nothing of war as a ſcience; and they are entirely ignorant of the principles of fortification, and of the arts of attack and defence. The chief artillery is compoſed of “zumbarooks,” or ſmall ſwivels, mounted on and fired from the backs of camels. Their roads do not allow of the tranſportation of cannon. In the organiſation of their armies they are in total want of good officers, and conſequently no proper ſubordination prevails among them.

The ſtate of the people ſeems to be deplorable, under the arbitrary power of the numerous khans or chiefs. As to the *population* of Perſia, it cannot be juſtly eſtimated; but perhaps it little exceeds that of Aſiatic Turkey, which has been computed at 10 millions. Of theſe perhaps ſix millions may belong to weſtern Perſia; while the other four contribute towards the population of the kingdom of Candahar. The population of the Perſian empire was eſtimated by Chardin at about 40 millions of perſons; but this eſtimate is univerſally allowed far to exceed the real amount. A modern writer (Mr. J. M. Kinneir) queſtions whether the inhabitants of all the countries between the Euphrates and the Indus would now be found to amount to more than 18 or 20 millions; including in this computation the "Illiats," or wandering tribes, who probably exceed in number thoſe who reſide in towns. Theſe tribes conſtitute the military force; and their chiefs, to whom they are entirely devoted, the hereditary nobility of this great empire. Theſe are of Turkiſh origin, and ſtill ſpeak the language, and preſerve the manners of their Scythian anceſtors. The land granted to each tribe, on its introduction to the country at a remote period, is now, in conſequence of long poſſeſſion, conſidered as the property of the different chiefs. Theſe tribes, for the moſt part, follow the paſtoral life. Their tents are walled with mats, and covered with a coarſe kind of black cloth, manufactured by themſelves. In the fine ſeaſon they are moving in ſearch of paſturage; but in winter, ſeveral of the tribes ſettle in villages. In Dahiſtan, Aſtrabad, and the northern parts of Khoraſan, they live in ſmall portable houſes, inſtead of tents. They principally ſubſiſt on the produce of their flocks, and grow little corn. They manufacture cloth, and ſeveral other ſmaller articles for their own uſe; and the moſt beautiful Perſian and Turkiſh carpets, ſo much admired in Europe, are the works of the Illiats. Inured from their infancy to every danger and fatigue, and tenacious, at the ſame time, of the honour of their tribe, they are at once the prop and the glory of their country. Each tribe is divided into "teeras," or branches; and each "teera" has a particular leader, all of whom are, however, ſubſervient to the chief. The chiefs are, from birth and influence, the firſt men in the empire: they are always mutually jealous and hoſtile; and the king, by fomenting their quarrels, and thus nicely balancing the power of the one againſt that of the other, inſures his own ſafety, and the peace of his dominions.

The moſt numerous and powerful of the Perſian tribes are the Búcktiari, who furniſh the beſt infantry in the kingdom, and the Fielhi, both of whom pitch their tents in the fertile diſtricts of Lauriſtan, between Shuſter, Iſpahan, and Kermanſhaw; the Afſhar, to which Nadir Shah belonged, diſperſed all over the kingdom; the Kafar, of which the preſent king is the head, who are in poſſeſſion of Aſtrabad and Mazanderam; and the Karagoozli, or black-eyed tribe, who inhabit the plains of Hamadan, and who are eſteemed the fineſt horſemen. The Búcktiari and Fielhi live in a remote and very mountainous territory, bordering on the Turkiſh and Perſian empires, and in a great meaſure independent of both, are at beſt but a lawleſs and ſavage banditti. They poſſeſs the country of the Coſſaens and Uxians, whoſe habits they alſo reſemble.

The army of weſtern Perſia united, and ſomewhat reinſtated in proſperity, might amount to about 100,000 effective men, and this probably may be the amount of that of Candahar. The chief merchants in Perſia are the Armenian Chriſtians and the Hindoos, ſo that the commerce of the country has been always in the hands of ſtrangers. The name of a warlike navy has been altogether unknown. The revenue of Perſia cannot be accurately aſcertained; but it is thought probable that the monarch of Candahar may clear from his various provinces about three millions ſterling; while weſtern Perſia ſcarcely ſupplies two millions. The whole revenue has been by ſome eſtimated at 700,000 tomans, the toman being computed at about *3l. 7s.* or about 32 millions of French livres. The revenue, as ſtated by the writer above named, does not much exceed three millions, and is derived from two ſources; the tax on land, and the duties and impoſts on all kinds of merchandize. This writer ſuggeſts, that the tax on land belonging to the crown or to individuals, may probably amount to two-thirds of the whole.

The capital city of Perſia is Iſpahan, which ſee: and the ſecond city is Shiraz, which alſo ſee. The other cities are Tefflis, Derbent, Erivan, Tebriz or Tauriz, Raſht, Sari, Biſtam, Khavar, Tahiran, Caſbin, Sultania, Hamadan or Amadan, Kom, and Caſhan, which ſee reſpectively. On the banks of the Ahwaz, or ancient Choaſpes, Kiab and Ahwaz are of ſmall account: nor is Toſtar, or Shuſter, though the capital of a province, of much account. In the proximity of the Perſian gulf, Kazerun, Firuzabad, and Jarun or Yarun, hardly deſerve mention. Lar (which ſee,) is the capital of a province. For the towns on the Perſian gulf, ſee Persian *Gulf.* Tiz and Gaudal are two ports on the coaſt of Mekran, of no great importance. The capital of Kerman is Yezd, which ſee. North of Yezd is Hirabad, which ſee. The other cities of weſtern Perſia ſcarcely deſerve commemoration. In paſſing to the eaſtern diviſion, or the kingdom of Candahar, we find Cabul, the metropolis, and Candahar, a city of ſmall ſize, chiefly worthy of notice as the grand paſſage between theſe extenſive empires. Zarang is ſuppoſed to equal any city in Segiſtan; and the other chief towns on the Hinmend are Dargaſp, Boſt, and Rokhage or Arokhage. The dominion of Zemaun Shah compriſes a conſiderable portion of Koraſan. Here we find Herat, Meſchid, &c. The ſouthern province of Mekran naturally coincides in allegiance with Segiſtan and Sindi to the empire of Candahar: but its northern limits have not been defined, though major Rennell informs us that they include Gaur, a conſiderable city and province. Bamian belongs to the ſame portion of Bucharia. After this curſory mention of ſome of the principal places in eaſtern and weſtern Perſia, we refer for a more particular deſcription of them to the articles that occur under their reſpective names.

The manufactures and commerce of Perſia may be ſaid to be annihilated; though a few carpets ſtill reach Europe at extravagant prices. The trade with Ruſſia and the Caſpian is of ſmall account, conſiſting of ſalt and naphtha from Baku, and ſome ſilk from Shirvan and Ghilan. The Perſian merchants alſo bring goods to Balfruſh, the largeſt town in Mazanderam, where they trade with thoſe of Ruſſia. On this ſubject the reader will derive ſatisfactory information from the Travels of Mr. Hanway; the ſecond edition of which was publiſhed in 2 vols. 4to. 1754. From Chardin we learn what was the ſtate of the manufactures and commerce of this country in the 17th century. Embroidery on ſilk, cloth, and leather, had attained high perfection: earthen-ware was made throughout Perſia; but the beſt was that of Shiraz, Meſchid, Yezd, and Zarang, where it was ſingularly beautiful, equalling the Chineſe porcelain in fineneſs and tranſparency: ſome ſorts reſiſted fire, and the fabric was ſo hard as to produce laſting mortars for grinding various ſubſtances. (See Murrhine.) The manufactures of leather and ſhagreen were alſo excellent; and they were diſtinguiſhed for their braziery, uſing the tin of Sumatra for lining their veſſels. The bows of Perſia, its finely damaſked ſabres, its razors, and other works in ſteel, were in high eſtimation; and the Perſians excelled in cutting precious ſtones, and dyeing bright and laſting colours. Their cotton and woollen cloths, and thoſe made of goats' and camels' hair, with their ſilks, brocades, and velvets, were ſuperior manufactures. The carpets, chiefly from the province of Segiſtan, were brought to Europe through Turkey, and in Chardin's time called Turkey carpets: they were valued by the number of threads in the inch, being ſometimes 14 or 15. The ſtuffs made of camels' hair were ſupplied chiefly from Kerman, and thoſe of goats' hair from Mazanderam; but the cotton cloths were obtained principally from Hindooſtan; but the fabric of broad cloth was unknown, and ſupplied by a kind of felt. The ſtandard native merchandize was ſilk. To Hindooſtan were ſent tobacco, preſerved fruits, eſpecially dates, wines, horſes, porcelain, and leather of different colours: to Turkey, tobacco and kitchen utenſils: and to Ruſſia, manufactured ſilks. The little commerce which the country now enjoys is principally carried on by the Armenians, whoſe habits, migrations, and induſtry, bear ſome reſemblance to thoſe of the Jews. They are ſcattered over the kingdom, and are held in greater reſpect by the Perſians than is conſiſtent with the intolerant precepts of the Koran. They ſeldom intermarry with any other ſect, and preſerve inviolate the religion and cuſtoms of their anceſtors. As they are never allowed to interfere either in political or military concerns, their cowardice is proverbial. The principal colony of Armenians was that brought from Julfa, on the banks of Araxes, and eſtabliſhed by Shah Abbas the Great at Iſpahan. This colony, in the time of Chardin, amounted to 14,000 families; but the tyranny of the Afghans, and ſubſequent civil wars, have reduced the extenſive and beautiful ſuburb of Julfa to a heap of ruins, and its inhabitants to about 400 families. The Armenians, however, are not confined to Iſpahan, but are to be found in all the commercial towns of the empire. The chief imports from India are ſugar, indigo, ſpice, cloths, piece goods, chintz from Maſulipatam, woollen cloths, cutlery, and other European articles. From Aſtrachan, cutlery, woollen cloths, watches, jewellery, arms, and fine glaſs are imported. The returns for theſe articles are bullion, raw ſilk, pearl, ſhawls, carpets, wine, and horſes.

The climate of Perſia is various in different parts; depending leſs on difference of latitude, than on the nature and elevation of the country, ſo that it is ſaid to be the country of three climates. The northern provinces on the Caſpian are comparatively cold and moiſt: in the centre of the kingdom, as Chardin obſerves, the winter begins in November, and continues till March, commonly ſevere, with ice and ſnow, the latter falling chiefly on the mountains, and remaining on thoſe three days' journey W. of Iſpahan for eight months in the year. From March to May high winds are frequent; but from May to September the air is ſerene, refreſhed by breezes in the night. The heat, however, is during this period exceſſive in the low countries, bordering on the Indian ocean and Perſian gulf, in Chuſiſtan, the deſarts of Kerman, and alſo in ſome parts of the interior, particularly at Tehraun, the capital. From September to November, the winds again prevail. In the centre and ſouth the air is generally dry; thunder and lightning are uncommon; and a rainbow is ſeldom ſeen; earthquakes are almoſt unknown; but heat is often deſtructive in the ſpring. Near the Perſian gulf the hot wind, called "Samiel," ſometimes ſuffocates the unwary traveller. The ſummers are, in general, very mild, after aſcending the mountains. To the N. of Shiraz the winters are ſevere, inſomuch, that in the vicinity of Tehraun and Tabreez, all communication is cut off, for ſeveral ſucceſſive weeks, between theſe cities and the adjoining villages. The climate, notwithſtanding this ſudden tranſition from heat to cold, is ſingularly healthy, with the exception of the provinces of Ghilan and Mazanderam. The air is dry; the dews not inſalubrious. The atmoſphere is always clear, and at night the planets ſhine with a degree of luſtre unknown in Europe; and as it ſeldom rains, here are none of thoſe damps or peſtiferous exhalations ſo common in the woody parts of Hindooſtan.

The diſtinguiſhing features of this country are a deficiency of rivers and a multitude of mountains: its plains, where they occur, are generally deſart. So that Perſia may be divided into two parts by deſarts and mountains, and this diviſion, it is ſaid, has generally influenced its hiſtory and deſtinies in all ages. The ſoil may be regarded as unfertile, and, according to Chardin, not more than one-tenth part was cultivated in his time. The mountains of this country, which are for the moſt part rocky, without wood or plants, are interſperſed with vallies, ſome of which are ſtony and ſandy, and ſome conſiſting of a hard dry clay, which requires much watering; and hence the Perſian farmer is much employed in irrigation. What has now been ſaid relates to the central and ſouthern provinces; thoſe in the north being ſufficiently rich and fertile. The moſt common grain of Perſia is wheat, and this is excellent. Rice is a more univerſal aliment, and regarded by the Perſians as delicious: this is generally produced in the northern provinces, thoſe being the beſt watered: barley and millet are ſown, but oats are little cultivated. In Armenia there is ſome rye. The plough is ſmall, and drawn by lean cattle, ſo that it merely ſcratches the ground. After the plough and harrow, the ſpade is uſed for forming the ground into ſquares, with ledges or little banks to retain the water. The dung is chiefly human, and that of pigeons mingled with earth, and preſerved for two years to diminiſh its heat. In the N.W. countries the vines are interred during the winter; and when inſects attack the tree, they lay freſh earth to the roots. The nature of the ſoil in this country varies almoſt as much as the climate; in the ſouthern and eaſtern provinces it is light and ſandy: in the weſtern and interior parts, hard and gravelly; and in the northern diviſion, which borders on the Caſpian ſea, rich and loamy. The ſilk worm is cultivated in moſt parts of the country, but particularly in the province of Ghilan, and the vicinity of Kaſhan; cotton, indigo, and tobacco, are alſo raiſed; and no country can exceed this in the variety or flavours of its fruits. The preſent depreſſed ſtate of agriculture is owing, in a great meaſure, to the unſettled nature and diſpoſition of the government, which affords no protection to private property, and offers no encouragement to induſtry.

The rivers of Perſia, not taking into account the Euphrates, Tigris, and Indus or Sinde, which are not properly Perſian, are the Ahwaz (ſuppoſed by ſome to be the Gyndes of Herodotus), the Zeindeh of d'Anville, and called by the Turks Kara Sou (ſee Karasa), or the black river; which is reckoned one of the moſt conſiderable in Perſia, and purſues a courſe of about 400 Britiſh miles, from the mountains of Elwend to the eſtuary of the Tigris and Euphrates:—the Rud, or Divrud, the principal of thoſe rivers that flow from the range of mountains in the N.E. and fall into the Perſian gulf :—the Krenk and Mekſhid, rivers of Mekran, which join and form the river of Mend, ſo called from a town by which it paſſes :—the Haur and the Araba, the latter of which ſerves as a boundary towards Hindooſtan :—the large river of Gihon, or Amu, in the N.E. :—the river Tedjen, or Tedyen, to the W., being the ancient Ochus, and flowing into the Caſpian :—the Kizil Ozen, or Sefid Rud, riſing, according to d'Anville, in the mountain of Elwend, not far N. of Hamadan, and by a winding courſe running into the Caſpian ; which river is the Mardus of antiquity,—and the Swidura of Gmelin, riſing on the confines of Turkey, and falling into the ſea below Langorod ; abounding in pike, carp, and other kinds of fiſh, eſteemed by the Perſians ; and, as Gmelin ſays, in ſturgeons :—farther to the N., the large river Aras, the ancient Araxes, which falls into the Kur or Cyrus (ſee Kur) :—the central rivers of Perſia, ſoon loſt in ſandy deſerts, are the Zenderud, riſing in the weſtern chain of Elwend, paſſing by Iſpahan, and ſoon after loſing itſelf in the ſand :—the Koh Aſp of d'Anville, the Correng of Chardin, which paſſes by Shuſter :—the Bundamir (which ſee) :—the Kuren, a conſiderable ſtream from the N.E. that flows into the lake Baktegan : —and the Hinmend, or Hindmund, which ſee.

The lakes of Perſia are the Aria Palus of antiquity (ſee Aria) :—the ſalt lake of Baktegan (which ſee):—the large lake of Urmia (ſee Urmia):—the lake Van :—and the lake of Erivan, about 120 Britiſh miles to the N. of Urmia, about 25 leagues in circumference, with a ſmall iſle in the middle : this lake abounds with carp and trout, and is the Lychnites of Ptolemy.

In preſenting to our readers a brief view of the mountains of Perſia, the firſt object that merits attention is the direction of its chief chains. To theſe we may refer the Caucaſian ridge (ſee Caucasus):—the Hindoo-Kho, which is an extenſion of the Belur-Tag (ſee both theſe articles) :—the Elwend, ſo called from a particular mountain in the vicinity of Hamadan, and reckoned the greateſt chain of mountains in Perſia, of very great height, extending to the ſouth of the lake of Urmia, where it is connected with the Caucaſian ridge :—a parallel ridge on the W., called by the Turks Aiagha Tag, ſuppoſed to be the Zagros of the ancients, which ſeparated Aſſyria from Media, and extending to the lake of Van :—and Hetzardara, (which ſee). Chardin conſiders the noted Damavend of the Perſians, as a ridge dividing Hyrcania from Parthia ; that is, in other words the mountains of Mazanderam ; and he adds that of the mountains between Fars and Kerman, the moſt remarkable is called Jaron ; but the mountains of Kurdiſtan alone preſent foreſts. The great weſtern range of mountains is called in ſome parts the mountains of Looriſtan ; and more to the S. the Adervan and Dinar, with Ajuduk, N. of Lar. It detaches ſome remarkable branches to the S.E., as that on the W. of Kom, Caſhan, Nathan, &c. which from a particular mountain may be called the range of Elburz. Another branch ſpreads to the S. of Iſpahan, which d'Anville conſiders as the ſame with what the Perſians call the thouſand mountains, or Hetzardara. Still more to the S. a large and extenſive branch extends between the rivers Kuren and Bundamir ; and preſents on the weſtern ſide of its further extremity the noted ruins of Perſepolis. The paſs of Khavar is near the ſouthernmoſt extent of the Caucaſian heights of the Mazanderam ; and Mr. Pinkerton thinks there is no reaſon for believing that any ridge extends into the great Saline deſert. We learn from Mr. Forſter that there are no ranges from Candahar to Koraſan. Herat ſtands on a plain ; but to the N. of Dochabad and Turſhiz, there is a range of mountains covered with ſnow. About three miles E. of Khanahoody, a chain of mountains of ſome height extends N. and S.

Some have repreſented the province of Fars as ſeparated from Kerman by a range of mountains ; but the real barrier is a deſert of ſand, extending from the S. of the lake Baktegan to the proximity of Zarang, and connected with the great deſert which divides Perſia into two parts. There are no mountains of conſequence on the E. of Fars. A low range, called Meder by d'Anville, paſſes N.E. through the heart of Kerman ; while that country is divided from Mekran by a range in the ſame direction, called by d'Anville Kofez. Some other nameleſs ranges traverſe Mekran in the ſame direction ; that neareſt Hindooſtan being called by Rochette the Lakhee mountains. On the N. of Mekran, a conſiderable range runs E. and W. which has not been named by d'Anville ; but it ſeems, ſays Pinkerton, to be the Becius of Ptolemy. Further to the N., the mountains of Wulli extend from the neighbourhood of Shatzan acroſs to the lake of Vaihind, and may be conſidered as forming one range with that on the N. of Mekran, called by La Rochette Gebelabad. This range however terminates in the great deſert to the S. of Zarang. In the E. of Segiſtan there is a ridge N. and S. called Soliman Koh, or the mountains of Soliman. It is probable alſo, that there are mountains of conſiderable height on the N. and W. of the ſea of Zurra ; one called Berſhek, and another Ouk, the former being noted for a fire-temple, the reſort of the Guebres or Gabres.

The deſerts of Perſia are the following : on the E. of the Tigris, N. lat. 33°, a conſiderable deſert commences, pervaded by the river Ahwaz, and extending to the N. of Shuſter, which is about 140 Britiſh miles in length from E. to W., and about 80 in breadth, and is now inhabited by the wandering tribe of Arabs called Beni Kiab.

The great Saline deſert extends from the vicinity of Kom, or Koom and Kaſhan, to that of the ſea of Zurra, in a line from E. to W. of about 400 Britiſh miles, and from N. to S. in breadth about 250 ; but joining in the latter quarter with the great deſert of Kerman by the Nauben Dejian, which extends about 350 miles. Theſe two extenſive deſerts may thus be conſidered as ſtretching N.W. and S.E. for a ſpace of about 700 miles, by a medial breadth of about 200 (not including in the length the other 200 miles of the deſert of Mekran) ; thus interſecting the wide empire into two nearly equal portions. This immenſe extent is impregnated with nitre and other ſalts, which taint the neighbouring lakes and rivers. In the bay of Mekran, and towards the Indus, are other deſerts of great extent.

A third great deſert, that of Karakum, or the black ſand, forms the northern boundary of Koraſan and modern Perſia. The deſert of Margiana is placed by Ptolemy on the N.W. of Aria ; and if, with d'Anville, we ſuppoſe Margiana to have derived its name from the river Margus, or Morgab, this deſert may be in the vicinity of Badkis.

The Perſian foreſts are reſtricted to a few ſpots in Koraſan, the mountains of Mazanderam and Ghilan, and thoſe towards Kurdiſtan. But timber is chiefly ſupplied by Mazanderam, which from this circumſtance receives a name ſignifying the land of oxen.

The indigenous vegetables of Perſia are very much unknown. The ſaline deſerts are for the moſt part deſtitute of trees, and ſupport hardly any plants except thoſe that are alſo found on the ſea-ſhore. On the high mountains they are much the ſame as thoſe obſerved on the Alps of Switzerland and Italy. The plants on the hills and plains adjoining the Caſpian are better known. On the mountainous ridges are found the cypreſs, the cedar, and ſeveral kinds of pines, while the lower hills and ſcars of rock are ſhaded and adorned with lime-trees, oaks, acacias and cheſnuts: the ſumach is alſo abundant, and the fraxinus ornus, or manna aſh-tree, is leſs common. The moſt eſteemed of the cultivated fruits of Europe are indigenous in Perſia, and have probably been diffuſed from hence over the whole weſt. Theſe are the fig, the pomegranate, the mulberry, the almond, peach and apricot. Orange-trees of an enormous ſize are found in the ſheltered receſſes of the mountains, and the deep warm ſand on the ſhore of the Caſpian is peculiarly favourable to the culture of the citron and the legumina. Apples, pears, cherries, walnuts, melons, beſides the fruits already mentioned, are every where to be procured at very low prices; the quinces of Iſpahan are the fineſt in the Eaſt; and no grape is more delicious than that of Shiraz. In the provinces bordering on the Caſpian ſea, and mount Caucaſus, the air is perfumed with roſes and other ſweet-ſcented flowers. Among the vegetable productions we may enumerate cabbages, cucumbers, turnips, carrots, peaſe, and beans; and the potatoe, which has been lately introduced, thrives remarkably well. Poppies, from which an excellent opium is extracted, ſenna, rhubarb, ſaffron, and aſſafœtida, are produced in many parts of the kingdom. The vine grows here luxuriantly, and further to the S. cotton and ſugar are articles of common cultivation. Poplars, large and beautiful, and the weeping willow, border the courſe of the ſtreams, and the marſhy tracts abound with the kind of ruſh that ſerves for the fine Perſian matting. Ornamental ſhrubs or herbaceous plants are little known; but the jaſmine, the blue and ſcarlet anemone in the thickets, and the tulip, and ranunculus in the paſtures, are abundant and beautiful, and give an air of elegance to the country.

According to Chardin, the Perſian horſes are the moſt beautiful in the Eaſt; but they yield in ſpeed, and, as ſome ſay, in beauty alſo, to the Arabian. However, they are larger, more powerful, and all things conſidered, better calculated for cavalry than thoſe of Arabia. There are ſeveral breeds of horſes, but the moſt valuable is that called the Turkoman, which are ſo hardy, that they have been known to travel 900 miles in eleven ſucceſſive days. The Arabian blood has alſo been introduced into this country. Their uſual food is chopped ſtraw and barley; their bed is made of dung, dried and pulverized, and every morning regularly expoſed to the ſun. They are clothed with the greateſt attention, according to the climate and ſeaſon of the year; and during the warm weather kept in the ſtable during the day, and taken out at night.

Mules are alſo here in conſiderable requeſt, and the aſs reſembles the European: but a breed of this animal has been brought from Arabia, of an excellent kind, the hair being ſmooth, the head high, and the motion ſpirited and agile. Although the mules are ſmall, they are fairly proportioned, carry a great weight, and thoſe that are intended for the ſaddle are taught a fine amble, which carries the rider at the rate of five or ſix miles an hour. The camel is alſo common; and theſe animals are exported from Perſia to Turkey, which have, as Chardin ſays, only one hunch, while thoſe of India and Arabia have two. The Perſian cattle in general reſemble the European: ſwine are ſcarce, except in the N.W. provinces. The flocks of ſheep, among which are thoſe with large tails, are moſt numerous in the northern province of Erivan, or the Perſian part of Armenia, and Balk. The few foreſts abound with deer and antelopes; and the mountains ſupply wild goats, and probably the ibex, or rock goat. Hares are common. The ferocious animals are chiefly concealed in the foreſts, ſuch as the bear and boar, the lion in the weſtern parts, the leopard, and as ſome ſay, the ſmall or common tiger. Seals occur on the rocks of the Caſpian. The hyæna and chackal belong to the ſouthern provinces. The ſeas abound with fiſh of various deſcriptions: the Caſpian affords ſturgeon, and delicious carp. The moſt common river-fiſh is the barbel. The ſame ſorts of wild and tame fowl are common in Perſia and in Europe, with the exception of the turkey, whoſe nature does not ſeem to be congenial to this climate. Pigeons are numerous, and partridges are large and excellent. The boolbul, or oriental nightingale, enlivens the ſpring with his varied ſong.

The Perſians have been long accuſtomed to tame beaſts of prey, and even to hunt with lions, tigers, leopards, panthers, and ounces.

As to the mineralogy of this country, it affords neither number nor variety of treaſures. Chardin aſſures us, that it has no mines of gold or ſilver. The lead mines of Kerman and Yezd produce the uſual mixture of ſilver. In the northern provinces there are many mines of iron, but the metal is harſh and brittle. Mines of ſteel ore, or carbonated iron, are alſo wrought in the ſame diſtricts, and theſe are ſo impregnated with ſulphur, that the filings, when thrown in the fire, flaſh like gunpowder. Copper is chiefly found on the mountains of Mazanderam, and near Caſbin, but it is brittle. There are two mines of the turquoiſe, one at Niſhapour in Koraſan, and another in a mountain called Feruzkoh, S. of the Caſpian. The pearls of the Perſian gulf have been long famous. (See Pearl.) Otter, an intelligent traveller in Perſia, ſays, that among the articles ſold in the bazars of Iſpahan are diamonds of Golconda; rubies, topazes, and ſapphires of Pegu; emeralds of Said or the Thebais; and balay rubies from Bedakſhan, a country between the rivers Gihon and Murgab, which alſo produces lapis lazuli, amianthus, and rock cryſtal. Sulphur and nitre are found in the mountains of Demavend: whole deſerts are, in ſome inſtances, covered with ſulphur, and others with ſalt, that near Caſhan being remarkably pure. Rock-ſalt is found near Iſpahan, and in the dry climate of Kerman, if we may credit Chardin, it is even employed in building. Free-ſtone, marble, and ſlate, are chiefly obtained from Hamadan; and near Tauriz is a marble, as Chardin calls it, which is tranſparent, like rock-cryſtal, through tables an inch in thickneſs, of a white colour, blended with green, probably a kind of jade. Towards the Tigris are pools of bitumen, or rock-tar, and naphtha abounds near Baku. In Erivan and Fars are mines of talc, and of a pure white marl uſed like ſoap. For an account of the mumia of Koraſan, ſee Mummy. Although mineral waters abound in this mountainous country, they are generally diſregarded both by the phyſicians and the people.

Barbarous princes ſeem to have entertained the idea, that bad roads contribute to the ſecurity of their dominions. The Turks and Perſians are, without doubt, of this opinion; for the public highways, and particularly thoſe that lie towards the frontier, are very much neglected. The only mode of travelling is by riding either a mule or an aſs. For women of high rank, and for ſick perſons, there is, indeed, a vehicle, called a "tukte rowan," which is tranſported by two mules, one before and the other behind; but the women and children of the poor are carried in baſkets, flung acroſs the back of a mule or camel. The length of the ſtage (which ſometimes exceeds forty miles), and badneſs of the accommodation, render travelling very unpleaſant. Here are no regular eſtabliſhments for the tranſmiſſion of intelligence, and therefore it is neceſſary for the diſpatch of letters from one part of the kingdom to another, to ſend a "chupper," or expreſs horſeman, or a meſſenger on foot, who is called "caſſid." Although the diſtance be ever ſo great, the chupper ſeldom changes his horſe; for in Perſia, there are no poſt-houſes and relays of horſes as in Turkey. They travel at the rate of four or five miles an hour, and have been known to go from Tehraun to Buſheer, a diſtance of 700 miles, in the ſpace of ten days. The caſſids will alſo travel for many days ſucceſſively at the rate of ſixty or ſeventy miles a day.

Among the chief natural curioſities of this country, we might mention the fountains of naphtha, in the vicinity of Baku, and in the adjoining promontory of Abſheron; and the blue flame iſſuing from the ground, and particularly from an horizontal gap, about ſixty feet long by three broad, in a neighbouring rock. The naphtha is much uſed by the Perſians, and particularly by the poorer ſort, as we uſe oil in lamps, or to boil their victuals, though it communicates a diſagreeable taſte. That which is white, and of a thinner conſiſtency, and which is found only in ſmall quantities, is drank by the Ruſſians both as a cordial and a medicine; taken internally, it is ſaid to be good for the ſtone, for diſorders of the breaſt, and in venereal caſes and ſore heads. Externally applied, it is ſaid (ſee Hanway's Travels, vol. i.) to be of great uſe in ſcorbutic pains, gouts, cramps, &c. It has alſo the property of ſpirits of wine to take out greaſy ſpots in ſilks or woollens, but it leaves after the uſe of it an abominable odour. They ſay it is carried to India as a great rarity, and being prepared as a japan, is the moſt beautiful and laſting of any that has been yet found. Near the ſpot where this naphtha is procured are ſprings of hot water, which boil up in the ſame manner as the naphtha. Bathing in this warm water is found to ſtrengthen and procure a good appetite, eſpecially if a ſmall quantity of it is drank. Theſe remarkable ſprings have been deſcribed by Kæmpfer at the end of the 17th century, by Gmelin in 1773, and more fully by Hanway *ubi ſupra*. In an adjoining peninſula there are many other wells; and the revenue ariſing from this uncommon product to the khan of Baku is computed at 40,000 rubles. See *Everlaſting* FIRE.

The progreſſive geography of this celebrated country may be traced through Strabo, Pliny, the hiſtorians of Alexander, and other claſſical ſources, and afterwards through the Arabian authors, Ebn Hankel, Edriſi, Abulfeda, &c. &c. to the modern labours of Chardin, Hanway, Franklin, Gmelin, Pallas, &c. &c. We have been principally indebted for the materials of this article to the compilation of Mr. Pinkerton, in the 2d volume of his Geography; to the 6th Diſcourſe of ſir William Jones; to Hanway's Travels; and Kenneir's Geographical Memoir on the Perſian Empire, 1813.

PERSIAH, a town of Hindooſtan, in Baglana; 18 miles E.S.E. of Baſſeen.

PERSIAN *Empire*, and *Monarchy*. See MONARCHY.

PERSIAN *Gulf*, called alſo the *Sea of Omar*, and the *Green Sea*, a ſea or inland lake, bounded on the north by Perſia, and elſewhere by Arabia, except at the eaſtern extremity, where it communicates with the Arabian ſea; about 500 miles from E. to W., and from 120 to 250 in breadth, from N. to S. The principal river which runs into it is the Euphrates. The ſouthern coaſt in particular has been celebrated for its pearl-fiſhery. (See PEARL.) The coaſts both on the N. and S. belong chiefly to colonies of Arabians. This celebrated gulf has been always more remarkable for the factories of foreigners, than for its native eſtabliſhments. Bender-Abaſſi was a port oppoſite to the iſle of Ormus, or rather on the coaſt between Ormus and Kiſhmiſh, or Kiſhma, and is now more commonly known by the name of Gombroon. The trade, once conſiderable, is now greatly declined; and even the Dutch left it, and ſettled in the iſle of Karek or Garek. The French Indian commerce has failed; and the Engliſh ſtaple is Baſſora. But Buſheer, and Rik, or Bundarik, are alſo ſometimes frequented. See theſe ſeveral places under their appropriate denominations.

The Arabian ſhore of this gulf has never been ſurveyed; and as it has many ſand-banks and ſhoals, the navigation is difficult and dangerous. The Perſian ſhore is more elevated than that of Arabia; and the iſlands with which the gulf abounds are chiefly on that ſide. This is a ſafe coaſt, on which, generally ſpeaking, there are regular ſoundings, and ſhips may almoſt every where procure ſhelter from violent gales of winds, either in bays or under the lee of the iſlands.

The promontory of Cape Muſſledom (called by the natives Ras-ul-Gibel), at the entrance of the gulf, and on the Arabian ſhore, is ſaid to be the termination of a mountainous tract, inhabited by a tribe of perſons deſcended from a mixture of Arabs and Portugueſe, who have hitherto bravely reſiſted the encroachments of the Wahabees. The ſmall iſlands, or rather rocks, called the "Quoins," lie about ten miles to the N. of the Cape, and the channel between them is reported to be free from danger. At Rams, a piratical town, N. lat. 25° 53', the mountains retire, and the water begins to ſhoal. From this place, to the town of Shorga, a diſtance of ſeventeen leagues, it is hazardous for ſhips to approach the coaſt, owing to the prevalence of the N.W. winds. From Shorga to Grane, a large town in N. lat. 29° 12', the coaſt is denominated by the Arabs "The Coaſts of Danger." It is unknown to Europeans, and ſuppoſed to abound in coral and pearl banks. The greateſt part of the Arabian ſhore is in the poſſeſſion of the Joaſmi Arabs, a licentious band of pirates, who, by their depredations, obſtruct the commerce of the gulf. Their principal rendezvous is Ras-ul-Khyma, a town about ſeven miles S.W. of Rams. At the mouth of the gulf is the celebrated iſland of Ormus or Hermus. (See ORMUS.) Larrek is a ſmall iſland, ten miles S.S.W. of Ormus, about fifteen miles in circumference. The largeſt iſland in the gulf is Kiſhm, or Jezira Derauz, *i. e.* Long Iſland. (See KISHMA.) On the S. ſide is a moſt excellent harbour formed by the iſland of Angar. This is completely encompaſſed by the two iſlands, which are not above three miles diſtant from each other, ſo that a ſhip can anchor cloſe to either ſhore at all ſeaſons, there being a ſufficient depth of water for a line of battle ſhip lying within half a mile, and ſmall craft within one hundred yards of the ſhore. No pilot is neceſſary. The iſland of Angar is ſomewhat longer than Ormus, now uninhabited, though formerly well peopled. The Great Tomb is a low iſland, about three miles in length, and two and a half broad, diſtant eleven leagues from the S. point of Angar, N. lat. 26° 20'. The Little Tomb is rather leſs, and diſtant from the former four miles, a barren and rocky iſland. Baſman lies eleven leagues N.N.W. ¾ from Shorga, N. lat. 25° 54', about five miles long, remarkable for a high round hill in its centre, and uninhabited. Polior, the Pulora of the Greeks, is about five miles long, and four broad, uninhabited, encompaſſed with deep water, and having a long reef of dangerous rocks running out from its W. extremity, the northern end being in N. lat. 26° 20' 30". Surdy lies in the meridian of Polior, and the parallel of Baſman, and is much ſuch an iſland as the latter. Nabſleur is a ſmall uninhabited iſland, without vegetation, ten miles S.S.W. of Polior. Ken, the ancient Kataia, is flat, and better planted than moſt of the iſlands in the gulf. Formerly it had a flouriſhing

flouriſhing commerce, and now it can ſupply ſhips with refreſhments. The S. end is in N. lat. 26° 27′, about 10 leagues N.E.N. ¼ N. from Polior. Anderavia, or Inderabia, ſeven leagues from Ken, is a low, level, and narrow iſland, about three miles in length, N. lat 26° 40′. Buſheah, inhabited and covered with date trees, is about ſixteen miles in length, and five or ſix in breadth. The iſland of Bahrein is one of the fineſt in the gulf. (See BAHREIN.) Tarent, cloſe to the ſhore, and oppoſite to Kalif, although not ſo large, is a finer iſland than Bahrein, about ſeven miles long, and as much in breadth, well ſupplied with good freſh water, and embelliſhed with many delightful gardens, which produce abundance of fruits of various kinds. The iſland of Karrack, the Icarus of Arrian, contains about twelve or thirteen ſquare miles; affords a good anchorage at all ſeaſons, moſtly rocky, ſupplied with abundance of wax, and now peopled with about three or four hundred inhabitants, who ſubſiſt by gardening and fiſhing. The iſland of Corgo, lying about one and a half or two miles N. of Karrack, contains about two ſquare miles, and is of a light ſandy ſoil: it has plenty of water, though not ſo good as that of Karrack, uninhabited, but not incapable of cultivation. It will produce both wheat and barley during the rainy ſeaſons. Kinneir's Geog. Mem. of the Perſian Empire.

PERSIAN *Language*, one of the living oriental languages; ſpoken in the empire of Ruſſia.

The Perſian language is rich, melodious, and elegant; it has been ſpoken for many ages by the greateſt princes in the politeſt courts of Aſia; and a number of admirable works have been written in it by hiſtorians, philoſophers, and poets, who found it capable of expreſſing with equal advantage the moſt beautiful and the moſt elevated ſentiments. Accordingly ſir William Jones very much laments the neglect of this language that has generally prevailed among the learned; and he recommends the acquiſition of it by a variety of conſiderations; but particularly from its utility to thoſe who tranſact the concerns of Europe in India. In order to facilitate the attainment of it, he has publiſhed an excellent compendious grammar, and prefixed to it ſome inſtructions relating to the beſt method of learning this language. We ſhall avail ourſelves of his work in giving an abridged hiſtory of the Perſian language, and then ſome account of the language itſelf. The hiſtory of the Perſian tongue may be divided into four periods, like that of the empire; and under each dynaſty there was an apparent change in the dialect of the kingdom, eſpecially under the two laſt, *viz.* the "Saſſanian" and "Mohammedan" dynaſties; and theſe are the only periods, of which any certain records remain. In the infancy of the Perſian empire, under Cayúmaras and his deſcendants, it cannot be ſuppoſed that any great pains were taken to poliſh the language, which, if it were ſufficiently clear and intelligible, would not be thought to want elegance. Herodotus aſſures us, that even after the reign of Cyrus, the whole education of the Perſian youth, from the age of five years to twenty, conſiſted in only three points, riding, throwing the javelin, and the practice of moral virtue; which account is alſo confirmed by Xenophon. Nevertheleſs it ought not to be imagined, that the ancient Perſians, eſpecially thoſe of the ſecond period, were entire ſtrangers to the art of compoſition either in verſe or proſe; but what their language was, what were their rules of verſification, or what was the courſe of their ſtudies, no mortal can pretend to know with any ſhadow of exactneſs. The Greeks can give us no aſſiſtance, nor are we much enlightened by the writers after Alexander; it is neceſſary therefore to conſult the Perſians themſelves. From the great traveller Chardin, we learn, that the old Perſian is a language entirely loſt, in which no books are extant; and of which there are no rudiments remaining. (See PERSIA.) We have therefore no account of the Perſian language till the time of the "Saſſanian" kings, who flouriſhed from the opening of the third century to the middle of the ſeventh, during which period an academy of phyſic was founded at Gandiſapor, a city of Koraſan, and as it gradually declined from its original inſtitution, it became a ſchool of poetry, rhetoric, dialectics, and the abſtract ſciences. In this excellent ſeminary the Perſian tongue muſt have been much refined, and the ruſticity of the old idiom was ſucceeded by a pure and elegant dialect, which being conſtantly ſpoken at the court of Beharam Gúr in the year 351, acquired the name of "Deri," or courtly, to diſtinguiſh it from the "Pehlavi" or "Pahlavi," or language of the country. (See PERSIA.) This poliſhed idiom did not, however, ſuperſede the ancient dialect; for ſeveral compoſitions in Pahlavi were extant even after Mahomet, which appear to have been written by order of the Saſſanian princes. Anuſhirvan, ſurnamed "the juſt," who reigned at the cloſe of the 6th century, when Mahomet was born, obtained from India a collection of fables, tranſlated by his chief phyſician from the Sanſcrit language, which he acquired for this purpoſe; this collection he tranſlated into the Pehlavian dialect; about 140 years after, it was turned from Pehlavi into Arabic, by order of Almanſor, ſecond caliph of the Abaſſides; and this is the volume now found in every language of Europe, under the name of "Calila wa Demna," or "the fables of Pilpay." A fine copy of the Arabic verſion is depoſited in the public library at Oxford; and if the work of Barzuick, the abovementioned phyſician, could be found, we might thus recover a conſiderable part of the old Perſian language; the ſame, perhaps, which was ſpoken in the "ſecond period" by Themiſtocles and Xenophon. In the reign of Anaſhirvan, Mahomet poliſhed the language of his country; and when the battle of Cadeſſia gave the laſt blow to the Perſian monarchy, the whole empire of Iran was ſoon reduced under the power of the firſt Mahometan dynaſty; and the ancient literature of Perſia, which had been promoted by the family of Saſſan, was immediately diſcouraged by the ſucceſſors of Mahomet; becauſe ſome Perſian romances, brought into Arabia, were extolled to the diſparagement of the Koran, the people to whom they were read alleging, that "the ſtories of griffons and giants were more amuſing to them than the moral leſſons of Mahomet." Accordingly a chapter of the Koran was immediately written to ſtop the progreſs of theſe opinions, and other meaſures were taken to check their diffuſion. This is ſuppoſed to have been the moving cauſe of that enthuſiaſm of the Mahometans, which induced them to burn the famous library of Alexandria, and the records of the Perſian empire. It was a long time before the native Perſians could recover from the ſhock of this violent revolution; and their language ſeems to have been little cultivated under the caliphs, who gave greater encouragement to the literature of the Arabians; but when the power of the Abaſſides began to decline, and a number of independent princes aroſe in the different provinces of their empire, the arts of elegance, and chiefly poetry, revived in Perſia; and there was hardly a prince, or governor of a city, who had not ſeveral poets and men of letters in his train. The Perſian tongue was conſequently reſtored in the 10th century; but it was very different from the Deri or Pehlavi of the ancients; it was mixed with the words of the Koran, and with expreſſions from the Arabian poets, whom the Perſians conſidered as their maſters, and affected to imitate in their poetical meaſures, and the turn of their verſes. The oldeſt

Perſian poems, of which ſir W. Jones obtained any knowledge, are thoſe of Ferdúſi, and which, in his account of them, are repreſented to be a glorious monument of eaſtern genius and learning; and of which he further ſays, that if it ſhould be generally underſtood in its original language, will conteſt the merit of invention with Homer himſelf, whatever be thought of its ſubject, or the arrangement of its incidents. He has furniſhed an extract from this poem, and adds, that it will exhibit a ſpecimen of the Perſian tongue, very little adulterated by a mixture with the Arabic, and in all probability, approaching nearly to the dialect uſed in Perſia in the time of Mahomet, who admired it for its extreme ſoftneſs, and was heard to ſay, "that it would be ſpoken on that account in the gardens of Paradiſe." Of theſe two languages was formed the modern dialect of Perſia, which, being ſpoken in its greateſt purity by the natives of Pars or Farſiſtan, acquired the name of "Parſi;" though it is even called "Deri" by Hafiz. Nearly in the ſame age, *viz.* at the cloſe of the 10th and beginning of the 11th centuries, the great Aleul Ola, ſurnamed Alámi from his blindneſs, publiſhed his excellent odes in Arabic, in which he profeſſedly imitated the poets before Mahomet. At this time, and ſoon after, the Perſian language became altogether mixed with Arabic. At Shiraz, called "the Athens of Perſia," flouriſhed in the 13th century Sadi, a native of this city; who wrote ſeveral pieces, both in proſe and verſe; and by means of an extract from his "Guliſtan," or bed of roſes, ſir W. Jones has ſhewn us how the Perſian and Arabic languages were mixed together in his age. The ſame city had the honour of producing, in the 14th century, the moſt elegant lyric poet of Aſia, Shemſeddin, ſurnamed "Hafiz;" of whoſe productions ſir W. Jones has tranſcribed two Gazals or anacreontic odes, with a tranſlation. There is nothing, ſays our much reſpected author, which affords a ſtronger proof of the excellence of the Perſian tongue than that it remained uncorrupted after the irruption of the Tartars, who, at different times, and under various leaders, made themſelves maſters of Perſia; for the Tartarian princes, and chiefly Tamerlane, who was a patron of Hafiz, were ſo far from diſcouraging polite literature, like the Goths and Huns, that they adopted even the language and religion of the conquered country, and promoted the fine arts with a boundleſs munificence; and one of them, who founded the Mogul empire in Hindooſtan, introduced the Perſian literature into his dominions, where it flouriſhes to this day; and all the letters from the Indian governors are written in the language of Sadi. The Turks themſelves improved their harſh dialect by mixing it with the Perſian; and Mahomet II., who took Conſtantinople in the middle of the 15th century, was a protector of the Perſian poets, among whom was Noureddin Jami, whoſe poem "On the Loves of Joſeph and Zelikha" is very highly extolled by our author, who has given a ſpecimen of his elegant ſtyle. In the 16th and 17th centuries, under the family of Sefi, the Perſian language began to loſe its ancient purity, and even to borrow ſome of its terms from the Turkiſh, which was commonly ſpoken at court.

The Perſian characters are written from the right hand to the left, and the language conſiſts of 32 letters, which vary in their form as they are initials and medials, or finals, both connected and unconnected. For the pronunciation both of the conſonants and vowels, we refer to ſir William Jones's Grammar, from which we make the following extracts.

The ſhort vowels are ſeldom written in the Perſian books, and the omiſſion of them occaſions a perplexity to the learner of the language.

He will ſoon perceive with pleaſure a great reſemblance between the Perſian and Engliſh languages, in the facility and ſimplicity of their form and conſtruction. The former, as well as the latter, has no difference of termination to mark the gender, either in ſubſtantives or adjectives: all inanimate things are neuter, and animals of different ſexes either have different names, or are diſtinguiſhed by certain words, denoting male and female.

The Perſian ſubſtantives, like ours, have but one variation of caſe, which is formed by adding a certain ſyllable to the nominative in both numbers; and anſwers often to the dative, but generally to the accuſative caſe in other languages. When the accuſative is uſed indefinitely, this ſyllable is omitted; but when the noun is definite or limited, that ſyllable is added to it. In Perſian there is no genitive caſe; but when two ſubſtantives of different meanings come together, a heſra, or ſhort *e*, is added in reading to the former of them, and the latter remains unaltered. The ſame rule muſt be obſerved before a pronoun poſſeſſive, and before an adjective. The other caſes are expreſſed, for the moſt part, as in our language, by particles placed before the nominative.

Our article *a* is ſupplied in Perſian by adding the letter *ya*, or as it is ſounded *ee*, to a noun, which reſtrains it to the ſingular number.

The Perſian plural is formed by adding certain characters for ſyllables to the ſingular: but theſe terminations are not, as in many languages, wholly arbitrary; on the contrary, they are regulated with the utmoſt preciſion. It muſt not be omitted, that the Arabic ſubſtantives frequently have two ſorts of plurals: one formed according to the analogy of the Perſian nouns, and another after the irregular manner of the Arabians; and this circumſtance, beſides ſeveral others, proves the impoſſibility of learning the Perſian language accurately, without a moderate knowledge of the Arabic: and ſir William Jones adviſes the learner to peruſe with attention the Arabic grammar of Erpenius, of which there are two fine editions, one by Golius, and another by Albert Schultens, before he attempts to tranſlate a Perſian manuſcript.

The Perſian adjectives admit of no variation, but in the degrees of compariſon. The poſitive is made comparative by adding to it one character for a ſyllable, and ſuperlative by means of another. An adjective is ſometimes uſed ſubſtantively, and forms its plural like a noun: if it be a compounded adjective, the ſyllables denoting the plural number and the oblique caſe are placed at the end of it.

The perſonal pronouns are, 1, *men*, I: thus, ſing. *men*, I; plur. *ma*, we; obl. *merá*, me, *mára*, us. 2. *To*, thou: thus, ſing. *to*, thou; plur. *ſhumá*, you or ye; obl. *tura*, *thee*; *ſhumará*, you. 3. *O*, he: thus, ſing. *o*, he, ſhe, or it; plur. *iſhán*, they; obl. *óra*, him, her, or it; *iſhánra*, them. The poſſeſſives are the ſame with the perſonals, and are diſtinguiſhed by being added to their ſubſtantives. Our reciprocal pronouns, *own* and *ſelf*, are expreſſed in Perſian by certain words, which are applicable to all perſons and ſexes. For the demonſtrative pronouns, *this*, *theſe*, *that*, *thoſe*, in the ſeveral caſes ſingular, plural, and oblique, there are appropriate characters or expreſſions. Certain ſyllables prefixed to pronouns perſonal change them into poſſeſſives, and are read with a ſhort vowel. The relatives and interrogatives are ſupplied by the invariable pronouns *ke* and *che*; of which the former uſually relates to perſons, and the latter to things.

The Perſians have active and neuter verbs, like other nations; but many of their verbs have both an active and neuter ſenſe, which can be determined only by the conſtruction. Theſe verbs have properly but one conjugation, and but three changes of tenſe, the imperative, the aoriſt, and the preterite; all the other tenſes being formed by the help of certain particles, or of the auxiliary verbs ſignifying *to be*, and *to be willing*. The paſſive voice is formed by adding the tenſes of the verb ſubſtantive to the participle preterite of the active.

Our author has exhibited the inflections of the auxiliary verbs, and an analyſis of all the tenſes of a Perſian verb, ſhewing in what manner they are deduced from the infinitive, which is properly conſidered by the oriental grammarians as the ſpring and fountain of all the moods and tenſes, and which, therefore, in Arabic is called the "maſdar," or the ſource. The Perſians are very fond of the participle preterite; and it is very often uſed by their elegant writers to connect the members of a ſentence, and to ſuſpend the ſenſe till the cloſe of a long period. In poetry it ſometimes is uſed like the third perſon preterite of a verb. Our author has ſubjoined a table of the moods and tenſes, as they anſwer to thoſe of European languages.

In the ancient language of Perſia, there were very few or no irregularities: the imperative, which is often irregular in the modern Perſian, was anciently formed from the infinitive, by rejecting the termination *eeden*; for originally all infinitives ended in *den*, till the Arabs introduced their harſh conſonants before that ſyllable, which obliged the Perſians, who always affected a ſweetneſs of pronunciation, to change the old termination of ſome verbs into *ten*, and by degrees the original infinitives grew quite obſolete; yet they ſtill retain the ancient imperatives, and the aoriſts which are formed from them. This little irregularity is the only anomalous part of the Perſian language, which, nevertheleſs, far ſurpaſſes in ſimplicity all other languages, as ſir William Jones ſays, ancient or modern, of which he has any knowledge.

One of the chief beauties of the Perſian language is the frequent uſe of compound adjectives; in the variety and elegance of which it ſurpaſſes not only the German and Engliſh, but even the Greek. Theſe compounds may be multiplied without end, according to the pleaſure and taſte of the writer: they are formed either by a noun and the contracted participle, as in the word ſignifying "heart-alluring;" or by prefixing an adjective to a noun, as in that for "ſweet-ſmelling;" or by placing one ſubſtantive before another, as in the word denoting "roſe-cheeked." If we conſider the vaſt number of epithets that may be compounded after theſe three forms, and that theſe epithets are often uſed for ſubſtantives, without a noun being expreſſed, we muſt allow that the Perſian language is the richeſt in the world. Theſe compounds are thought ſo beautiful by the Perſian poets, that they ſometimes fill a diſtich with them.

The conſtruction of the Perſian tongue is very eaſy, and may be reduced to a few rules, moſt of which it has in common with other languages. The nominative is uſually placed before the verb, with which it agrees in number and perſon. It is remarked, however, that many Arabic plurals are conſidered in Perſian as nouns of the ſingular number, and agree as ſuch with verbs and adjectives. Another irregularity in the Perſian ſyntax is, that the cardinal numbers are uſually joined to nouns and verbs in the ſingular. The adjective is placed after its ſubſtantive, and the governing noun is prefixed to that which it governs. Conjunctions which expreſs conjecture, condition, will, motive, &c. require the conjunctive or potential mood. Prepoſitions and interjections are fixed to nouns in the nominative caſe.

The modern Perſians borrowed their poetical meaſures from the Arabs, and they are very various and complicated. There are nineteen ſorts of metre, which are uſed by the Perſians; but the moſt common of them are the iambic meaſure, or the trochaic meaſure, and a metre that conſiſts chiefly of thoſe compounded feet, which the ancients called Επιτριτους, and which are compoſed of iambic feet and ſpondees alternately, as *ămātōrēs pŭēllārūm*. In lyric poetry, theſe verſes are generally of twelve or ſixteen ſyllables; but they ſometimes conſiſt of fourteen ſyllables. Other lyric verſes contain thirteen ſyllables. The Perſians ſometimes uſe a meaſure conſiſting of trochees and ſpondees alternately; but the moſt common Perſian verſe contains eleven ſyllables, in which meaſure are written all the great Perſian poems, whether upon heroic or moral ſubjects, as the works of Ferdúſi, and of Jámi, the Boſtan of Sadi, and the Meſnavi of the excellent Geláleddin. This ſort of verſe anſwers to our common heroic rhyme. The proſody of the Perſians is extremely eaſy and ſimple: their vowels called *clif*, *vau*, and *ya*, are long by nature; the points, which they commonly ſuppreſs, are naturally ſhort; and every ſhort ſyllable that ends with a conſonant is long by poſition. But the Perſians, like other poets, have many licences; they often add a ſhort vowel, which does not properly belong to the word; they alſo ſhorten ſome long ſyllables at pleaſure, by omitting the vowels *clif*, *vau*, and *ya*. We ſhall here add, the verſes of eleven ſyllables, which are uſed in the great Perſian poems, always rhyme together in couplets.

The Perſian elegy differs only in its length from the ode, except that the "caſſideh" often turns upon lofty ſubjects, and the "gazal" compriſes for the moſt part the praiſes of love and merriment, like the lighter odes of Horace and Anacreon. The moſt elegant compoſers of theſe odes are Jámi and Hafiz, each of whom has left an ample collection of his lyric poems. Sir William Jones, among other numerous tranſlations, has given us a tranſlation in verſe of a beautiful Perſian ſong by Hafiz. If this article had not already been ſo extended, we ſhould have felt diſpoſed to gratify our readers with a tranſcript of it; but we muſt content ourſelves with referring to the cloſe of ſir William Jones's Perſian Grammar, or to his Works, vol. v.

PERSIAN *Lily*, in *Gardening*, the common name of a plant of the flower kind. See FRITILLARIA.

PERSIAN *Wheel*, in *Agriculture*, is a machine for raiſing a quantity of water ſufficient to overflow lands bordering on the banks of rivers, &c. where the ſtream is too low to do it alone.

Such a wheel is repreſented in *Plate* XIV. *Hydraulics* and *Hydroſtatics*, *fig.* 3, with which water may be raiſed by means of a ſtream A B turning a wheel C D E, according to the order of the letters, with buckets, *a*, *a*, *a*, *a*, &c. hung upon the wheel by ſtrong pins *b*, *b*, *b*, *b*, &c. fixed in the ſide of the rim: but the wheel muſt be made as high as the water is intended to be raiſed above the level of that part of the ſtream in which the wheel is placed. As the wheel turns, the buckets on the right hand go down into the water, and are thereby filled, and go up full on the left hand, until they come to the top at K; where they ſtrike againſt the end, *n*, of the fixed trough M, and are thereby overſet, and empty the water into the trough; from which it may be conveyed in pipes to the place which it is deſigned for: and as each bucket gets over the trough, it falls into a perpendicular poſition again, and goes down empty, until it comes to the water at A, where it is filled as before. On each bucket is a ſpring *r*, which going over the top or crown of the bar *m* (fixed to the trough M) raiſes the bottom of the bucket above the level of its mouth, and ſo cauſes it to empty all its water into the trough.

Sometimes this wheel is made to raiſe water no higher than its axis; and then inſtead of buckets hung upon it, its ſpokes C, *d*, *e*, *f*, *g*, *h*, are made of a bent form, and hollow within; theſe hollows opening into the holes C, D, E, F, in the outſide of the wheel, and alſo into thoſe at O in the box N upon the axis. So that, as the holes C, D, &c. dip into the water, it runs into them; and as the wheel turns, the water riſes in the hollow ſpokes *c*, *d*, &c. and runs out in a ſtream, P, from the holes at O, and falls into the trough O, from whence it is conveyed by pipes. And this is a very eaſy way of raiſing water, becauſe the engine requires neither men nor horſes to turn it. See Overflowing *of Land*.

Persian, or *Perſic*, in *Architecture*, a name common to all ſtatues of men, ſerving inſtead of columns, to ſupport entablatures. See Order.

They only differ from caryatides, in that thoſe repreſent ſtatues of women.

The Perſian is a kind of order of columns, firſt practiſed among the Athenians, on occaſion of a victory their general Pauſanias obtained over the Perſians. As a trophy of this victory, the figures of men dreſſed in the Perſian mode, with their hands bound before them, and other characters of ſlavery, were charged with the weight of Doric entablatures, and made to do the office of Doric columns.

Perſian columns, M. le Clerc obſerves, are not always made with the marks of ſlavery; but are frequently uſed as ſymbols of virtues, vices, joy, ſtrength, valour, &c. as when made in the figures of Hercules, to repreſent ſtrength; and of Mars, Mercury, fauns, ſatyrs, &c. on other occaſions.

Persian *Æra*, and *Year*. See Epocha and Year.

Persian *Bibles*, and *Coins*. See the ſubſtantives.

PERSICA, in *Botany*, the Malus Perſica, or Perſian Apple, of the ancients, our Peach. See Amygdalus.

Persica *Concha*, in *Natural Hiſtory*, a name given to a very remarkable and beautiful ſea-ſhell, which authors have long been at a loſs to reduce to any genus.

Aldrovand has thrown it to the end of his work, and ſays, it would be of the turbinated kind, if it did not want the turba. It is truly of the genus of the concha globoſa, or dolium.

Persica *Terra*, an earth of the ochre kind, known in the colour ſhops of London by the name of *Indian red*.

It is a very fine purple ochre, of a conſiderably compact texture, and great weight; while in the earth it is of a pure blood-colour, and is not to be cut with the ſpade, but is dug with iron crows, and falls in irregular maſſes. It is of a rough duſty ſurface, and full of conſiderably large, bright, glittering particles: theſe are white and of a fine luſtre. It adheres firmly to the tongue, is rough and harſh to the touch, ſtains the hands very deeply, and is of a rough aſtringent taſte, and makes a very violent efferveſcence with acid menſtruums.

It is dug in the iſland of Ormus, in the Perſian gulf, and in ſome parts of the Eaſt Indies.

PERSICARIA, in *Botany*, ſo called by the old writers, from the likeneſs of its leaves to thoſe of the peach-tree. (See Polygonum.) The word is now become the popular Engliſh appellation of a very fine ſpecies, *Polygonum orientale*, whoſe leaves however bear no reſemblance to the peach, nor to thoſe of the original *Perſicariæ*.

PERSIUS, Aulus Persius Flaccus, in *Biography*, a celebrated Roman poet, is ſaid to have been born at Volterra, in Tuſcany, in the year 34 of the Chriſtian era. He was educated according to his rank, being of an equeſtrian family. He ſtudied at Rome, and as he grew up he lived in intimacy with ſeveral of the moſt eminent perſons of his time, and was generally beloved for the modeſty of his diſpoſition, and the ſuavity of his manners. He died at the early age of 28, and bequeathed to his preceptor his library of 700 volumes, with a conſiderable ſum of money, but the philoſopher accepted only the library, and divided the money among Perſius's ſiſters. As a poet, Perſius is only known by his ſix Satires, which were in high reputation among his countrymen. They are of a grave ſententious kind, chiefly turning upon topics of general morals. The philoſophy of his preceptor Cornutus, to whom one of them is dedicated, has given them an elevation and purity of ſentiment, which in ſome parts places them in the firſt rank of moral poetry; but their extreme obſcurity almoſt deſtroys the pleaſure of a peruſal. The ſatires of Perſius are generally printed with thoſe of Juvenal. The beſt editions are thoſe of Iſaac Caſaubon, in 1605, Paris, and in 1647, London.

PERSO, in *Geography*, a town of Italy, in the country of Friuli; 10 miles N.W. of Udina.

PERSOLATA, in *Botany*, a word uſed by Pliny, as the name of a kind of burdock, different from the *perſonata*. He has, in the beginning of the chapter, ſpoken of the arctium of the Greeks, which he ſays the Latins ſometimes called *perſonata*, and afterwards adds this *perſolata;* which, he ſays, was a plant vulgarly known, and called by the Greeks *arctium*.

He ſeems to allow, that the Greeks called both theſe plants by the ſame name; but he diſtinguiſhes the *perſolata* from *perſonata*, by ſaying that the former has leaves like thoſe of the great gourd, but larger and more hairy. It is probable, therefore, that he diſtinguiſhes, under theſe two names, the two different ſpecies of the great burdock common with us, the one with ſimple, the other with woolly heads.

PERSON, Persona, an individual ſubſtance of a rational or intelligent nature.

The father and ſon are reputed in law as the ſame perſon; an ambaſſador repreſents the perſon of his prince.

The word perſon, *perſona*, is ſaid to be borrowed *a perſonando*, from perſonating or counterfeiting; and is ſuppoſed to have firſt ſignified a maſk: by reaſon, ſays Boethius, *in larva concava ſonus volvatur*: and hence the actors who appeared maſked on the ſtage, were ſometimes called *larvati*, and ſometimes *perſonati*.

The ſame author adds, that as the ſeveral actors repreſented each their ſingle individual perſon, *viz*. Œdipus, or Chremes, or Hecuba, or Medea; for this reaſon, other people, who were alſo diſtinguiſhed by ſomething in their form, character, &c. whereby they might be known, came alſo to be called, by the Latins, *perſonæ;* and, by the Greeks, *προσωπα*.

Again, as theſe actors rarely repreſented any but great and illuſtrious characters, the word came, at length, to import the mind; as being a thing of the greateſt regard and dignity among human matters. And thus men, angels, and even God himſelf, were called *perſons*. Things merely corporeal, as a ſtone, a plant, or a horſe, were called by them, *hypoſtaſes*, or *ſuppoſita*, but never *perſons*.

Hence alſo the learned imagine, the ſame name perſon came to be uſed to ſignify ſome dignity, whereby a perſon is diſtinguiſhed from another; as a father, huſband, judge, magiſtrate, &c.

In which ſenſe we are to underſtand that of Cicero: Cæſar never ſpeaks of Pompey but in terms of honour and reſpect; but he does many hard and injurious things againſt his perſon.

This for the name perſon. As for the thing, we have already defined perſon, an individual ſubſtance of a reaſonable nature; which is the ſame as Boethius's definition.

Now a thing may be individual two ways. 1. Logically, as it cannot be predicated of any other; as Cicero, Plato, &c. 2. Phyſically; in which ſenſe a drop of water, ſeparated from the ocean, may be called an individual. Perſon is an individual nature in each of theſe ſenſes: logically, ſays Boethius, ſince perſon is not ſpoken of univerſals, but only of ſingulars and individuals; we do not ſay the perſon of an animal, or a man, but of Cicero and Plato: and phyſically, ſince Socrates's hand or foot are never conſidered as perſons.

This laſt kind of individual is denominated two ways; poſitively, as when the perſon is ſaid to be the whole principle of acting; for whatever thing action is attributed to, that do the philoſophers call a perſon: and negatively, as when we ſay, with the Thomiſts, &c. that a perſon conſiſts in this, that it does not exiſt in another as a more perfect being.

Thus, a man, though conſiſting of two very different things, *viz.* body and ſpirit, is not two perſons; ſince neither part alone is a whole principle of action, but one perſon, ſince the manner of his conſiſting of body and ſpirit is ſuch as conſtitutes one whole principle of action; nor does he exiſt in any other as a more perfect being; as, *e.g.* Socrates's foot does in Socrates, or a drop of water in the ocean.

Person, in *Grammar*, is a term applied to verbs and pronouns, which being conjugated, are applicable to three different perſons.

I love, is a verb uſed in the firſt perſon; *thou loveſt*, deſigns the ſecond perſon; *he loveth*, makes the third: and thus in the plural number.

I, *thou*, *he*, are pronouns of the firſt, ſecond, and third perſons.

Verbs agree with their nouns, in number and perſon.

Person, *Perſona*, in *Dramatic Poetry*, the name and part of an actor; or of him preſented by the comedian.

At the head of dramatic pieces come the *dramatis perſonæ*, the liſt of actors, and characters that are to appear on the ſtage.

The ancient tragedy was only a ſimple chorus: Theſpis was the firſt who introduced a perſon to relieve the chorus; and Æſchylus added a ſecond.

F. Boſſu obſerves, that, in the epic and dramatic poem, the ſame perſon muſt reign throughout; *i.e.* muſt ſuſtain the chief part throughout the whole piece, and the characters of all the other perſons muſt be ſubordinate to him.

Person, *Perſona*, in *Law*. See Parson.

Person, in *Geography*, a county of America, in Hillſborough diſtrict, North Carolina; containing 6402 inhabitants, of whom 2082 are ſlaves.

PERSONA *nec prebendarii*, *Quod*, &c. See Quod.

PERSONABLE, Personabilis, in *Law*, implies the being able to hold or maintain a plea in court.

That is, as the civilians would expreſs it, *habere perſonam ſtandi in judicio.*

Thus they ſay the defendant was judged perſonable to maintain this action. Old Nat. Brev. 142.

The tenant pleaded, that the demandant was an alien, born in Portugal, without the ligeance of the king; and judgment was aſked, Whether he ſhould be anſwered? The plaintiff ſaid, he was made perſonable by parliament. Kitch. fol. 124.

Personable is alſo uſed to ſignify a capacity to take any thing granted or given.

PERSONAL, ſomething that concerns, or is reſtrained to, the perſon.

In diſputes among the learned, there is ever ſomething perſonal intermixed; in ethics, it is a maxim, that all faults are perſonal; *i. e.* they do not paſs to our deſcendants.

Personal *Action*, in *Law*. See Action.

Personal *Goods*, or *Eſtate*, is that conſiſting of money, moveables, &c. which every perſon has in his own diſpoſal (ſee Chattels), in oppoſition to lands and tenements, which are called *real eſtate*.

Personal *chattels*, *covenant*, *diſtreſs*, *hiſtory*, *liberty*, *patronage*, *privilege*, *ſervice*, and *tithes*. See the ſubſtantives.

Personal, *Pronoun*, or *verb Perſonal*, in *Grammar*, a verb or pronoun conjugated in all the three perſons.

They are thus called, in oppoſition to *imperſonals*, which have only the third perſon.

PERSONALITY, Personalitas, in the ſchools, the quality of a perſon; or that which conſtitutes an individual in the quality of a perſon.

The philoſophers being uſed to conſider matter and form in every other thing, do the ſame in perſon. The matter of perſon, according to them, is a ſingular ſubſtance, endued with reaſon: for ſubſtance may, at the pleaſure of God, either be, or not be, a perſon; inaſmuch as, they ſay, the human nature in Chriſt is not a perſon. The form of perſon, which they call *ſubſiſtency*, *ſuppoſitality*, and *perſonality*, is that by which the aforeſaid ſubſtance becomes individual.

The ſchool divines are divided about what it is that diſtinguiſhes the ſeveral perſonalities in the Trinity. Some will have it to be only the different relations: others, as Floraventius, contend for ſome incommunicable ſubſtance: St. Bonaventure, and St. Thomas, take it to be different origins that diſtinguiſh the perſonalities; which opinion is the moſt followed. See Trinity.

Personality, or *Perſonalty*, in *Law*. An action is ſaid to be in perſonality, when it is brought againſt the right perſon.

PERSONATA Corolla, in *Botany*, is a monopetalous irregular corolla, whoſe mouth is cloſed by a kind of palate, as in *Antirrhinum*. The term is derived from *perſona*, a maſk, and its application in the preſent inſtance, whether intended or not by Linnæus, is peculiarly happy; the plants furniſhed with ſuch a corolla being, as it were, of the regular pentandrous tribe, under a maſk, which they occaſionally lay aſide. See Peloria and Personatæ.

PERSONATÆ, the fortieth natural order among the *fragmenta* of Linnæus, nearly analogous to the *Scrophulariæ* and the *Vitices* of Juſſieu, embracing moreover ſome that are ſubjoined to his *Solaneæ*. This order is characterized by a monopetalous unequal corolla; ſtamens uſually four, two of them longeſt, or ſometimes only two in all; ſtyle ſolitary; and a fruit, generally ſuperior, of two cells, with numerous ſeeds. Many of the plants are fœtid and poiſonous, few of them aromatic, though the flowers of ſome are fragrant. They are all more or leſs naturally allied to the firſt order of the Linnæan claſs *Pentandria*, but they arrange themſelves either in the *Diandria Monogynia*, or rather, principally, in the *Didynamia Angioſpermia*, according to the laws of the artificial ſyſtem. Some are ſhrubby in habit, but the greater part are herbaceous. The leaves are moſtly ſimple; the infloreſcence either axillary, corymboſe, ſpiked or panicled. It is by an unaccountable error that Linnæus has marked *Melaleuca* as belonging to this natural order, in his Mantiſſa, p. 14, that genus being evidently referrible to his nineteenth order, the *Heſperideæ*. Giſeke, who points out this miſtake, well obſerves, that there is no order in which ſo many genera bear the names of botaniſts as in this of the *Perſonatæ*.

PERSONIFYING, or PERSONALIZING, the feigning a perſon; or attributing a perſon to an inanimate being; or giving it the figure, ſentiments, and language of a perſon. See PROSOPOPŒIA.

The poets have perſonified all the paſſions; and even made divinities of them, which were worſhipped by the heathens; as the goddeſs Perſuaſion, the god Sleep, the Furies, Envy, and Diſcord, and Fame, Fortune, Victory, &c.

Perſonifying is eſſential to poetry, eſpecially to the epopœia.

PERSOONIA, in *Botany*, was ſo named by the writer of the preſent article, in honour of his highly deſerving friend and correſpondent, Chriſtian Henry Perſoon, author of many valuable works on *Fungi*, in which department of Botany this author decidedly takes the lead. He has alſo edited a *Synopſis* of the vegetable kingdom, on the plan of the Linnæan Syſtema Vegetabilium, but in a very ſmall type, printed at Paris, where he now reſides. Mr. Perſoon was, if we miſtake not, born of Dutch parents, at the Cape of Good Hope. Two other genera have been inſcribed to him, one by Willdenow in his Sp. Pl. v. 2. 331, which is the *Carapa* of Aublet, t. 387, and Lamarck t. 301; and another by Michaux, Fl. Boreal-Amer. v. 2. 104, of the claſs Syngeneſia. Theſe are both of a poſterior date to the genus of which we are to treat, and which is now generally adopted. Sm. Tr. of Linn. Soc. v. 4. 215. Mart. Mill. Dict. v. 3. Brown Tr. of Linn. Soc. v. 10. 159. Prodr. Nov. Holl. v. 1. 371. Ait. Hort. Kew. v. 1. 203. Gærtn. v. 3. t. 220. (Pentadactylon; ibid. t. 220. *Br.* Linkia; Cavan. Ic. v. 4. 61.)—Claſs and order, *Tetrandria Monogynia*. Nat. Ord. *Proteaceæ*, Juſſ. Brown.

Gen. Ch. *Cal.* none, except a ſlight border. *Cor.* Petals four, equal, linear-oblong, recurved, deciduous. Nectary of four diſtinct glands, at the baſe of the germen. *Stam.* Filaments ſcarcely any; anthers four, inſerted about the middle of each petal, linear, erect, prominent, at length reflexed. *Piſt.* Germen ſuperior, ſtalked, ovate; ſtyle thread-ſhaped, on a level with the anthers, permanent; ſtigma obtuſe. *Peric.* Drupa ovate, pulpy. *Seed.* Nut of one or two cells.

Eſſ. Ch. Petals four, recurved, bearing the ſtamens about their middle. Nectary of four glands. Germen ſuperior, ſtalked. Stigma obtuſe. Drupa with a nut of one or two cells.

Obſ. Mr. Brown remarks, that the ſtalk of the germen is jointed in ſome ſpecies, and that the cotyledons are, for the moſt part, more than two. The habit is ſhrubby or arboreſcent; the bark ſometimes flaky. Leaves ſcattered, entire, moſtly flat. Flower-ſtalks axillary, ſolitary, without bracteas, or racemoſe, with a ſolitary bractea. Flowers yellow. We follow Mr. Brown in the order and names of the twenty-two known ſpecies.

1. P. *teretifolia*.—"Leaves thread-ſhaped, without furrows. Stalks ſolitary, ſingle-flowered. Anthers pointed. Style ſhorter than the germen."—Gathered by Mr. Brown, on ſtony hills, at Lewin's land, on the ſouth coaſt of New Holland.

2. P. *microcarpa*.—"Leaves thread-ſhaped, channelled. Stalks ſolitary, in pairs, or ternate. Anthers pointleſs. Style longer than the germen. Stigma drooping."—Native of marſhy heaths, in the ſame country.

3. P. *pinifolia*.—"Leaves thread-ſhaped, lax. Spike pyramidal, elongated, leafy. Floral leaves ſhorter than the reſt. Germen ſingle-ſeeded."—Found by Mr. Brown on heaths, and about the banks of rivulets, at Port Jackſon, New South Wales.

4. P. *juniperina*. Labill. Nov. Holl. v. 1. 33. t. 45.—Leaves awl-ſhaped, ſtraight, pungent. Flowers axillary, ſolitary. Germen ſmooth, with two kernels. Found on dry heaths and about the ſides of hills, in Van Diemen's land, as well as on the ſouth coaſt of New Holland. The *ſtem*, according to Labillardiere, is a yard or more in height, determinately branched, round, and leafy. *Leaves* rigid, above an inch long, rather hairy, as are the ſhort axillary flower-ſtalks. *Petals* clothed externally with rigid hairs, yellowiſh. *Fruit* red, eatable, its nut uſually with two kernels.

5. P. *hirſuta*. Perſ. Syn. v. 1. 118.—Leaves linear, revolute, hairy and rough. Flower-ſtalks axillary. Germen ſilky, ſingle-ſeeded.—Native of moiſt heaths about Port Jackſon, New South Wales. *Br.* The *flowers* are very hairy externally, and full as long as the *leaves*.

6. P. *mollis*.—"Leaves lanceolate, elongated, villous, very ſoft beneath. Corolla bearded. Germen ſmooth, with two kernels."—Gathered by Mr. Brown, near Port Jackſon, about the ſandy banks of rivers.

7. P. *linearis*. Linear-leaved Perſoonia. Ait. n. 1. Andr. Repoſ. t. 77. Curt. Mag. t. 760. Venten. Malmaiſ. t. 32.—Leaves linear, elongated, ſmooth. Flower-ſtalks ſtraight. Corolla downy. Stalk of the germen without a joint. Stem arboreous. Bark ſmooth.—On hills and in open fields about Port Jackſon, from whence ſpecimens and ſeeds were firſt ſent by Dr. White in 1792. The plant was raiſed by the late Mr. Robinſon of Stockwell, in 1794. It proved a hardy greenhouſe ſhrub, flowering copiouſly in the latter part of ſummer. The young *branches*, as well as the *flower-ſtalks*, and backs of the *petals*, are downy. *Leaves* copious, ſpreading, two inches or more in length, and not a line wide. *Fruit* globoſe, ſmooth.

8. P. *lucida*.—"Leaves linear, ſomewhat lanceolate, elongated, ſmooth. Flower-ſtalks downy, ſtraight. Corolla downy. Stalk of the germen without a joint. Stem arboreous. Bark flaky."—Found near Port Jackſon, by the ſides of mountain rivers, by Mr. Ferd. Bauer. It ſeems nearly related to the laſt.

9. P. *virgata*.—"Leaves linear, or ſomewhat oblong, ſcattered, vertical, very ſmooth in every part. Flower-ſtalks ſmooth, ſtraight. Corolla ſmooth. Stem arboreous. Bark even."—Gathered by Mr. Brown, on the ſea ſhore, near Sandy Cape, on the eaſt coaſt of New Holland.

10. P. *flexifolia*.—"Leaves nearly linear, pointed, crowded, twiſted at the baſe, ſmooth on both ſides, beſprinkled with ſhining dots; their edges rough. Corolla ſmooth. Stem ſhrubby."—Native of the ſtony ſides of hills, on the ſouth coaſt of New Holland.

11. P. *ſcabra*.—"Leaves linear-lanceolate, pointed, rough on both ſides, beſprinkled with ſhining as well as minute opaque dots. Corolla downy."—In the ſame country and ſituations as the laſt.

12. P. *ſpatulata*.—"Leaves lanceolate-ſpatulate, pointed, rather concave, very rough on both ſides with cryſtalline points."—Gathered by Mr. Brown in the ſame places as the two laſt.

13. P. *nutans*.—"Leaves linear, ſmooth. Flower-ſtalks axillary, recurved, ſmooth as well as the corolla."—Found by Mr. Brown near Port Jackſon, in woods on a ſandy ſoil, at the foot of the mountains.

14. P. *falcata*.—"Leaves lanceolate, elongated, tapering at the baſe, ſomewhat ſtalked, falcate, reverſed, coriaceous. Anthers pointed. Stem arboreous. Bark flaky."

—Gathered by ſir Joſeph Banks, near Endeavour river, on the eaſt coaſt of New Holland; and by Mr. Brown, at Carpentaria, on the north coaſt, near the ſea ſhore.

15. P. *lanceolata*. Lance-leaved Perſoonia. Ait. n. 2. Andr. Repoſ. t. 74.—Leaves elliptic-lanceolate, pointed, ſmooth and even. Stalks axillary, ſingle-flowered. Corolla ſilky, with cloſe-preſſed hairs. Stalk of the germen without a joint.—Native of fields and heaths towards the ſea coaſt at Port Jackſon, from whence ſeeds were very early ſent to this country. Plants are ſaid to have been firſt raiſed in 1791, by J. Wilſon, eſq. at Iſlington. The *leaves* are about two inches long. *Flowers* yellow, as in all the reſt. *Fruit* globoſe, the ſize of a black currant.

β. P. *latifolia*, Andr. Repoſ. t. 280, is propoſed, not without heſitation, by Mr. Brown, as a variety of this. It differs in having larger and obovate *leaves*, which in our native ſpecimens, ſent from Port Jackſon by Dr. White, appear ſomewhat glaucous. The *flowers* exactly agree. Still we ſhould be inclined to conſider this ſuppoſed variety as a diſtinct ſpecies, did we not rather confide in Mr. Brown's opinion, formed from obſervation of the wild plants.

16. P. *ſalicina*. Perſ. Syn. v. 1. 118. (Linkia lævis; Cavan. Ic. v. 4. 61. t. 389.)—Leaves lanceolate-oblong, unequal, reverſed. Stalks axillary or racemoſe. Corolla nearly ſmooth. Stem arboreous. Bark flaky.—Native of fields, hills, and woods, in the neighbourhood of Port Jackſon. The *leaves* are three inches long, their ſides more or leſs unequal, giving them a falcate aſpect. *Flower-ſtalks* and young *branches* ſilky. *Corolla* nearly ſmooth. *Fruit* elliptical; its nut with two kernels.—Mr. Brown ſuſpects that Cavanilles's plant may rather be a variety of the laſt; but it ſeems to us to agree beſt with the preſent ſpecies, though his plate does not expreſs any inequality in the ſhape of the *leaves*. We have a ſpecimen with obovate *leaves*, that ſeems a variety of *ſalicina*.

17. P. *ferruginea*. Sm. Exot. Bot. v. 2. 47. t. 83. (P. laurina; Perſ. Syn. v. 1. 118. *Br.*)—Leaves elliptical, acute, veiny. Stalks axillary, many-flowered, clothed, as well as the backs of the petals, with ruſty ſilky hairs.—Native of fields near Port Jackſon, from whence it was originally ſent dried by Dr. White. We have not heard of this beautiful ſpecies in any garden. The *ſtem* is ſhrubby, three or four feet high, with ſmooth branches. *Leaves* for the moſt part nearly oppoſite, two or three inches long, and about one broad, ſmooth, ſhining, veiny. *Flowers* in ſhort, denſe, axillary cluſters, accompanied by ſmall *bracteas*, which, as well as *ſtalks*, and the backs as well as margins of the *petals*, are denſely clothed with ſhining ſilky hairs of a deep ruſty orange-colour. The *germen* is covered with ſimilar hairs, but the *ſtyle* is ſmooth.—This ſhrub flowers in its native country in November.

18. P. *proſtrata*.—" Leaves oval, obtuſe, downy at the margin. Stalks axillary, with one or more flowers. Stem procumbent."—Gathered by Mr. Brown in fruit, the flowers being all paſt, near Sandy Cape, on the eaſt coaſt of New Holland, growing in ſand near the ſea ſhore.

19. P. *elliptica*.—" Leaves elliptical, veiny. Cluſters lateral. Petals ſmooth. Stalk of the germen jointed."—Gathered by Mr. Brown on the ſtony ſides of hills at Lewin's Land, on the ſouth coaſt of New Holland.

20. P. *articulata*.—" Leaves lanceolate, elongated, equal, ſmooth. Stalks axillary, with one or more flowers. Corolla nearly ſmooth. Lower joint of the ſtalk of the germen as long as the glands."—Gathered by Mr. Brown in Lewin's Land, with the foregoing.

21. P. *longifolia*.—" Leaves linear, elongated, falcate. Stalks axillary, with one or more flowers. Corolla downy, with cloſe-preſſed hairs. Lower joint of the ſtalk of the germen longer than the glands."—From the ſame country.

22. P. *graminea*.—" Leaves of the branches linear, very long, revolute. Cluſters many-flowered, turned one way. Corolla ſmooth. Stem ſhort, ſomewhat ſhrubby."—Found by Mr. Brown, about the ſandy margins of ſtanding pools, in Lewin's Land.

PERSPECTIVE is the art of repreſenting objects on a definite ſurface, ſo as to affect the eye when ſeen from a certain poſition, in the ſame manner as the object itſelf would, when the eye is fixed in the point in view.

We ſhall introduce this article with a brief hiſtory of the riſe and progreſs of perſpective, and cloſe it with an enumeration of the principal writers on the theory and practice of the art.

The art of perſpective owes its birth to painting, and particularly to that branch of it which was employed in the decorations of the theatre, where landſcapes were principally introduced, and which would have looked unnatural and horrid, if the ſize of the objects had not been pretty nearly proportioned to their diſtance from the eye. The ancients muſt, therefore, have had conſiderable knowledge of this art; though the only ancient author from whom we can obtain any information relative to its antiquity, is Vitruvius; who, in the proem to his ſeventh book, informs us, that Agatharcus, at Athens, was the firſt who wrote on this ſubject, on occaſion of a play exhibited by Æſchylus, for which he prepared a tragic ſcene; and that afterwards the principles of the art were more diſtinctly taught in the writings of Democritus and Anaxagoras, the diſciples of Agatharcus, which are no longer extant.

The perſpective of Euclid and of Heliodorus Lariſſeus contains only ſome general elements of optics, that are by no means adapted to any particular practice; though they furniſh ſome materials that might be of ſervice even in the linear perſpective of painters.

Geminus of Rhodes, who was a celebrated mathematician in the time of Cicero, hath likewiſe written on this ſubject.

We may alſo infer, that the Roman artiſts were acquainted with the rules of perſpective, from the account which Pliny, (Nat. Hiſt. lib. xxxv. cap. 4.) gives of the repreſentations on the ſcene of thoſe plays given by Claudius Pulcher; by whoſe appearance, he ſays, the crows were ſo deceived, that they endeavoured to ſettle on the fictitious roofs. However, of the theory of this art among the ancients we know nothing; as none of their writings have eſcaped the general wreck of ancient literature in the dark ages of Europe. Perſpective muſt, without doubt, have been loſt, when painting and ſculpture no longer exiſted. Nevertheleſs, we have reaſon to believe, that it was practiſed much later in the eaſtern empire.

John Tzetzes, who lived in the twelfth century, ſpeaks of it as if he was well acquainted with its importance in painting and ſtatuary: and the Greek painters, who were employed by the Venetians and Florentines, in the thirteenth century, ſeem to have brought ſome optical knowledge with them into Italy: for the diſciples of Giotto are commended for obſerving perſpective more regularly than any of their predeceſſors in the art had done; and they lived in the beginning of the fourteenth century.

The Arabians were not ignorant of this art; as we may preſume from the optical writings of Alhazen, who lived about the year 1100, cited by Roger Bacon, when treating on this ſubject.

Vitellus, a Polander, about the year 1270, wrote largely and learnedly on optics.

Our own friar Bacon, as well as John Peckham, archbiſhop of Canterbury, treated this ſubject with ſurprizing accuracy, conſidering the times in which they lived.

The moſt ancient authors, who profeſſedly laid down rules of perſpective, were Bartolomeo Bramantino, of Milan, whoſe book, entitled "Regole di Perſpectiva, e Miſure delle Antichita di Lombardia," is dated 1440; and Pietro del Borgo, likewiſe an Italian, who was the moſt ancient author met with by Ignatius Danti, and who is ſuppoſed to have died in 1443. The laſt writer ſuppoſed objects to be placed beyond a tranſparent tablet, and endeavoured to trace the images, which rays of light, emitted from them, would make upon it. But his work is not now extant. However, Albert Durer conſtructed a machine upon the principles of Borgo, by which he could trace the perſpective appearance of objects.

Leon Battiſta Alberti, in 1450, wrote his treatiſe "De Pictura," in which he treats principally of perſpective.

Balthazar Peruzzi, of Sienna, who died in 1536, had diligently ſtudied the writings of Borgo; and his method of perſpective was publiſhed by Serlio in 1540. To him, it is ſaid, we owe the diſcovery of points of diſtance, to which all lines that make an angle of 45° with the ground line are drawn.

Guido Ubaldi, another Italian, ſoon after diſcovered, that all the lines that are parallel to one another, if they be inclined to the ground line, converge to ſome point in the horizontal line; and that through this point, alſo, a line, drawn from the eye, parallel to them, will paſs.

His perſpective was printed at Peſaro in 1600, and contained the firſt principles of the method afterwards diſcovered by Dr. B. Taylor.

In 1583, there was publiſhed a book, written by Giacomo Barozzi, of Vignola, commonly called Vignola, intitled "The two Rules of Perſpective, with a learned Comment," by Ignatius Danti. In 1615, the work of Marolois was printed, in Latin, at the Hague, and engraved and publiſhed by Hondius. And in 1625, Sirigatti publiſhed a treatiſe of perſpective, which is little more than an abſtract of Vignola's.

The art of perſpective has been gradually improved by ſubſequent geometricians, particularly by profeſſor s'Graveſande, and, in a much greater degree, by Dr. Brook Taylor, whoſe principles are in a conſiderable meaſure new, and far more general than thoſe of any of his predeceſſors. He did not confine his rules, as his predeceſſors had done, to the horizontal plane only, but made them general, ſo as to affect every ſpecies of planes and lines, whether they were parallel to the horizon or not; and thus the principles were made univerſal. Farther, from the ſimplicity of his rules, the whole tedious progreſs of drawing out plans and elevations for any object is rendered entirely uſeleſs, and therefore avoided: for by this method, not only the feweſt lines imaginable are required to produce any perſpective repreſentation, but every figure, thus drawn, will bear the niceſt mathematical examination. Moreover, his ſyſtem is the only one calculated for anſwering every end of thoſe who are practitioners in the art of deſign; becauſe from hence they may be enabled to produce the whole, or only ſo much of an object as is wanted, and by fixing it in its proper place, may determine its apparent magnitude in an inſtant. It explains alſo the perſpective of ſhadows, the reflections of objects from poliſhed planes, and the inverſe practice of perſpective.

His "Linear Perſpective" was firſt publiſhed in 1715; and his "New Principles of Linear Perſpective" in 1719, which he intended as an explanation of his firſt treatiſe. In 1738, Mr. Hamilton publiſhed his Stereography, in 2 vols. folio, after the manner of Dr. Taylor. But the moſt complete ſyſtem of perſpective, both as to theory and practice, on the ſame principles, is that of Mr. Malton, the ſecond edition of which was publiſhed in 1779, fol. We have alſo treatiſes on this ſubject, by the Jeſuit, originally written in French, at Paris, tranſlated by Mr. Chambers, and printed at London, in 1726, Highmore, Ware, Cowley, Kirby, Prieſtley, Ferguſon, &c.

The inſtruments neceſſary for drawing according to the rules of perſpective, are a tee ſquare, a parallel ruler, a drawing board (which is only a ſmooth board made exactly ſquare), a ſector, a protractor; to which may be added a drawing-pen, and a black-lead pencil.

Propoſition.—It is a well-known fact, founded on experience, that objects reflect their lights, ſhades, and colours in ſtraight lines, and deſcribe an image in the eye which produces that ſenſation of the object called *viſion;* which ſee.

Corol 1.—If a ſtraight line be oppoſed to the eye, and not directed to it, the rays or ſtraight lines which iſſue from all points of it to the eye, form a plane.

Corol. 2.—If any plane or ſolid be oppoſed to the eye, the ſtraight lines or rays which iſſue from all points of the ſurface to the eye form a pyramid, provided that with reſpect to the plane the eye is out of its ſurface. The following are definitions of the terms employed.

1. The ſtraight line reflected from any point of a line or ſurface, is called a viſual ray.

2. A plane compoſed of viſual rays is called an optic plane. See PLANE,

3. A pyramid compoſed of viſual rays is called an optic pyramid.

4. An optic plane or pyramid is called a ſyſtem of rays.

5. If a ſyſtem of rays be intercepted by a plane, the common ſection is called the ſcenographic or perſpective repreſentation of the body.

Corol.—Hence the repreſentation of any right line, or rectilinear figure, or ſolid, is alſo rectilinear.

6. The plane on which the ſection is made is called the picture.

7. The point, line, ſurface, or body, from which the rays proceed to the eye, is called the original object.

Corol. 1.—Hence, if the original object be a plane, and the picture parallel to it, the repreſentation will be a figure ſimilar to the original.

Corol. 2.—If any part of an original object touch the picture, the part which is thus in contact will be the ſcenographic repreſentation of that part.

8. The vertex or point of the pyramid where the eye is placed, is called the point of ſight, or point of view.

9. If the original object be ſituated on a plane, this plane is called the original or primitive plane.

10. If a plane be ſuppoſed to paſs through the eye parallel to the picture, this plane is called the directing plane.

11. The interſection of the picture and the original plane is called the interſection or interſecting line of that plane.

12. The interſection of any original line with the picture, is called the interſecting point of that original line.

Corol.—Hence the interſecting points of all lines in any original plane, are in the interſecting line of that plane.

13. If a ſtraight line be ſuppoſed to be drawn through

the eye parallel to any original line, the line ſo drawn is called the parallel of that original plane.

Corol.—Hence, if any number of original lines be parallel among themſelves, one line can only paſs through the eye parallel to them all.

14. If a plane be ſuppoſed to paſs through the eye parallel to any original plane, or the plane of an original object, the plane thus paſſing through the eye is called the parallel of that original plane.

Corol.—Hence, if any number of original planes be parallel among themſelves, one plane only can paſs through the eye, which will be parallel to them all.

15. The interſection of the parallel of any original plane and the picture, is called the vaniſhing line of that plane.

Corol. 1.—Hence the interſecting and vaniſhing lines are parallel to each other.

Corol. 2.—Hence all original parallel lines have the ſame vaniſhing line.

Corol. 3.—Hence the parallels of every two original planes have the ſame inclinations as the originals.

Corol. 4.—The vaniſhing point of the common interſection of any two planes, is the interſection of the vaniſhing lines of theſe planes.

16. The interſection of the parallel of any original line is called the vaniſhing point of the original line.

Corol. 1.—The vaniſhing points of all lines in the ſame original plane, are in the vaniſhing line of that plane.

Corol. 2.—Hence any number of original parallel lines can have only one vaniſhing point.

Corol. 3.—Hence original lines which are parallel to the picture have no vaniſhing point, becauſe their parallels can never cut it.

Corol. 4.—The lines which generate the vaniſhing points of two original lines, make the ſame angle with the eye as the originals do with each other.

17. The interſection of the original plane and the directing plane, is called the directing line of that plane.

18. The interſection of any original line with the directing plane is called the directing point of that original line.

Corol.—Hence the directing points of all lines in the ſame original plane are in the directing line of that plane.

19. A ſtraight line drawn from the directing point of any original line to the eye is called the director of that original line.

20. The interſection of the vaniſhing plane and the directing plane is called the parallel director, or parallel of the eye.

Corol.—Hence the interſecting line, the vaniſhing line, the parallel director, and directing line, are all parallel to each other.

21. If a ſtraight line be drawn from the point of ſight perpendicular to the picture, the point where it meets the picture is called the centre of the picture; and the part of the line intercepted between the point of ſight and the centre of the picture is called, the diſtance of the picture, or principal diſtance.

22. If a ſtraight line be drawn from the point of ſight perpendicular to a vaniſhing line, the point where it meets the vaniſhing line is called the centre of that vaniſhing line; and the part intercepted between the point of ſight and the centre of the vaniſhing line, is called the diſtance of that vaniſhing line.

Corol. 1.—Hence a line drawn from the centre of the picture to the centre of a vaniſhing line, is perpendicular to that vaniſhing line.

Corol. 2.—The diſtance of a vaniſhing line is the hypothenuſe of a right-angled triangle, the baſe of which is the diſtance of the picture, and the perpendicular the diſtance between the centre of the picture and the centre of its vaniſhing line.

23. If the diſtance on a vaniſhing line from the vaniſhing point to another point, be equal to the diſtance of that vaniſhing point from the eye, the other extremity of this diſtance, which is not the vaniſhing point, is called the point of diſtance.

24. The point where a perpendicular drawn from the centre of the vaniſhing line cuts the interſecting line, is called the centre of the interſecting line.

25. If the original plane be the level of the earth's ſurface or horizon, it is called the ground plane.

26. If the original plane be the horizon, the vaniſhing plane is called the horizontal plane.

27. If the picture be perpendicular to the horizon, it is called a vertical picture.

28. When the original plane is the ground plane, the interſecting line is called the ground line.

29. When the original plane is the ground plane, a plane drawn through the eye perpendicular to the ground plane and to the picture, is called the vertical plane.

30. The interſection of a vertical plane with the vertical picture, is called the vertical line.

31. The interſection of the vertical plane with the directing plane, is called the prime director, and by ſome the eye director.

32. The interſection of the vertical line with the ground plane, is called the foot of the vertical line.

33. The interſection of the vertical director with the ground plane, is called the ſtation point, or prime directing point.

34. The diſtance between the ſtation point and the foot of the vertical line, is called the ſtation line, or line of ſtation.

35. A ſtraight line drawn between the interſecting and vaniſhing points, is called the indefinite repreſentation, or projection of that line.

Axiom 1.—The common interſection of two planes is a ſtraight line.

2. The common interſection of two ſtraight lines is a point.

3. If two ſtraight lines meet in a point, or are parallel to each other, a plane may be made to paſs through both of them.

4. If a ſtraight line meet two parallel ſtraight lines, or two ſtraight lines meeting in a point, all the three ſtraight lines are in the ſame plane.

5. Every point in any ſtraight line, is in any plane which the line is in.

6. Two planes which are parallel cannot interſect.

7. One part of a ſtraight line cannot be in a plane while another part is out of it.

Several of theſe axioms are propoſitions in the eleventh book of Euclid's Elements, where they are demonſtrated; but if the notion of a plane is underſtood, their evidence will be admitted upon the ſlighteſt reflection, ſo that it would be but of little uſe to attempt to prove them.

In *Plate* I. *fig.* 1. W X Z Y is the original plane; A B N I the picture; T S W X the directing plane parallel to the picture; and S V L T the vaniſhing plane, or parallel of the original plane; V L, the interſection of the parallel of the original plane and the picture, is the vaniſhing line; I N, the interſection of the picture and the original plane, is the interſecting line; S T, the interſection of the parallel of the original plane and the directing plane, is the parallel of the eye; and WX, the interſection of the directing plane and the original plane, is the directing line.

In all the *figs.* 1, 3, 4, 5, and 6, E is the place of the eye. In *figs.* 2 and 3, the parallel of the original plane is not repreſented. In each of the *figs.* 1, 4, 5, and 6, the interſecting line is denoted by I N, the vaniſhing line by V L, if neceſſary in the figure, the directing line by W X, and the parallel of the eye by S T.

Theorem 1.—The indefinite projection of a ſtraight line not parallel to the picture, paſſes through its interſecting and vaniſhing points.

This is evident, ſince the original line and its radial are parallel to each other. The eye, the interſecting point, and the vaniſhing point, are all in the ſame plane with the original line and its radial; and, therefore, if a line be drawn in the picture between the interſecting and vaniſhing points, all the three ſtraight lines will be in the ſame plane; and, conſequently, the indefinite repreſentation will be in the ſame plane with the original ſtraight line and the eye.

Since the whole practice of perſpective depends upon this theorem, our readers will take the following illuſtration. In *Plate* I. *fig* 1, Q R is an original ſtraight line, R its interſecting point, v' its vaniſhing point, and R v' a line in the picture joining the interſecting and vaniſhing points. Now ſince E v' and R Q are two parallel lines, let a plane be ſuppoſed to be drawn through both, it will paſs through the eye at the extremity of the radial v' E; and becauſe the ſtraight line R v' joins the two ſtraight lines Q R and v' E, the lines R Q and R v' are in the ſame plane with the eye, and conſequently R v' is the interſection of the plane of rays on the picture from the ſtraight line Q R.

Further, let E F, G H, I K, and L M be parallel original lines, they will have v^2 for their common vaniſhing point, therefore the ſeveral indefinite repreſentations from the interſecting points F, H, K, and M, will all terminate in v^2.

If an original ſtraight line and its radial are in the ſame ſtraight line, the whole indefinite repreſentation of that line will be in its vaniſhing point.

Theorem 2.—The projection of a line parallel to the picture is alſo parallel to its original.

Let A B, (*fig.* 2.) be an original line parallel to the picture, *a b* its repreſentation, and E A B the optic plane, E being the place of the eye. Now *a b* is the interſection of the optic plane, that is, of the triangle E A B with the picture; and becauſe A B is parallel to the plane of the picture, and A B, *a b* in the plane of the triangle E A B, *a b* is parallel to A B; for if otherwiſe, A B would meet the picture in the interſection *a b*, or *a b* produced, and conſequently could not be parallel.

Corol.—The projections of ſeveral lines parallel to one another and to the picture, are alſo parallel to one another. Thus, if A D and B C be parallel to one another, and to the picture M N I K, *a d* and *b c* will be reſpectively parallel to A D and B C, their originals.

Theorem 3.—The repreſentation of a line parallel to the picture is to its original, as the diſtance of the picture is to the diſtance between the eye, and a plane paſſing through the original line parallel to the picture; for let the plane Q R Z Y (*fig.* 2.) be parallel to the plane M N I K of the picture; and let E F be drawn perpendicular to the original plane and to the picture, to meet the original plane in F, and the picture in *f*; join A F and *a f*, then A E F will be a plane, A F the interſection of the plane of the triangle and the original plane, and *a f* the interſection of the plane of the triangle and the picture.

Now in the ſimilar triangles E *ab* and E A B,	E *a* : E A :: *ab* : A B
Alſo in the ſimilar triangles E *af* and E A F,	E *a* : E A :: *af* : A F
Therefore, by comparing theſe equal ratios,	*ab* : A B :: *af* : A F

Conſequently, the repreſentation of a line parallel to the picture, is to its original as the diſtance of the picture is to the diſtance of the eye, and a plane paſſing through the original line parallel to the picture.

Corol. 1.—The angle which the repreſentations of any two original lines parallel to the picture make with each other, is equal to the angle made by the original lines; becauſe each repreſentation is parallel to its original.

Corol. 2.—The projection of any plane figure parallel to the picture is ſimilar to its original, for let A B and A D be two contiguous original lines, and *a b* and *a d* their repreſentations. Now in the ſimilar

Triangles E *a b* and E A B,	E *a* : E A :: *ab* : A B
Alſo in the ſimilar triangles E *a d* and E A D,	E *a* : E A :: *ad* : A D
Therefore, by compariſon,	*ab* : *ad* :: A B : A D

Conſequently, the ſides about the equal angles are proportional.

Theorem 4.—The projection of a line is parallel to its director. Becauſe E Q, E D, and v' R, (*fig.* 1.) are all in the ſame plane; and ſince the directing plane is parallel to the plane of the picture, the director E D is parallel to the indefinite repreſentation v' R; becauſe "if two planes be cut by another plane, their common ſections with it are parallels." B. 11. prop. 16. Euclid.

Corol. 1.—The projections of lines that have the ſame director are parallel to each other.

Corol. 2.—When the original line is parallel to the picture, it is alſo parallel to its director, and therefore in the parallel of any given plane paſſing through the original line, and conſequently the vaniſhing line of that plane, and the projection of the line, are parallel to each other.

Theorem 5.—The diſtance between the projection of any point of a ſtraight line, and the vaniſhing point of the line, is to the diſtance between the interſecting point and the vaniſhing point, as the diſtance of the vaniſhing point is to the diſtance between the directing point and the original point.

That is, in *fig.* 1. *q* v' : R v' :: E′ v' : D Q. Now becauſe of the parallel planes which form the diagram, v' E′ D R is a parallelogram, therefore R v' is equal to D′ E′; now the triangles *q* E′ v' and E′ D′ Q are ſimilar, becauſe their ſides v' *q* and E′ D′ are parallel; therefore *q* v' : D′ E′ or R v' :: E v' : D Q.

Corol.—Hence the diſtance between the repreſentation of any point in a ſtraight line, and the vaniſhing point of the line, is to the diſtance between the interſecting point and the vaniſhing point, as the diſtance of the picture is to the diſtance between the original point and the directing plane.

The foregoing theorems, with the following corollaries ariſing from the definitions, contain all the principles which we conceive neceſſary in the perſpective repreſentation of any rectilineal object. But if the reader is deſirous of knowing the beſt methods for the repreſentation of circular objects, he muſt be prepared with the knowledge of conic ſections, and the harmonical diviſion of lines.

Corol. 1. *Propoſition.*—If there be a ſtraight line oppoſed to the eye, and not directed to it, the ſtraight lines which iſſue from all points of it to the eye form a plane.

Corol. def. 5.—Hence the repreſentation of any ſtraight line, rectilineal figure, or ſolid, is alſo rectilineal.

Corol. 1. *def.* 7.—Hence, if the original object be a plane, and the picture parallel thereto, the repreſentation will be a figure ſimilar to the original.

Corol. 2.—If any part of an original object touch the picture, the part which is thus in contact will be the repreſentation of that part.

Corol. def. 12.—Hence the interſecting points of all lines in any original plane, are in the interſecting line of that plane.

Corol. def. 13.—Hence if any number of original lines be parallel to each other, one line can only paſs through the eye parallel to them all.

Corol. def. 14.—Hence if any number of original planes be parallel to each other, one plane only can paſs through the eye, which will be parallel to them all.

Corol. 1. *def.* 15.—Hence the interſecting and vaniſhing lines are parallel to each other.

Corol. 2.—Hence all original parallel lines have the ſame vaniſhing point.

Corol. 3.—Hence the parallels of every two original planes have the ſame inclination as the originals.

Corol. 4.—The vaniſhing point of the common interſection of any two original planes, is the common interſection of the vaniſhing lines of theſe planes.

Corol. 1. *def.* 16.—The vaniſhing points of all original lines in the ſame plane, are in the vaniſhing line of that plane.

Corol. 2.—Hence any number of original parallel lines can have only one vaniſhing point.

Corol. 3.—Hence original lines which are parallel to the picture have no vaniſhing point.

Corol. 4.—The radials which generate the vaniſhing points of two originals make the ſame angle with the eye as the originals with each other.

Corol. def. 18.—Hence the interſecting line, the vaniſhing line, the parallel director, and the directing line, are all parallel to each other.

Corol. def. 19.—Hence the directing points of all lines in the ſame original plane, are in the directing line of that plane.

Corol. 1. *def.* 22.—Hence a line drawn from the centre of the picture to the centre of a vaniſhing line, is perpendicular to that vaniſhing line.

Corol. 2.—The diſtance of a vaniſhing line is the hypothenuſe of a right-angled triangle, the baſe of which is the diſtance of the picture, and the perpendicular the diſtance between the centre of the picture and the centre of the vaniſhing line.

Deſcription of the Diagrams for illuſtrating the Principles of Perſpective.—In *fig.* 1. is ſhewn the method of finding the repreſentation of a point, firſt by the interſecting and vaniſhing points. Let Q be any point in the original plane. Through Q draw any line, Q R, meeting the interſection I N at R; and through E′ draw E v' parallel to Q R, meeting the picture in v'; join v' R, and draw the viſual ray Q E′ cutting the indefinite repreſentation v' R at q, the repreſentation of the point Q; becauſe from theorem 1, the indefinite repreſentation of a line paſſes through its interſecting and vaniſhing point, and becauſe the viſual ray E Q is in the ſame plane with the parallelogram R D E v', E Q will therefore cut R v' at q.

Secondly, by the interſecting and directing points. Draw any line, Q D′, through the original point, cutting the interſection I N at R, and the directing line W X at D′; join D′ E′, which will be the director of the original line by definition 19; draw R v' parallel to D′ E′, and draw the viſual ray Q E′, cutting R v' at q, then q is the repreſentation of Q, as before. For ſince R D E′ v' is a plane, and the points E′ and Q, and the indefinite repreſentation R v' in that plane; the viſual ray joining E′ and Q muſt cut R v' at q.

This diagram alſo ſhews, that if L M and Q R be two original lines, having the ſame directing point D′, and if M and R be the interſecting points, the indefinite repreſentations M v^2 and R v' will be parallel. This appears from corol. 1. theorem 3.

In this diagram it is alſo ſhewn, that if E F, G H, I K, L M, be ſeveral parallel lines interſecting the picture at F, H, K, M, and if the radial E′ v^2 be drawn parallel to any one of them cutting the picture in v^2, their indefinite repreſentations will terminate in v^2. This appears evident, ſince any one of the lines E F, G H, &c. is in the ſame plane with E′ v^2, from the fourth axiom, and becauſe the eye at E′ is in E′ v^2, each of the indefinite repreſentations will be cut by any viſual ray from its original to the eye at E′.

Fig. 2. ſhews the repreſentation of a plane figure parallel to the picture. Let the original figure be A B C D, in the plane Q R Z Y parallel to the picture I N M K, and let E be the place of the eye in the directing plane G H X W. Draw any director E′ D′ through each angular point A, B, C, D, of the figure; draw A P, B S, C T, D Q, parallel to E′ D′, cutting the original plane in P, S, T, Q; draw D′ P, D′ Q, D′ S, D′ T, cutting the interſecting line in p, q, s, t; draw $p\,a$, $s\,b$, $t\,c$, $q\,d$, parallel to E′ D′: from the angular points A, B, C, D of the original figure, draw the viſual rays E′ A, E′ B, E′ C, E′ D, cutting the plane of the picture I N M K reſpectively at the points a, b, c, d, in the lines $p\,a$, $s\,b$, $t\,c$, $q\,d$. Becauſe A P, $a\,p$, and E′ D′, are parallel to each other, they are therefore in the ſame plane; therefore the ſtraight line A E′ will cut $p\,a$ at a, conſequently, a is the repreſentation of A. In the ſame manner it may be proved that b is the repreſentation of B, and ſo on of the reſt.

Fig. 3. ſhews the repreſentation of a plane figure by means of the directing plane in a plane inclined at any angle, or perpendicular to the picture Let A B C D be the original figure. Take any point D′ in the directing line W X as a directing point; draw the director D′ E′; from the angular points A, B, C, D, draw A D′, B D′, C D′, D D′, cutting the interſecting line at p, q, s, t; draw $p\,a$, $q\,b$, $s\,c$, $t\,d$, parallel to the director D′ E′; draw the viſual rays A E′, B E′, C E′, D E′, cutting the lines $p\,a$, $q\,b$, $s\,c$, $t\,d$, at the points a, b, c, d, and $a\,b\,c\,d$ is the repreſentation of the figure A B C D; for $p\,a$ is parallel to D′ E′, and the ſtraight line A D′ joins theſe parallels; therefore $p\,a$, D′ E′, and A D′, are in the ſame plane; and becauſe the angular point A, and E′ the place of the eye, are in that plane, the viſual ray A E′ is alſo in that plane, and therefore will cut $p\,a$ at a. In the ſame manner each of the other points b, c, d, may be proved to be the repreſentation of each of the points B, C, D.

Fig. 4. ſhews the repreſentation of a plane figure in a plane inclined to the picture at any angle, or perpendicular to it, by means of a directing point and the vaniſhing points of the ſides.

Let the quadrilateral A B C D be the original figure. Take any directing point D′, and draw D′ E′ the director; draw the radial E′ v' parallel to A D and B C, cutting V L, the vaniſhing line, at v'; alſo draw the radial E′ v^2 parallel to A B and D C, cutting V L at v^2. Then if the figure be a parallelogram, draw lines to the directing point D′ from each of the neareſt angular points, B, A, D, to cut the interſecting line I N at p, q, s; draw $p\,b$, $q\,a$, and $s\,d$, parallel to E′ D′; produce the ſide B A of the original figure to meet the interſection $I'N'$ at t; join tv^2, cutting qa at a, and pb at b, then a is the repreſentation of the point a; join av', cutting sd in d, and draw bv' and dv^2, cutting each other at c, then $abcd$ is the repreſentation of A B C D, as required. For tv^2 is the indefinite repreſentation of B A by theorem 1, and qa is the repreſentation of the line qA, theorem 3; and ſince the original lines B A and qA meet or cut each other at A, their indefinite repreſentations will alſo meet each other at a, and becauſe the vaniſhing point of a line is a point in the indefinite repreſentation; and if two points in the indefinite repreſentation are found the whole indefinite repreſentation may be drawn. Now ſince a is the repreſentation of the point A, and v' the repreſentations of another point in the ſide A D, av^2 will be the indefinite repreſentation of A B. In the ſame manner it may be ſhewn, that av' is the indefinite repreſentation of A D: then ſince sd is the repreſentation of sD, and the point D is both in sD and A D, therefore its repreſentation d is at d, the interſection of sd, and av', the indefinite repreſentation of theſe lines: for the ſame reaſon b is the repreſentation of B, and by reaſoning as above, it may be ſhewn that c is the repreſentation of C, Therefore the whole figure $abcd$ is the repreſentation of A B C D. It is upon this principle that moſt architectural drawings are put in perſpective, by only uſing the original plane, firſt ſuppoſing the picture, the vaniſhing plane, and the directing plane, removed: they firſt draw the plan, A B C D, of the building or edifice, and fix upon D' as a ſtation point, and then draw the interſection $I'N'$, then draw lines from the ſeveral points to cut $I'N'$; and ſuppoſing the picture to ſtand perpendicular to the original plane, as is generally the caſe, the directing plane S T X W will alſo be perpendicular to the original plane; then as D' in this caſe is the ſtation point, the director $D'E'$ becomes perpendicular alſo to the original plane, and hence the directorial indefinite repreſentations sd, qa, pb, will be perpendicular to the interſection $I'N'$. Then taking another ſeparate piece of paper for the picture, draw two parallel lines $I'N'$ and $V'L'$ at a diſtance from each other, equal to the height of the eye, $I'N'$ being the interſecting line, and $V'L'$ the vaniſhing line; then transferring all the interſections to $I'N'$ on the picture, draw lines from each point perpendicular to $I'N'$, and they will give the directorial indefinite repreſentations; then the vaniſhing points being found upon the original plane, the whole object may be repreſented with more advantage in this manner than in any other, as the indefinite repreſentations of all lines on the original plane fall in the ſame ſtraight lines with the repreſentations of original lines perpendicular to the original plane from the ſame original points.

Fig. 5. ſhews the repreſentation of a plane figure by means of vaniſhing points only; *viz.* by finding the vaniſhing points of the ſides, and producing the ſides of the original figure to their interſecting points, then the interſections of the indefinite repreſentations will form the figure $abed$, which is the repreſentation of the original figure A B C D, depending entirely upon theorem 1.

This method is, however, not ſo convenient as the ſtation point or prime directing point, as it requires much more ſpace to produce all the original lines, than to draw them from each of the points of the object to the directing point, and more particularly when the plan of the object is very remote from the interſecting line, or when large in proportion to the diſtance, and on this account, though elegant in theory, it is not eligible for practice.

Fig. 6. is here given, in order to ſhew that it will be the ſame thing, whether the plan of the object is laid on the vaniſhing plane, extended beyond the picture, or upon the original plane, the point E' for the eye and the vaniſhing line being ſituated in the ſame manner with reſpect to the figure $abcd$, that the point D' and the interſection $I'N'$ are in reſpect to the ſimilar and equal figure A B C D. For let the figures $abcd$, and A B C D, be placed ſo that the correſponding ſides ab, A B, cd, C D, &c. ſhall be parallel; then ſuppoſe the lines aA, bB, &c. to be joined, then theſe lines will alſo be parallel to each other; and becauſe the points D' and E' are alike ſituated to each of theſe figures, if $D'E'$ be joined, $D'E'$ will be parallel to aA, bB, &c. and parallel to the plane $I'N'L'V'$. Let $D'v$ be drawn parallel to A B, meeting $I'N'$, or $I'N'$ produced at v; draw $D'C'$ perpendicular to $I'N'$, cutting it in C'; alſo draw Ev' parallel to ab, meeting $V'L'$, or $V'L'$ produced at v', and draw EC'' perpendicular to $V'L'$, meeting it in C'', then the interſecting points G, M, N, will have the ſame diſtances in reſpect of each other, and with reſpect to v and C', that g, m, n, have in reſpect to each other and to the points v' and C^2; it will therefore be the ſame thing whether we uſe the vaniſhing plane, or the original plane, in order to aſcertain the interſections, the centre and diſtance of the picture, and the vaniſhing points, ſo as to draw the object unconnected with the original plane, as explained in *fig.* 4, as each of the lines drawn in the one plane has the ſame extenſion as its correſpondent line in the other, and the angle made by any two adjoining lines in the one plane, is equal to the angle formed by the correſponding lines of the other.

The foregoing diagrams, with the explanations which accompany them, ſhew the nature of forming the repreſentation from the original object, ſuppoſing all the planes to exiſt in their real poſition; but this is not the caſe in practical perſpective; the picture, the original plane, and the vaniſhing plane, muſt be reduced to one plane ſurface in the following manner: ſuppoſe the interſection, the vaniſhing line, the parallel of the eye, and the directing line, to be as hinges to the four planes, *viz.* the plane of the picture, the directing plane, the part of the original plane between the interſecting and directing lines, and the vaniſhing plane: now as theſe planes are all parallelograms, and the oppoſite planes being equal, they will, therefore, continue parallel in all poſitions when moved round the four hinges, and conſequently may be all made to coincide in one plane: now let it be ſuppoſed that the picture, the directing plane, and the vaniſhing plane, are moveable upon the original plane, which remains ſtationary, and let theſe planes be made to coincide with the original plane, ſo that the picture may cover that part of the original plane between the interſecting line and the directing line, either entirely, or in part, then by this means the part of the original plane beyond the interſecting line will be wholly uncovered. Suppoſe all the radials to have been previouſly drawn on the vaniſhing plane, in order to produce the vaniſhing points, it is evident that theſe radials will be ſtill parallel in the coincident ſtate of the planes. The practice, with regard to the uſe of vaniſhing points, may therefore be as follows: upon any convenient part of the paper draw two parallel lines for the interſecting and vaniſhing lines, then the area or ſpace comprehended between theſe lines is the picture, the ſpace adjacent to the interſection is the original plane, and the ſpace adjacent to the vaniſhing line is the vaniſhing plane, ſo that the picture lies between the vaniſhing and original planes: draw the original figure in the original plane in the intended poſition to the interſecting line, and fix upon the eye with regard to its diſtance from the vaniſhing line, and its poſition in regard of the ſtation line: draw lines through the eye parallel to the ſides of the original figure as radials, in order to produce the vaniſhing points; continue the ſides of the original figure to the interſecting line, and join the correſponding interſecting and vaniſhing points, then the ſpace incloſed by the indefinite repreſentation will be the repreſentation of the original figure. For if the whole ſcheme were ſuppoſed to be raiſed into its original poſition, the eye would be brought into its true place, the radials would be parallel to the original ſides of the object, and the indefinite repreſentations would be in the ſame plane with the radials and ſides of the original object. Though the ſpace between the interſecting and vaniſhing is called the picture, the picture is by no means limited to this ſpace, but extends upwards, and covers the vaniſhing lines plane, ſo that, in moſt caſes, what is commonly called the picture is the leaſt part of it, except in bird's-eye views, or where the horizon is taken very high in conſequence of the ſpectator being placed upon an elevated ſituation.

In the practice of perſpective, where the plan of the object is given, the principal directing point uſed in conjunction with the vaniſhing points of the ſides is the moſt convenient, as has already been obſerved; the vaniſhing plane is here ſuppoſed to be removed, as all the planes in the practice of perſpective delineation are ſuppoſed to coincide. The interſecting and vaniſhing lines may be drawn as before; then the principal directing point or ſtation point may be fixed in the ſame poſition to the interſecting line, that the eye is in regard of the vaniſhing line; then the eye and the ſtation point will be at a diſtance from each other, equal to the height of the picture, and in a ſtraight line perpendicular to the interſecting line; or the diſtance of the eye from the vaniſhing line will be equal to the diſtance of the ſtation point from the interſecting line; alſo the poſition and diſtance of the eye from the object will be the ſame as when all the planes are brought into their real poſition.

It muſt be here obſerved, that in the motion of theſe planes round the principal lines, as before obſerved, the parallel of the eye and the vaniſhing line always keep the ſame parallel diſtance in all poſitions; but theſe lines vary in reſpect of the object in the original plane, becauſe theſe lines are not in the ſame plane with the original plane; and the interſecting and directing lines, alſo the original figure, are in the ſame plane, *viz.* in the original plane. Therefore the ſtation point, or any other directing point, may be fixed in poſition to the original object and interſecting line. This is the foundation of the practice of perſpective with regard to the uſe of the directing line, and, therefore, the directing point has the ſame relation to the interſecting line that the eye has to the vaniſhing line.

In order to prevent repetition in the enunciation of the following problems, the eye, the vaniſhing line, and interſecting line, are always given in poſition; the eye is denoted by E', the vaniſhing line by V L, and the interſecting line by I N; but as the original object may be of an indefinite number of forms, it is only enunciated in each problem.

PROBLEM I. *Plate* II. *Figs.* 1 and 2.

Given any original ſtraight line A B, oblique to the interſection I N, to find its indefinite repreſentation.

Produce A B to its interſecting point B; through E' draw the radial E' v'; and join B v'; then B v' is the indefinite repreſentation of the line A B. Theorem 1.

If there be any number of original parallel lines A B, A B, &c. and if B, B, &c. be their interſectiug points, and v' the vaniſhing point of any one, it will be the vaniſhing point of the whole ſyſtem. Corol 2. def. 16.

PROB. II. *Figs.* 3 and 4.

Given any original point A, to find its repreſentation.

Draw any two lines through the point A, find each of their indefinite repreſentations C v', B v^2, problem 1, and the interſection a of C v', B v^2. will be the repreſentation of the original point A.

For ſince the original point, A, is in each of the original lines A B and A C, the repreſentation, a, of the point, A, is in each of the indefinite repreſentations, and is therefore at a, their interſection.

PROB. III. *Fig.* 5.

Given any original line A B, oblique to the interſection, to find its repreſentation.

Find the indefinite repreſentation C v of A B by problem 1; draw A E' and B E', cutting C v at a and b, then ab is the repreſentation of A B.

For let A E' interſect I N at D, and V L at G, then D is the interſecting point, and G the vaniſhing point of the original line A D; therefore G D is the indefinite repreſentation of A D; and ſince v C is the indefinite repreſentation of the original line A B, and ſince each of the original lines is drawn from the point A, the interſection, a, of the two indefinite repreſentations C v and D G will be the repreſentation of the point A by problem 2. In like manner it may be ſhewn that b is the repreſentation of the point B, therefore ab is the repreſentation of A B.

PROB. IV. *Fig.* 6.

To find the repreſentation of any original line A B parallel to the picture.

Find a, the indefinite repreſentation of the point A, problem 2; draw ab parallel to the original line A B; join B E', cutting ab at b, then ab is the repreſentation of A B.

For ſince a is the repreſentation of A, problem 2, and ſince any original line parallel to the interſection muſt have its repreſentation alſo parallel to the interſection; and, laſtly, becauſe b is the repreſentation of B, ab is the repreſentation of A B. For it may eaſily be ſhewn, that if two planes cut one another, and if theſe be cut by a third plane, ſo that its interſection with one of them ſhall be parallel to the interſection of the two firſt, the other interſection will alſo be parallel to the two firſt.

PROB. V. *Fig.* 7.

An original oblique line A B, being divided into ſeveral parts, to find the repreſentation of the parts.

Find the repreſentation, ab, of the original line A B, problem 3, and through the ſeveral diviſions of the parts in A B draw lines to the eye at E', cutting ab at e and f, then be, ef, fa, are the parts correſponding to thoſe of the original line A B.

This is evident from problem 2.

PROB. VI. *Fig.* 8.

Given the ſeat, A, of an original line parallel to the picture, and perpendicular to the original plane, to find the repreſentation of the ſaid line.

Through A draw any line A B, cutting I N at B, and find its indefinite repreſentation B v, problem 1, and find the repreſentation, a, of the point A in the indefinite repreſentation B v; draw B C and ad perpendicular to I N; make B C equal to the original line; draw C v, cutting ad at d, then ad is the repreſentation of the original line inſiſting upon the given point A.

Demonſtration to Problem VI.—For, ſuppoſe the plane I N L V of the picture to be raiſed perpendicular to the original plane, and the objective line to be raiſed in poſition; alſo imagine a ſtraight line drawn through the other extremity of the objective line, out of the original plane, parallel to A B, till it cut the picture; this line, ſo drawn, will form the ſide of a parallelogram, of which A B is the oppoſite ſide, and the objective line inſiſting upon A, and B C the other two oppoſite ſides; therefore B C will be equal to the objective line, and the point C is the interſection of the ſide of the parallelogram oppoſite to A B; and becauſe v is the vaniſhing point of A B, it will alſo be the vaniſhing point of the ſide of the parallelogram oppoſite to B C; therefore C v will be the indefinite repreſentation of the ſide of the parallelogram oppoſite to A B; and becauſe the point a, in the indefinite repreſentation B v of A B, is the repreſentation of the point A, and becauſe both ad and the original line are each parallel to B C, and ad is terminated at d by C v; ad is the repreſentation required.

The following four problems are performed by means of the prime directing point and one vaniſhing point; where, obſerve that C′ is the centre of the picture, found by drawing E′ C′ perpendicular to the vaniſhing line V L, as in definitions 21 and 22; D′ the prime directing point in E′C′, found by making E′ D′ equal to the height of the picture, or making the diſtance between D′ and the interſecting line equal to C′ E′, the diſtance between the vaniſhing line and the eye.

Prob. VII. *Fig.* 9.

To find the repreſentation of a line A B oblique to the interſection.

Find the indefinite repreſentation C v of A B by problem 1; draw A D′ and B D′, cutting I N at D and E; draw E a and D b parallel to D′ E′, cutting C v at a and b, then $a b$ is the repreſentation of A B.

For ſince the repreſentations of the points A and B are in C v, the indefinite repreſentation of A B, and becauſe E′ D′ is the director of the original lines A E and B D, and E and D the interſecting points of theſe lines, E a and D b, drawn parallel to E′ D′, will be the indefinite repreſentations of A E and B D; therefore the repreſentations a and b, of the points A and B, are in theſe indefinite repreſentations, theorem 3; but they are alſo in the indefinite repreſentation C v; and, conſequently, in a and b, the interſections of the indefinite repreſentations, whoſe director is D′ E′, and the indefinite repreſentation C v, whoſe vaniſhing point is v, therefore $a b$ is the repreſentation of A B.

Prob. VIII. *Fig.* 10.

To find the repreſentation of an original line A B, parallel to the interſecting line.

Through either extremity A, draw any line A e, meeting the interſection in e; find the indefinite repreſentation $e v$ of A e, problem 1; draw D′ A and D′ B, cutting I N at c and d; draw $c a$ parallel to D′ E′, cutting $e v$ at a; draw $a b$ parallel to A B; and draw $d b$ parallel to E′ D′, cutting $a b$ at b; then $a b$ is the repreſentation of A B.

For the repreſentation of the point A is in the indefinite repreſentation $e v$ of A e, problem 1; it is alſo in the indefinite repreſentation $c a$ of A c; therefore the repreſentation of A is at the point a, the interſection of theſe two indefinite repreſentations; and becauſe the original line, A B, is parallel to the interſection, $a b$ will alſo be parallel to the interſection; therefore the repreſentation of the point, B, will be in the line $a b$; but the repreſentation of B is alſo in the indefinite repreſentation, $d b$, of the line B d; wherefore the repreſentation of the point, B, being both in $a b$ and $d b$, muſt be at b, their interſection; wherefore $a b$ is the repreſentation of the line $a b$.

Prob. IX. *Fig.* 11.

To find the repreſentation of parts A D, D E, E B, into which an original line A B, oblique to the interſection, is divided.

Find the indefinite repreſentation, $c v$, of the line A B, by problem 1; then by the directing point D, and director D E, find the repreſentations a, d, e, b, of the original points A, D, E, B, as in problem 7.

Then $a d$, $d e$, $e b$, are the repreſentations of A D, D E, E B.

This is evident from the demonſtration, problem 7.

Prob. X. *Fig.* 12.

To find the repreſentation of a line parallel to the picture perpendicular to the original plane.

Find the indefinite repreſentations, $b v$ and $c v$, of any ſtraight line A b, and that of another parallel to it, paſſing through the other extremity of the objective line out of the original plane, as in problem 6; draw A D′, cutting I N at f; and draw $f d$ parallel to D′ E′, cutting $b v$ at a, and $c v$ at d; then $a d$ is the repreſentation required.

This is evident from the demonſtration of problem 6, and becauſe the director, D′ E′, is perpendicular to the interſecting line I N, the indefinite repreſentation af of A f, as well as the repreſentation, $a d$, of the original of the objective line, are perpendicular to I N; and becauſe the point, a, is common to the two ſtraight lines af and $a d$, af is in the ſame ſtraight line with $a d$, and, conſequently, they make only one ſtraight line, $f d$, perpendicular to I N.

The following problem ſhews the method of finding the repreſentation of plane figures by means of the vaniſhing points.

Prob. XI. *Figs.* 13, 14, and 15.

To find the repreſentation of any plane rectilinear figure in the original plane.

Find the indefinite repreſentation of every ſide of the original figure by problem 1, and the interſections of all the indefinite repreſentations will form the repreſentation of the figure required.

If the vaniſhing points of any original line exceed the limits of the picture, the extremities of that line may be found by problem 3, or by problem 7.

Parallelograms will have two vaniſhing points.

The foregoing problems are requiſite in finding the repreſentation of an object in the original plane. The following is to obviate the neceſſity of drawing the original object, or having it given but to perform the operation from a knowledge of the conſtruction of the figure.

Prob. XII. *Plate* III. *Fig.* 1.

Given the vaniſhing and interſecting points of a line, the diſtance of any point in that line from the interſecting point, as alſo the length of the radial, to find the repreſentation of the point.

Let v' be the vaniſhing point, d the interſecting point: join $d v'$; through v' draw any line, $v'f$, and through d draw $d b$, on the contrary ſide of $d v'$, parallel to $v'f$; make $d b$ equal to the diſtance of the original point from the interſecting point d, and make $v'f$ equal to the diſtance between the vaniſhing point, v', and the eye E′; join $f b$, cutting $d v'$ at m, then m is the point required.

This propoſition is manifeſt from theorem 4. But, for the conveniency of practice, the diſtance of the eye from the vaniſhing point is transferred upon the vaniſhing line from the vaniſhing point; and, conſequently, the diſtance of the original point from the interſecting point, is transferred upon the interſecting line from the interſecting point, in order to ſave room: thus, if $V'L'$ be the vaniſhing line, $I'N'$ the interſecting line, E' the place of the eye, a an original point, drawing any line ad, and its radial $E'v'$, and joining the vaniſhing point, v', to the interſecting point d, and making $v'1$, on the vaniſhing line, equal to $v'E'$, the diſtance of the eye, and dc on the interſecting line equal to da, the point, m, will be found the ſame, whether aE', bf, or $c1$, be joined, as is evident, becauſe the indefinite repreſentation, dv', is divided into two portions in the conſtant ratio of ad to $v'E$.

Prob. XIII. *Fig.* 2.

Given the vaniſhing and interſecting lines of a plane, the vaniſhing and interſecting points, v' and d, of an indefinite line in that plane, the diſtance of the eye, and the diſtance of a point in the original line, to find the repreſentation of the point.

Join $v'd$, the interſecting and vaniſhing points; make $v'1$ equal to the diſtance of the eye, and dc equal to the diſtance of the point in the original line; join $c1$, cutting dv' at m, and m will be the repreſentation of the original point.

This appears evident from problem 12.

Prob XIV. *Fig.* 3.

The vaniſhing and interſecting lines of a plane, the vaniſhing and interſecting points, v' and d, of a finite line on that plane, the diſtance of the vaniſhing point from the eye, and the diſtance of the neareſt extremity of the line to its interſecting point being given, to find the repreſentation of the line.

Join $v'd$, the indefinite repreſentation; make $v1$ equal to the diſtance of the eye on the vaniſhing line, alſo da equal to the diſtance of the neareſt extremity, and ab equal to the original line on the interſection IN; join $a1$, cutting $v'd$ at f, and $b1$ cutting $v'd$ at g, then fg is the repreſentation of the original line.

This appears evident from problem 12, as the points f and g are each the repreſentation of a point in the original line.

Prob. XV. *Fig.* 4.

The definite repreſentation ae, and the vaniſhing point, v', of a line being given, to divide ae, repreſenting the original line, conſiſting of parts of a given ratio.

Through either extremity, a, of the definite repreſentation, draw IN at any angle with av', and through v' draw $v'1$ parallel to aE, on the contrary ſide of av'; make aB, BC, CD, DE, equal to the parts of the original line, or in the ſame ratio; join Ee, which produce to 1; alſo join $B1$, $C1$, $D1$, cutting ae at b, c, d; then ae is divided as required.

For in the ſimilar triangles,

$$\begin{array}{l}
baB \text{ and } bv'1,\ ba : aB :: bv' : v'1 \\
caC \text{ and } cv'1,\ ca : aC :: cv' : v'1 \\
daD \text{ and } dv'1,\ da : aD :: dv' : v'1 \\
eaE \text{ and } ev'1,\ ea : aE :: ev' : v'1
\end{array}$$

Therefore alternately,

$$\begin{array}{l}
ba : bv' :: aB : v'1 \\
ca : cv' :: aC : v'1 \\
da : dv' :: aD : v'1 \\
ea : ev' :: aE : v'1
\end{array}$$

And becauſe the parts aB, aC, aD, aE, continue in the ſame ratio with $v'1$, the points, a, b, c, d, e, will be invariable, whatever angle the lines $a'E$ and $v'1$ form with $v'a'$ and whatever be the lengths of aB, aC, aD, aE; and becauſe the lines $a1$, $B1$, $C1$, $D1$, $E1$, repreſent a ſeries of parallels, cutting the original of ae, the points a, B, C, D, E, will repreſent the interſections, and $v1$ the diſtance of the eye.

Prob. XVI. *Fig.* 5.

The centre C, and diſtance of the picture, the vaniſhing and interſecting lines of a plane, the vaniſhing point of a finite line in that plane, the ſeat x, and diſtance of the neareſt extremity of that line from its ſeat being given, to find the repreſentation of the line.

Make $C'D$ on the vaniſhing line equal to the diſtance of the picture, and xy on the interſecting line equal to the diſtance of the ſeat of the neareſt extremity of the given line; join $C'x$ and yD, cutting each other in g; join gv'; find the point 1, ſuch that the diſtance $v'1$ may be equal to the hypothenuſe of a right-angled triangle, whoſe baſe is $v'C'$, and perpendicular $C'D$ the diſtance of the picture; draw $1ga$, cutting $I'N'$ at a; make ab equal to the original line; join $b1$, cutting gv' in h, and gh is the repreſentation required.

Prob. XVII. *Fig.* 6, N° 1.

The centre and diſtance of the picture, the vaniſhing and interſecting line of a plane perpendicular to the picture, the ſeat of the neareſt extremity of a line in that plane, the length of the line, and its inclination to the interſecting line being given, to find the repreſentation of the line.

In N° 1, let x be the ſeat of the neareſt extremity of the line; make xy equal to its diſtance, and make $C'D$ equal to the diſtance of the picture; join $C'x$ and Dy, cutting each other at g. In N° 2, make any angle aec, on the line ae; make ea to eb as radius to the coſine of inclination of the given ſide; make ec equal to its length; find ed a fourth proportional to ea, eb, ec; transferred to $I'N'$, N° 1, from x to f, and draw fc cutting gv' at h, then gh is the line required.

This is evident, if we conſider the points, a and b, in the original lines perpendicular to the picture; then the ſpace intercepted upon the interſecting line by the two perpendiculars, will be in the ſame proportion to the original line as radius to the coſine of inclination.

Prob. XVIII. *Figs.* 7 and 8.

Given the indefinite repreſentation of two lines in the ſame plane, interſecting each other at b; a finite portion, ba, of the indefinite repreſentation bv', and the diſtance of the eye, $v'1$ and $v^2 2$, from each vaniſhing point, v', v^2; to find a portion of the indefinite repreſentation bv^2, the original of which ſhall be equal to that repreſented by ab, or in any given ratio with the original of AB.

Through the point b, draw de parallel to the vaniſhing line $V'L'$; join $1a$, which produce to d, in *fig.* 7, but to cut ed in d, *fig.* 8; make be to bd in the ratio required, and join $e2$, cutting bv^2 at c; then the original of ba will be to the original bc as bd to be, as required.

This is evident by conſidering ba as the repreſentation of a line inclined to, and bd the repreſentation of another coinciding with, the picture, and 1 the vaniſhing point of a line forming the baſe of an iſoſceles triangle with each of theſe lines; therefore, abd will be the repreſentation of an iſoſceles triangle, of which ad will repreſent the baſe, and ab and bd the two equal ſides: in like manner, cbe will repreſent an iſoſceles triangle, of which ce will repreſent the baſe, and cb, be, the two ſides.

In this and the following examples, where the repreſentations of lines are required to be delineated without the uſe of the geometrical plane, the vaniſhing points are always marked v, with an index over the right-hand ſide of it, in order to diſtinguiſh the number of vaniſhing points: thus, v', v^2, v^3, &c. denote the firſt, ſecond, and third vaniſhing points. The diſtances of theſe vaniſhing points are ſimply denoted by their indexes: thus, 1 placed upon the vaniſhing line, denotes the diſtance of the vaniſhing point v' from the eye, 2 of v^2, and ſo on of others.

Prob. XIX. *Fig.* 9.

The indefinite repreſentations, $c v'$ and $a v'$, of two lines in the ſame plane; the diſtances, v' 1 and v^2 2, of their vaniſhing points, v' and v^2, on the vaniſhing line, V L, of their plane; alſo, a finite portion, $c d$, of the indefinite repreſentation $c v'$, being given: through a given point, a, in the indefinite repreſentation $a v^2$, to repreſent the length of an original line, which ſhall be equal to, or in a given ratio to, the original line repreſented by $c d$.

Through c draw $g f$ parallel to $V' L'$, and through a draw $a h$ parallel alſo to $V' L'$; join 1 d, and produce it to g; alſo produce the indefinite repreſentation $v^2 a$ to meet $g f$ in e; make $e f$ to $c g$, in the ratio of the original to be repreſented from the point a, on the indefinite repreſentation $a v^2$, to the original repreſented by $c d$; join $f v^2$ cutting $a h$ at h, and join h 2 cutting $a v^2$ at b; then $a b$ is the repreſentation required.

For $a e h f$ repreſents a parallelogram, with two ſides parallel to the picture; and becauſe $e f$ and $a h$ repreſent oppoſite ſides, the original of $e f$ is equal to the original of $a h$; and becauſe $b a h$ repreſents an iſoſceles triangle, of which $b h$ is the baſe, the original of $a b$ is equal to the original of $a h$, therefore the original of $a b$ is equal to the original of $e f$; and becauſe $d c g$ repreſents an iſoſceles triangle, the original of $c g$ is equal to the original of $c d$; and becauſe $c g$ and $e f$ are in a line parallel to the vaniſhing line, the originals of $c g$ and $e f$ are parallel in the ſame indefinite line to the interſecting line of their plane, and have the ſame ratio as the repreſentations $c g$ and $e f$; therefore the original of $c d$ has to the original of $a b$ the ratio of $c g$ to $e f$, as required.

Prob. XX. *Fig.* 10.

Given the eye, the vaniſhing and interſecting lines, and place of the eye in poſition; to find the repreſentation of a parallelogram, whoſe angles and dimenſions, alſo the ſeat, x, of the neareſt angular point, and its diſtance from the interſecting line, are known.

Draw $E' C'$ perpendicular to $V' L'$, the vaniſhing line, cutting it in C', the centre of the picture; make $C' D'$ equal to $C' E'$, and $x y$ equal to the diſtance of the neareſt angular point of the parallelogram from the interſecting line; join $x C'$ and $y D'$, cutting each other in e, the repreſentation of the neareſt angle, as in problem 16. Through E' draw M N parallel to $V' L'$; make the angle $M E' v'$ equal to the angle which the ſide of the original parallelogram, adjoining the neareſt angle, makes with the interſection, or makes with a line drawn from the neareſt angle parallel to the interſection; make the angle $v' E' v^2$ equal to the neareſt angle of the parallelogram; join $e v'$ and $e v^2$; from the indefinite repreſentation $e v'$, cut off the portion $e f$, to repreſent a line equal to the original ſide, of which $e v'$ is the indefinite repreſentation, by problem 16; that is, make v' 1 equal to $v' E'$; join 1 e, and produce it to meet the interſecting line in a; make $a b$ equal to the original ſide; join 1 b, cutting $e v'$ at f; in like manner, make v^2 2 equal to $v^2 E$, and join 2 $e c$, cutting the interſecting line in c; make $c d$ equal to the other adjoining ſide of the neareſt angle, and join d 2, cutting $e v^2$ at h; join $h v'$ and $f v^2$, and $e f g h$ is the parallelogram required.

The original figure, though here ſhewn, is of no other uſe than to aſſiſt the imagination in the conſtruction.

Prob. XXI. *Fig.* 11.

Given the interſecting and vaniſhing lines, and the place of the eye in poſition, the ſeat x, the diſtance of the centre of a circle, and its radius, to find the repreſentation of the circle.

Method 1.

Make $x y$, on the interſecting line, equal to the diſtance of the centre of the original circle from its ſeat x, and $C' D'$ on the vaniſhing line equal to $C' E'$, the diſtance of the eye; join $x C'$ and $y D'$, cutting each other in e, the repreſentation of the centre of the circle; through e draw $c d$ parallel to $I' N'$, the interſection; make $x a$ and $x b$ each equal to the radius of the circle; join $C' a$, cutting $c d$ in c, and $C' b$, cutting $c d$ in d, and $c d$ is the repreſentation of a diameter parallel to the picture; then to find the repreſentation $f g$ of any diameter drawn through e at pleaſure; produce $f g$ to its vaniſhing point v^2; make v^2 2, on the vaniſhing line, equal to $v^2 E'$, the diſtance of the eye from the vaniſhing point; join 2 c, cutting $f g$ in g, alſo 2 d, and produce it to f; then $f g$ is the repreſentation of a diameter of the original circle inclined to the interſecting line. In like manner may the repreſentations $h i$, $k l$, $m n$, be found; *viz.* by transferring the diſtance of each of their vaniſhing points from the eye on the vaniſhing line, and drawing two lines from each point of diſtance to c, and d, the one cutting, and the other produced till it cut the indefinite repreſentation belonging to the diſtance ſo transferred, then a curve being drawn through all the extremities of the repreſentative diameters, will be the repreſentation of the circle required.

The original circle, A, is placed in its poſition for the ſame reaſon as before given, prob. 21. This is an application of problem 18, from which its evidence appears.

The following are ſeveral eaſy methods of drawing the repreſentation of a circle, and are exceedingly uſeful where accuracy is required, particularly in the repreſentation of large circles.

The interſecting and vaniſhing lines, the centre and diſtance of the picture, the ſeat and diſtance of the centre, and the radius of the circle, are ſuppoſed to be given till it is otherwiſe announced; C' denotes the centre, and $C' D'$ the diſtance of the picture, and x the ſeat of the centre of the circle, and $x y$ its diſtance, as in prob. 20, 21.

Method 2. *Fig.* 12.

Draw x A perpendicular to $I' N'$; make x E and x D each equal to x A; deſcribe the arc C x B; join A E and A D, cutting the arc C x B at C and B; draw C F and B G perpendicular to $I' N'$, cutting $I' N'$ at F and G; join $E C'$, $F C'$, $x C'$, $G C'$, and $D C'$; alſo join y D, cutting $E C'$, $F C'$, $x C'$, $G C'$, and $D C'$, at b, m, n, k, and d; draw $b a$ parallel to $I' N'$, cutting $x C'$ in e, and $D C'$ at a; draw $d c$ parallel to $I' N$, cutting $x C'$ in g, and $E C'$ at c; through n draw $f h$ alſo parallel to $I' N'$, cutting $E C'$ at f, and $D C'$ at h; join $a c$, cutting $G C'$ at b, and $F C'$ at l, and $a c$ will alſo cut $f h$ or $y D'$ at n; through the points e, b, h, k, g, l, f, m, e, draw a curve, which will be the repreſentation of the circle required.

This will eaſily appear, when it is conſidered that the tangent of 45 degrees is equal to the radius, or by inſpecting *fig.* 14, where the part M F G is equal and ſimilar to A E D.

Method 3. *Fig.* 13.

Make $x\,b$ and $x\,a$ each equal to the radius of the circle; join b C′, x C′, and a C′; make $x\,y$ equal to the diſtance of the centre of the circle from its ſeat x, and join y D′, and complete the repreſentation $d\,c\,f\,e$ of the circumſcribing ſquare, as in *fig.* 12.; divide the repreſentation $h\,g$, of the parallel diameter, into ſeven equal parts, ſetting one-ſeventh from h, and the other ſeventh from g, each towards the centre; draw $k\,l$, and $m\,n$, tending to C′, cutting the diagonals in the points k, l, m, n, then through the points l, h, k, p, n, g, m, q, draw a curve, which will be the repreſentation required.

This will readily appear by obſerving in *fig.* 12. that the repreſentation of the parallel diameter $f\,h$ is divided in the ſame proportion as E D, or as E A, *fig.* 14; now E L, K A, F H, or I G, *fig.* 14, is very nearly equal to oneſeventh of the diameter E A; draw M C perpendicular to E A, cutting the ſemi-circumference at C; through C draw F G parallel to E A, and through E and A draw E F and A G parallel to M C, and join F M and G M, cutting the circle in D and B; through D and B draw L H and K I parallel to M C, cutting E A at L and K, and F G at H and I.

Now ſuppoſe the diameter E A to conſiſt of ſeven equal parts, then the radius M E or M A will be 3.5, that is, M D, or M B, will be 3.5.

By Euclid, b. i. prop. 47, the ſquare of M D, or M B, is equal to the ſquares of M L and L D; but M L is equal to L D, therefore the ſquare of D M is double the ſquare of M L; that is, the ſquare of M E is double of the ſquare of M L; hence M L will be obtained arithmetically thus: $\mathrm{L\,M} = \left(\frac{\mathrm{M\,E}^2}{2}\right)^{\frac{1}{2}}$; therefore $\mathrm{E\,L} = \mathrm{E\,M} - \mathrm{L\,M} = \mathrm{E\,M} - \left(\frac{\mathrm{M\,E}^2}{2}\right)^{\frac{1}{2}} = 3.5 - \left(\frac{3.5^2}{2}\right)^{\frac{1}{2}} = 1.026$, &c. which is exceedingly near to unity, the error being in exceſs.

Fig. 15. is an application of method 3, *fig.* 13, to planes at different altitudes, to obtain the repreſentation of a circle, when the ſeat of its centre is given on the original plane, and the ſeat of the centre of the circle on the original plane, given on the interſecting line, and the diſtance of the ſeat of the centre of the circle on the original plane, from its ſeat on the interſection alſo given. The ellipſis below is the repreſentation of a circle below the eye.

To repreſent a circle above the level of the eye, let x be the ſeat of the centre of the circle on the original plane, given on the interſecting line; let $x\,y$ be the diſtance of the two ſeats. Draw $y\,o$ perpendicular to I′N′, and make $y\,o$ equal to the diſtance of the centre of the circle from its ſeat on the original plane; draw o D′; then having found the repreſentation of the circle below the eye on the original plane, as in method 3, *fig.* 13, let $c\,e$ be the repreſentation of the diameter parallel to the picture, and a the repreſentation of the centre; draw $a\,p$ parallel to $y\,o$, cutting o D′ in p; draw $w\,z$ parallel to V′L′, the vaniſhing line; draw $e\,w$ parallel to $y\,o$; make $p\,z$ equal to $p\,w$; through w draw $s\,t$, tending to the centre C′ of the picture, cutting o D′ in t; and through z draw $q\,r$, tending alſo to C′, cutting o D′ at r; draw $r\,s$ and $q\,t$ parallel to V′ L′, and $s\,r\,q\,t$ will be the repreſentation of the circumſcribing ſquare; then complete the circle as in method 3.

Method 4. *Plate* IV. *Fig.* 1.

Let A B C D be the repreſentation of the circumſcribing ſquare, with two ſides of the original parallel to the interſecting line, conſequently the other two perpendicular thereto; and let G H be the repreſentation of a diameter parallel to the interſecting line, and I that of the centre; E F the diameter perpendicular to the interſecting line. Divide I H into any number of equal parts (as three), and through the points of diviſion (1, 2,) draw the lines F m, F n; draw H K parallel to F E, cutting A B at K; divide K H into the ſame number of equal parts as I H, and through the points of diviſion draw the lines E m, E n, then the points m and n are in the curve as well as the points E and H. In the ſame manner, the curve E $o\,p$ G, for the repreſentation of the other quarter, will be found; alſo in deſcribing the repreſentation G F H of the remote ſemi-circle, proceed for the repreſentation of each quarter in the ſame way, only changing the points F and E for each other, and the whole curve will be obtained.

Method 5. *Fig.* 2.

Let G E H be the repreſentation of the remote ſemi-circle in the ſame poſition as before. Divide I H into any number of equal parts (as three), alſo divide the line B H perſpectively to repreſent the original of B H, divided into three equal parts; that is, ſince B C′ is the indefinite repreſentation of a line C′, its vaniſhing point, B k is a line drawn through B, and C′ d another drawn parallel thereto, and on the contrary ſide of B C′. On B k ſet off the diſtances B 1, 1 2, 2 k, equal to each other; join k H, and produce it; meet C′ d in t, and draw each of the lines 1 l, 2 m, tending to the point t, cutting B H at l and m, the ſame as in problem 15; then having drawn the lines E $p\,l$, E $q\,m$, as in method 4, draw $l\,p$ E, $m\,q$ E, and the points of interſection p and q will be in the curve. In the ſame manner may the part E $r\,s$ G be obtained, and alſo the repreſentation of the remote half, if neceſſary.

Fig. 3. is the repreſentation of a ſegment leſs than a ſemicircle, the chord of the original ſegment being parallel to the interſecting line: the operation is the ſame as in method 4. It is hardly poſſible to conceive any method more convenient and more eaſy than this, as the perſpective repreſentation is found geometrically, without any other vaniſhing points than the centre of the picture.

Method 6. *Fig.* 4.

Having completed the repreſentation, A B C D, of a circumſcribing ſquare, the ſides of the original being parallel and perpendicular to the picture; find the perſpective centre I, which may be done by drawing the two diagonals; find the repreſentation G H of the diameter parallel, and that of F E of the diameter perpendicular to the picture; produce G H both ways to K and L, making G K, and H L, each equal to I H or I G; join K E and K F, L E and L F; alſo join E D, F A, E C, and F B, cutting the lines drawn from K and L to the points E and F, at a, b, c, d, which are points in the repreſentation of the circle; therefore through all the points a, E, b, H, c, F, d, G, draw a curve which will repreſent the circle required.

Fig. 5. ſhews the ſame thing for the repreſentation of a ſemicircle with its diameter parallel to the picture.

The methods ſhewn by *figs.* 1, 2, 3, 4, and 5, are derived from the following conſideration.

Let A B (*fig.* 6.) be any ſtraight line cutting another C D at E, and dividing it into two equal parts E C and E D; and if C F and D G be drawn parallel to B A, and if F G be drawn through A parallel to C D; and if C E and C F be divided into any equal number of parts in the ſame ratio from C, and lines be drawn from the points of diviſion in C F, to the point A, and lines through the ſeveral diviſions in C E from the point B to cut the former drawn to the point a, the reſpective interſections of every two lines will be in the curve of an ellipſis, of which C E is an ordinate, and A E an abſciſſa. In the ſame manner the oppoſite part of the curve may be deſcribed, and alſo the other portion on the oppoſite ſide of the double ordinate C D. Now to ſhew the truth of this: let A B (*fig.* 7.) be a diameter, and $g f$ an ordinate; draw $f e$ parallel to B A, and A e parallel to $g f$; divide $f e$ and $f g$ in the ſame ratio, the former in h, and the latter in k, and draw h A and B k, and produce B k to meet h A at C, then C is a point in the curve.

Becauſe the triangles B D C and B $g k$ are ſimilar, $BD : Bg :: DC : gk$

And becauſe the triangles A D C and A $i h$ are ſimilar, $AD : Ai$ or $eh :: DC : ih$ or gf

And by conſtruction, $eh : ef$ or $Ag :: gk : gf$

Therefore by multiplication, $BD \times AD : Bg \times Ag :: DC^2 : gf^2$

A well-known property of the ellipſis.

Now in *fig.* 1, E F is a diameter, and I G, I H, ordinates at the ſame point I; and as the perſpective repreſentation of a circle is the ſection of an oblique cone, it is an ellipſis, and as the method is the ſame as that now demonſtrated, it is therefore founded in truth. In *fig.* 3, the ſame data are given. In *fig.* 4, F A divides I G into two equal parts, which have their originals alſo equal; and F B divides I H into two equal parts, which have their originals alſo equal. Again, E K divides A G into two parts, the originals of which are equal; and E L divides B H into two parts, the originals of which are equal; and ſince a circle can be drawn through as many points found in the ſame manner, this method for finding eight points in the curve is correct. The ſame might have been obſerved of *fig.* 2; for the parts in the double ordinates I G and I H are divided equally, and the parts in A G and B H perſpectively into parts, the originals of which are equal.

Nothing can be more expeditious, nor more convenient for practice, than the method which this principle furniſhes, when it is conſidered that no point can be found geometrically, but by the interſections of two ſtraight lines. Its great advantage lies in the regularity of the operation; in not diſtracting the eye with irregular croſſings. As many points may be found as required, without the leaſt confuſion, within the compaſs of the circumſcribing parallelogram, which is not the caſe with many other methods derived entirely from the principles of perſpective. It may be always well applied when the curve is the repreſentation of a circle inſcribing a ſquare, the ſides of which are parallel and perpendicular to the picture.

Method 7. *Fig.* 9.

Let W X Y Z be the repreſentation of a ſquare circumſcribing the repreſentation of the circle required; and let A B be the repreſentation of a diameter of the original circle perpendicular to the picture, and D C the repreſentation of the radius parallel thereto. Biſect A B in I; through I draw $h i$ parallel to D C; draw B e perpendicular to $h i$, cutting it in e; draw D a parallel to B e; with the diſtance B e, from the point C, deſcribe an arc cutting $h i$ at f; join C f, which produce to a; through a and I draw $m n$; then if the ſtraight line a C be moved, ſo that the point a may ſlide along the line $m n$, and the point f along $h i$, the extremity C will trace the repreſentation of the circle required.

For draw $f t$ parallel to D a, cutting D C in t.

Then becauſe of the ſimilar triangles C $f t$ and C a D, $Cf : ft :: Ca : aD$

But becauſe $Cf = Be$, $ft = Du$, and $Ca = Ii$, it will be $Be : Du :: Ii : aD$

Again, by the ſimilar triangles I B e and I D u, $Be : Du :: BI : ID$

Therefore by equality, $BI : ID :: Ii : aD$

But by duplication, $BI^2 : ID^2 :: Ii^2 : aD^2$

And by diviſion, $BI^2 : BI^2 - ID^2 :: Ii^2 : Ii^2 - aD^2$

But $BI^2 - ID^2 = (BI + ID) \times (BI - ID) = AD \times DB$, and $aD^2 = aC^2 - DC^2 = Ii^2 - DC^2$; therefore by ſubſtitution $BI^2 : AD \times DB :: Ii^2 : DC^2$, which is a known property of the ellipſis; and as the perſpective repreſentation of a circle is an ellipſis, being the ſection of an oblique cone, the curve deſcribed is the true repreſentation of the original circle, for the rays which proceed to the eye form the ſurface of a cone, and being cut by the picture produce an ellipſis.

In this manner an ellipſis (*fig.* 8.) may be deſcribed by a continued motion, having any two conjugate diameters $h i$ and A B given, or a diameter and ordinate, without previouſly finding the two axes.

But as it is not very eaſy to make an ellipſograph move freely in every poſition of two conjugate diameters, from the obliquity of the interſections, it may be done upon the ſame principle, by finding points in the curve upon the ſtraight edge of a thick piece of paper, marking the points $a f$ and C (*fig.* 9.) upon the edge; then ſuppoſe a is firſt placed upon any point in the line $m n$, carry the other end of the ſlip until the point marked f fall upon $h i$, then mark the extremity C upon the plane of deſcription or paper, and the point ſo marked will be in the repreſentation of the circle required. In the ſame manner as many points will be found as will be ſufficient to complete the curve with ſufficient accuracy.

But as the method of deſcribing an ellipſis by continued motion from the two axes is by much the moſt accurate, we ſhall here ſhew the method of finding a conjugate diameter, to a diameter or ordinate given, before we can proceed with the next method:

Lemma.—Let A B C D (*fig.* 10.) be the repreſentation of a ſquare circumſcribing the original circle, and let E F be the repreſentation of the diameter perpendicular to the picture, $k l$ the repreſentation of the radius parallel to the picture, and k the repreſentation of the centre. Biſect E F at o; through o draw $m n$ parallel to A B or D C; draw F g perpendicular to $m n$, cutting $m n$ at g; from the point l, with the diſtance F g, deſcribe an arc cutting $m n$ at h; draw $k i$ parallel to F g, and produce $l h$ to i; make $o m$ and $o n$ each equal to $i l$; then $m n$ is the diameter conjugate to F E. This method is evident from the conſtruction given in method 7, fig. 9.

Method 8. *Fig.* 11.

The repreſentation A B C D of a ſquare circumſcribing a circle, having its ſides parallel and perpendicular to the picture, being given, to find there preſentation of the circle by means of the two axes.

Find G the repreſentation of the centre, E F the repreſentation of the diameter perpendicular, and G H the repreſentation of the radius parallel to the picture. Then by the preceding lemma, find the ſemi-conjugate diameter $r v$; draw E k perpendicular to A B; make E k equal to $r v$;

join $r k$, and biſect it by a perpendicular $n o$, meeting A B at o; from o as a centre, with the diſtance $o r$ or $o k$, deſcribe the ſemi-circle $p k q$, cutting A B at p and q; join $k p$ and $k q$; from k, with the diſtance k E, deſcribe the arc m E l, cutting $k p$ at m, and $k q$ at l; join $r p$ and $r q$; produce $p r$ to t, and $q r$ to w; draw $m s$ parallel to $k r$, cutting $p r$ at s, and draw $l u$, parallel alſo, parallel to $k r$, cutting $r q$ at u; then $r s$ and $r u$ are the ſemi-axes, as ſhewn by the writers on conic ſections; make $r w$ equal to $r u$, and $r t$ equal to $r s$, and $u w$ and $s t$ will be the axes by which the curve may be deſcribed by means of an inſtrument at one continued movement, and the curve thus deſcribed will be the repreſentation of the circle required.

Method 9. *Fig.* 12.

Suppoſing every thing given as in the laſt method, P F being the repreſentation of a diameter perpendicular to the picture, E that of the centre, A B and D C that of the ſides of the ſquare parallel to the picture, and A D and B C the other two ſides perpendicular to the picture; draw F X perpendicular to A B; make F X equal to A F or F B; from X, with the radius X F, deſcribe an arc; draw X N, X B, X O, &c. meeting A B at N, B, O, &c.; join N E, B E, O E, F E; make angles on the other ſide of F X equal F X M, M X L, &c.; produce the legs to meet A B; from the points in A B draw lines to E, and produce theſe lines on the other ſide of E; from the points M L K draw M c, L b, K a, &c. meeting A B at c, b, a; draw the lines c C′, b C′, a C′, &c., cutting the lines drawn to the centre E at f, e, d, G, and g, h, i, on the oppoſite ſide of E G; then F, f, e, d, G, g, h, i, are points in the curve. In the ſame manner points may be found in the curve on the other ſide of F G, and thus any number of points may be obtained in the repreſentation at pleaſure. This is evident; for ſince E is the repreſentation of X, the lines E N, E B, E O, E F, &c. are the repreſentations of X N, X B, X O, X F, &c. Again, a C′, b C′, c C′, &c. are the repreſentations of a K, b L, c M, &c.; therefore the points F, f, e, d, G, &c. the interſections of theſe lines with the former are in the curve, for each two lines are drawn from the ſame common point in the circle K L M F, which may be looked upon as the original; thus the point M is repreſented by f, L by e, K by d, the extremity of the diameter parallel to A B by G.

In caſes of this kind, where lines radiate from a centre, in approaching the parallel diameter they frequently run out to a diſtance beyond the bounds of the drawing. The following remedy is very convenient; let X m be a line, which if produced would not meet A B within a convenient diſtance; from any point S in A B, draw S Q parallel to a ſtraight line, ſuppoſed to join the points X and E; make S Q equal to the part of the line intercepted between the line A B and the point X; make S R equal to the other part, and join R Q; now let X m meet S Q in m; draw $m n$ parallel to Q R, cutting S R at n; make S o equal S n, and draw o E, which will be the line correſponding or repreſenting m X, and thus of any other.

Method 10. *Fig.* 13.

Let E be the repreſentation of the centre, D Q a diameter parallel, and F G a diameter perpendicular to the picture; biſect F G in m; through m draw $q p$ parallel to D Q; find the extremities q and p by the preceding lemma, *fig.* 10; join D m, and produce it to n; make $m n$ equal to m D; join Q m, and produce Q m to o; make $m o$ equal to m Q; draw F t parallel to A H, cutting D n at y, and make $y t$ equal to F y; draw F s parallel to B i, cutting Q o at v, and make $v s$ equal v F; draw G u parallel to H A, cutting D n at x, and make $x u$ equal to x G; draw G r parallel to I B, cutting o Q at w; make $w r$ equal to w G; then will the points o, u, r, n, t, s, be in the repreſentations of the circle. For ſince m is the centre of the ellipſis, and D is a point of contact, D n will be a diameter, it will therefore be biſected by the centre m, wherefore the point n is in the curve. Again, becauſe Q is a point of contact, Q o is a diameter, therefore $m o$ is equal to m Q, and therefore the point o is in the curve. Again, becauſe D and G are points of contact, and D n is a diameter; and becauſe that G u is parallel to H A, a tangent at D, G u is a double ordinate, it is therefore biſected by D n at x, therefore the point u is in the curve. By the ſame method of reaſoning as in the caſe of u, it will be proved, that the points r, t, and s, are in the curve of an ellipſis, wherefore all the points q, o, u, r, n, t, s, as well as the four points of contact D, F, Q, G, are in the curve of an ellipſis; here are ſix additional points beſides thoſe which the circumſcribing ſquare furniſhes, from the conſiderations only, that the centre biſects all the diameters; that if there be two tangents, and the points of contact given, and if a line paſs through one of the points of contact and the centre, it will be a diameter; and if another paſs from the other point of contact parallel to the tangent, at the extremity of the diameter, it will be a double ordinate; and, laſtly, that all the double ordinates are biſected by the diameter.

Method 11. *Fig.* 14.

Let V′ L′ be the vaniſhing line, and I′ N′ the interſecting line, and let b be the point where the original circle touches the interſecting line; let D′ R′ be the directing line, D′ the point of ſtation, or prime directing point.

Through D′ draw E′ D′ C′ perpendicular to R′ D′, cutting V′ L′ at C′, the centre of the picture; make D′ E′ equal to the height of the picture; and make D′ R′ equal to D′ E′; draw $b c$ perpendicular to I′ N′, and make $b c$ equal to the radius of the circle; from c, with the diſtance $c b$, deſcribe an arc $d b a$; draw $a e$, $c t$, and $d f$, tending to the point D′, to cut I′ N′ at e, t, and f; draw $c a$ perpendicular to $a e$, and $c d$ perpendicular to $d f$; draw $f l$, $t n$, and $e m$, parallel to D′ E′; draw $d k$, $t q$, and $a e$, tending to R, to cut I′ N′ at k, q, and s; transfer $f k$ to $f l$ from f to i, $t q$ to $t u$ from t to u, and $e s$ to $e m$ from e to h, and join $i h$; make $o n$ equal to $o u$; then will o be the centre, $i h$ and $u n$ conjugate diameters of the ellipſis, which will be the repreſentation of the circle.

For ſince D′ is the directing point of the lines $d f$, $c t$, and $a e$, theſe lines will have parallel repreſentations; join R′ E′ and $k i$, or ſuppoſe them to be joined, then $k i$ will be parallel to R′ E′, therefore $k i$ will be the repreſentation of the line $d k$, and becauſe $f l$ is the repreſentation of $f d$, their interſection i will repreſent the point d; in like manner it may be ſhewn that the point u repreſents t, and the point h repreſents a; but the lines $d f$ and $a e$ are tangents to the circle at the points d and a; therefore theſe repreſentations $f l$ and $e m$ are tangents to the ellipſis at i and h, and therefore $i h$ is a diameter; and becauſe $u n$ is parallel to $f l$ and $e m$, $u n$ is a diameter conjugate to $i h$.

Method 12. *Fig.* 15.

This proceſs is almoſt ſimilar to the laſt, except that the point D′ is taken in a line perpendicular to the interſection; this cauſes the conjugate diameter $i k$ to be parallel to the interſection, and the other, $q n$, to tend to the centre of the picture.

This method, by means of directors, furniſhes conjugate diameters at once, whereas if vaniſhing points are only uſed, we have only a diameter and ordinate, or double ordinate, and conſequently the other diameter, which would be conjugate to the one given, muſt be determined by a geometrical proceſs. The uſe of the directing point is therefore much more convenient, and much more accurate in the repreſentation of curves. The directing line is always at hand when the perſpective delineation is raiſed from a geometrical plan inſtead of a perſpective one.

Method 13. *Plate* V. *Fig.* 1.

Let L M J K be a ſquare circumſcribing the original circle B C D E F G H I; draw the diagonals J L and M K, cutting the circle at C, E, G, I; through the centre A draw F B parallel to M J or L K; join G I and E C; produce M J, G I, F B, E C, and L K, to their interſecting points n, n, &c.; find the vaniſhing point v^2 of the parallels of F B, and draw the indefinite repreſentations nv^2, nv^2, &c.; alſo produce the diagonal M K to meet I'N' at x; and find the vaniſhing point v^3 of the diagonal M K; draw the indefinite repreſentation xv^3 of the diagonal, which will cut the indefinite repreſentations drawn to v^2 of the parallels; find the vaniſhing point v' of the ſides J K and M L; draw lines to v' from the interſections in xv^3, and produce theſe lines to cut the reſpective indefinite repreſentions drawn to v^2 in the points which repreſent thoſe of the circle; then a curve being drawn through the correſponding points b, c, d, e, f, g, h, i, will form the repreſentation of the circle..

This evidently appears from the property of the circle, and the method of finding the perſpective repreſentation of a point in the original plane.

Method 14. *Fig.* 2.

Let A be the centre of the original circle, and let B, C, D, E, F, G, H, be points in the circumference; let E' be the place of the eye in reſpect of the vaniſhing line V' L'; draw E' C' perpendicular to V' L', cutting it in C'; make E' D'' equal to the height of the picture; draw the two lines D'' H and D'' B tangents to the circle; draw A H perpendicular to D'' H, and A B perpendicular to D'' B; let the lines H D'' and B D'' cut I N in t, t; from the points C, D, E, F, G, draw the lines C t, D t, E t, &c. tending to D'', cutting the interſecting line in the points t, t, &c.; from all the points t, t, t, &c. draw lines parallel to the director D'' E'; from the ſame points B, C, D, E, F, G, H, draw the parallels B p, C p, D p, &c. cutting I N in p, p, p, &c.; find the vaniſhing point v of the lines B p, C p, D p, &c. and join the interſecting points p, p, &c. to v, cutting tb, tc, td, &c. at b, c, d, e, f, g, h, which will be the correſponding points to B, C, D, E, F, G, H, of the original circle; draw bh, which will be a diameter. The points of the other half will therefore be found by continuing the parallel from t, t, t, &c. on the upper ſides of the diameter bh, and repeating the ordinates upwards to the points i, k, l, m, n, then a curve being drawn through all the points will give the repreſentation required, as is evident from the directing and vaniſhing points.

Prob. XXII. *Fig.* 3.

To draw the repreſentation of a rectangle inclined to the picture, and having two of the edges perpendicular to the original plane, and conſequently the other two parallel thereto, the original plane being perpendicular to the picture; the ſeat A B of the rectangle being given.

Produce A B to its interſecting point n; find the vaniſhing point v of A B, and thence the repreſentation ab of A B; draw ne perpendicular to I' N'; make ne equal to the height of the rectangle, and join ev; now ſuppoſe the lower ſide to reſt on the original plane, and ab will be the repreſentation of the lower ſide of the rectangle; draw ad and bc parallel to ne, cutting ev at c and d, and $abcd$ is the repreſentation of the rectangle required.

For ne is the interſection of the plane of the rectangle with the picture; and becauſe the rectangle is perpendicular to the original plane, and the original plane perpendicular to the picture, the vertical ſides of the rectangle will be parallel to the interſection ne, and conſequently the repreſentations bc and ad will be alſo parallel to ne; therefore $abcd$ is the repreſentation of the rectangle.

Prob. XXIII. *Fig.* 4.

To find the repreſentation of a circle in a plane perpendicular to the original plane, the plane of the circle being inclined to the picture and the original plane perpendicular thereto; the ſeat A B of the plane of the circle being given on the original plane.

Find the repreſentation $abcd$ of the circumſcribing ſquare by the preceding problem, making the ſides of the ſquare parallel and perpendicular to the original plane; then find the repreſentation of the circle by any of the preceding methods, or biſect the interſection nf at l; draw le perpendicular to fn; make le equal to lf or ln; join en and ef; from e, with the radius el, deſcribe the arc glh; join ef and en, cutting the arc at g and h; draw gk and hi parallel to el, cutting fn at k and i; then v being the vaniſhing point of A B, join kv, lv, iv; draw the diagonals ca and bd, cutting the former lines at u, w, q, and s. Then through all the points u, v, w, x, q, r, s, and t, draw a curve, which will be the repreſentation of the circle required.

This is plain by inſpecting the ſquare circumſcribing the repreſentation of the original circle in the preſent figure, where the correſpondence of the quarter of the ſquare, as alſo that of the circle with the rectangled triangle nef, and the quadrant hg of the arc of a circle, are ſhewn.

The principle here uſed is the ſame as that employed in problem 21, method 2, figure 12, for finding the repreſentation of a circle.

Prob. XXIV.

To find the repreſentation of any rectangular priſm, given its ſituation on the original plane.

Find the repreſentation of the neareſt angle of the baſe; from the point thus found draw a perpendicular; find the height of that perpendicular ſo as to repreſent the correſponding line formed by the two vertical planes of the object; from the bottom draw a line to each vaniſhing point; alſo from the top of the perpendicular draw a line again to each vaniſhing point; find the repreſentations of the two remote angles of the baſe; from each of the points thus found draw a line parallel to the line repreſenting the neareſt vertical edge of the ſolid, cutting the upper line drawn to the vaniſhing point, and this conſtruction will finiſh the repreſentation of the priſm, provided that both the baſe and the top are in planes on different ſides of the vaniſhing line. If the baſe and top are both below the vaniſhing line, proceed as before, and complete the repreſentation of the two adjoining vertical planes which form the neareſt angle; then from the upper extremity of each perpendicular which forms the remote vertical arras of the object, draw a line to the vaniſhing point of the oppoſite ſide, which will complete the repreſentation of the parallelogram, by which the top of the priſm is formed.

Or in ſhort thus; find the repreſentation of each vertical plane which forms the front angle of the object according to problem 24, figure 3, and theſe planes will form the repreſentation of the rectangular priſm, provided that the planes of the baſe and top are on different ſides of the vaniſhing plane; but if on the ſame ſide of the vaniſhing plane as the two lines neareſt the vaniſhing line, and which run to the vaniſhing point, repreſent the neareſt angle of the ſide next the vaniſhing plane, whether above or below the eye; draw a line from the remote extremity of each line to the vaniſhing point of the other adjoining line, which alſo repreſents the oppoſite ſide, and the quadrilateral formed by each pair of lines drawn to each vaniſhing point will form the repreſentation of the plane parallel with and next to the vaniſhing plane.

In repreſenting any ſolid ſituated in the original plane, it will only be neceſſary to produce one line of the baſe of the ſolid; by which means the height of the plane which repreſents the ſide inſiſting on the line produced will be aſcertained by ſetting the height of the object on a line perpendicular to the interſecting line from the interſecting point of the ſide of the baſe, and drawing a line to the vaniſhing point of that line from the upper extremity, thence determining the repreſentation of the plane inſiſting on the ſide produced; then drawing a line from each end of the line repreſenting the arras of the two adjoining planes, will give the height of the figure repreſenting the other adjoining plane.

In *fig.* 5. $abcgfe$ is the repreſentation of a right priſm ſtanding upon the rectangle A B C D; the ſide A B is produced to h, and the height is ſet on the perpendicular from h to i; the lines hv' and iv' being drawn, give the height of the trapezoid $abfe$, which is the repreſentation of the ſide ſtanding upon A B; a line being drawn from b and another from f to v^2, gives the height of the trapezoid $bcgf$, which repreſents the adjoining ſide ſtanding upon B C; and the two trapezoids $fbae$, and $fbcg$, form the whole repreſentation $abcgfe$ of the priſm, which has A B C D for its baſe; the lines Aa, Bb, Cc, drawn from the two remote angles to the point of ſight E′, give the points a, b, c, upon the indefinite repreſentations bv' and bv^2; ba is firſt determined, which is the repreſentation of the line produced; then draw the indefinite repreſentation bv^2, the point c is determined; drawing the perpendiculars ae and bf, the points e and f are determined; drawing the indefinite repreſentation fv^2, and drawing cg parallel to bf or ae, fg is alſo determined, which finiſhes the repreſentation of the ſolid.

The priſmatic ſolid T above, of the ſame deſcription, is delineated by ſetting the height of the loweſt ſide parallel to the vaniſhing plane upon hl from h to k, and the height of the ſolid itſelf from k to l; drawing the lines kv' and lv'; then the lines ae and bf, continued upwards to cut theſe lines, give the repreſentation of the face of the ſolid in the ſame plane with A B; drawing lines from the point where bf cuts the lines kv' and lv' to v^2, determines the adjoining face.

Any ſide of a ſolid may be produced in order to get the height, as appears by the repreſentation O, which is that of a ſolid, the baſe of which is N; one of the remote ſides being produced inſtead of one of the hither ſides to the interſection. It is only finding the height of the line repreſenting the correſponding arras, then completing the front parallelogram of which that arras is a ſide, and the other adjoining a front ſide, as above.

R and S repreſent right parallelepipeds with two faces parallel to the picture, and conſequently the vaniſhing point of the horizontal lines is the centre of the picture; the ſide of the firſt comes in contact with the picture, and has therefore its reprenſetation equal and ſimilar to the original; the principle is the ſame as thoſe already deſcribed.

Prob. XXV.

To repreſent a pyramid, with its axis perpendicular to the original plane.

Find the repreſentation of the baſe, or the front part of it, then the repreſentation of the axis; join the apex to each point, repreſenting the two remote angular points of the object; and that repreſenting the neareſt angle, and the two triangles thus formed, will conſtitute the repreſentation of the pyramid.

In *fig.* 6. $hikr$ is the repreſentation of a pyramid ſtanding on H I K L. The height of the axis is found by drawing M I parallel to one ſide; ſetting the height of the pyramid on the perpendicular Ip; drawing pv^2 and Iv^2; drawing a line from the centre, M, of the baſe to E′, cutting Iv^2 at s, gives the baſe of the perpendicular, which being drawn to meet the indefinite repreſentation pv^2, gives the vertex.

The inverted pyramid is repreſented in the ſame manner. Let A B C D be the plan or ſeat of the baſe; then by drawing a line parallel to A B or D C from the centre of the baſe, to meet the interſecting line in e, and ſetting the height of the vertex from the original plane from e to f; drawing fv'; producing A B to d, and repreſenting the ſides A B and B C, as if the baſe were in the original plane; ſetting the height of the baſe, which is the uppermoſt ſide, on the perpendicular dg; drawing gv', and the perpendiculars aa', bb', cutting gv at a' and b; drawing bv^2 and cc' parallel to bb', gives the two ſides $b'a'$ and $b'c'$, which repreſent the two neareſt ſides of the baſe. The repreſentation of the ſeat of the centre of the baſe will be found by joining ev', and by interſecting this line by another line from the centre of the ſeat of the baſe to the point of ſight E; drawing a perpendicular from the interſection meeting fv', gives the repreſentation, g, of the meeting of the ſides.

The following practical examples are derived from the preceding problems, founded on the theory of the directing plane, which theory, where a plan of the object is given, furniſhes the moſt expeditious rules for practice, and the moſt eaſily to be comprehended. The prime director and ſtation point are employed. The eye is only uſed for drawing the parallels of lines in the original object. The lines on the plan repreſenting original vertical planes are produced to their interſecting points, and perpendiculars are raiſed from each ſuch point on the interſecting line, and the height of each reſpective plane of the original object ſet thereon; theſe perpendiculars will be the interſections of the vertical planes of the object, and the two extremities of each perpendicular will be the interſections of lines parallel to the original plane in each vertical plane. Lines being drawn from the interſecting points of the interſecting lines of the vertical planes, to their vaniſhing points, gives the indefinite repreſentation of the lines which have the ſaid vaniſhing point. The prime directing point, D′, is uſed in cutting off portions from the indefinite repreſentations, to repreſent original diſtances, which are the ſeats of lines parallel to the original plane given in the plan. This mode of cutting off finite portions to repreſent original lines is very expeditious; for by uſing the prime directing point, the indefinite repreſentations of all the lines drawn on the original from all points of the plan, are perpendicular to the interſecting and vaniſhing lines, by the theory of the directing plane; and as the vertical lines of the object are repreſented by vertical lines in the picture, the indefinite repreſentations of the lines drawn to the prime directing point, forms one ſtraight line with the repreſentation of the perpendicular, which repreſents the vertical arraſes of the object. Another conveniency of this method of employing the prime director and prime directing point is, that the plan of the object may be drawn on one piece of paper, the vaniſhing points of the ſides, and the interſecting points of the lines which radiate to the ſtation point found, and the whole may be transferred to another piece of paper, for the purpoſe of forming the delineation of the object. It muſt alſo be obſerved, that the baſis of all the vertical planes which form the plan muſt be produced to their interſections; then proceed with the remaining part as directed above.

Curves are found by drawing two lines from each original point, and finding their indefinite repreſentations, one by means of a vaniſhing point, and the other by the director and directing point, only uſing one directing point and vaniſhing point for the whole of the points ſo found.

Example 1. *Plate* VI.

Fig. 1. N° 1. ſhews the repreſentation of a houſe with wings by the preceding method; N° 2 is the plan; N° 3 the principal elevation. C D is the interſecting line of the vertical plane, inſiſting upon the line A B on the plan; G H is the interſecting line of the plane of the receding part of the front, inſiſting upon E F of the plan; L M is the interſection of a vertical plane, paſſing along the ridge of the roof, inſiſting upon A I in the plan; C D is the height of the ſummit of the pediments, G H the height of the receding part of the elevation, and L M is the height of the ridge of the roof from the original plane or baſe; M v' is the indefinite repreſentation of the line which forms the ridge of the roof; H v' is the indefinite repreſentation of the top of the wall of the receding face; D v' the indefinite repreſentation of a line joining the tops of the pediments; and Q v' the indefinite repreſentation of a line through the lower points of the pediment. The points n, n, which repreſent the ſummit, and r, s, t, u, which repreſent the bottom of the pediment, o and p, which give the repreſentation, op, of the top of the receding plane of the front, and the points r and q, which give the repreſentation, rq, of the ridge of the roof, repreſented by I A on the plan, are all found from the prime director D′E′, and the prime directing point D′. The bottom part is found by drawing lines from the interſecting points, L, G, C, of the baſe lines of the vertical planes, which give the indefinite repreſentations of the lines forming the baſe of the original object to the vaniſhing point: theſe indefinite repreſentations to the vaniſhing point are cut by the parallels of the director, which limits the portions repreſenting the lines that incloſe the baſe of the object. The roof is formed by joining pr, oq, wq.

In the plan there are four ſyſtems of parallel lines, one parallel to each front, making two; the other two are the lines repreſenting the hip lines of the roof. In finding the interſections of the vertical planes, only the ſeries of parallels to A B are produced.

Example 2.

Fig. 2. N° 1. is the repreſentation of a houſe, with a bow in the middle of the front. Every thing with regard to the ſtraight lines is found as in the preceding example; only one thing muſt be obſerved, that in the repreſentation of the bow, or any of its intermediate horizontal ſections, the interſection of each plane is found, and the interſecting points found on the interſecting line of the baſe plane transferred to each interſecting line. Thus I N is the interſecting line of the baſe plane; and therefore the interſecting line for the repreſentation $cdefg$, of the arc C D E F G of the circle, which repreſents the plan of the bow; m, n, o, p, are the interſecting points of a ſeries of lines, drawn parallel to I B, the plan of the front plane; $m'n'o'p'$ is the interſecting line of a plane of a ſection of the bow, parallel to the baſe of the object; $m''n''o''p''$ the interſecting line of the plane of the top of the bow; $m'''n'''o'''p'''$ is the interſecting line of a plane parallel to the baſe of the object above the level of the top of the bow, in order to ſhew more clearly how a ſection of the cylindric bow may be repreſented at different heights. The points are thus transferred to each of theſe interſections: through the interſecting point m of I B, in the interſecting line I N, draw the perpendicular $mm'm''m'''$; make mm' equal to the height of the ſection of the bow, mm'' equal to the height of the top of the wall; draw the lines $m'n'o'p'$, and $m''n''o''p''$, parallel to the interſection I N, then transfer the diſtances of mn, no, op, upon $m'n'$, $n'o'$, $o'p'$, and $m''n''$, $n''o''$, $o''p''$; then from the points m', n', o', p', m'', n'', o'', p'', in each interſecting line, draw lines to the vaniſhing point v', then the indefinite repreſentations found by the director and directing point, will give the points in the curve, which being joined gives the repreſentation of each curve of the bow.

N° 3. ſhews the elevation of the front of the houſe, which therefore gives the length of the houſe and breadth of the bow; N° 4. ſhews the elevation of the flank or end, which therefore gives the breadth of the houſe and the projection of the bow. Each of theſe elevations gives alſo the height of the object. By this means any arc of a circle may be repreſented: this is only the application of problem 21, method 14, which ſhews the repreſentation of a whole circle.

Example 3. *Plate* VII.

Fig. 1. N° 1. is the repreſentation of a flight of ſteps with two kirbs, which are about a ſtep higher than the top of the landing, and terminate in a plane parallel to the horizon; N° 2 is the plan..

Find the interſection, C D, of the vertical plane paſſing through A B on the plan; ſet the height of the ſteps from C to D; from the extremities and ſeveral diviſions of C D, draw lines to the vaniſhing point v', which will give the indefinite repreſentations of the horizontal lines, forming the top of each ſtep in a ſection of the plane of the inſide of the kirb. The vertical lines, forming the face of the riſers, are repreſented by the intercepted part of the parallels of the director D′E′. The vaniſhing point of the arraſes, and internal quoins of the ſteps, is ſuppoſed to be out of the picture upon the vaniſhing line (*fig.* 2.) at v^2: lines are then drawn through all the points, repreſenting the ſection made by the inſide of the kirb to the vaniſhing point v^2, which gives the planes of the riſers and treads. The height of the kirb might have been obtained upon C D, but is found by ſetting it on F G, which is the interſection of the plane of the face of the kirb, through B E upon the plan. The remaining parts of the repreſentation to be finiſhed is ſufficiently plain by the bare inſpection of the figure, and from what has been ſaid in the preceding problems and examples.

Another very excellent method of finding the ends of the ſteps upon the inſide of the kirb, is by finding the vaniſhing point of their inclination, when the vaniſhing point is acceſſible; make v' 1, on the vaniſhing line, equal to the diſtance, v' E, of the vaniſhing point, v', from the eye E′: draw $v'v^3$ perpendicular to the vaniſhing line V L; make the angle v' 1 v^3 equal to P Q R, N° 3; then having obtained the point b, the repreſentation of B on the plan, which is the lower edge of the riſer in the plane of the kirb, draw $b v^3$, which will be the indefinite repreſentation of a line, touching the lines of concourſe of the internal angles in the plane of the inſide of the kirb; then indefinite repreſentations being drawn to v', from all the points in C D, will cut the line $b v^3$; draw a perpendicular from each interſection between every two lines, from C D to the vaniſhing point v', and theſe perpendiculars will repreſent the riſer on the inſide of the kirb.

Example 4.

Fig. 2. N° 1. repreſents a flight of returning ſteps, as ſhewn by the plan N° 2. The diagonal plane paſſing through the neareſt angle of the ſteps, is produced in order to obtain the interſection A B for a line of heights. The repreſentation of the ſection paſſing through the diagonal being found, draw lines from every point found in the ſaid repreſentation to each vaniſhing point of the ſides, and the lines thus drawn are the indefinite repreſentations of the arraſes and internal quoins; the reſt is completed as in the preceding examples.

Example 5.

Fig. 3. is the repreſentation of a flight of ſteps, without a plan, with the top of the kirb parallel to a plane touching the noſings. Given the interſection of the plane of the riſer at A; ſuppoſing the vaniſhing points v', v^2, to be found from the known inclination of the ſides to the picture, and the vaniſhing point v^3, as in the third example.

Make A G equal to the diſtance of the interſecting point A from the neareſt angle, G H equal to the thickneſs of the kirb, H I equal to the length of the ſteps, and I C equal to the thickneſs of the farther kirb. Then the point 2 being the diſtance of the vaniſhing point v^2 from the eye, draw lines from the points G, H, I, C, tending to 2, meeting $A v^2$ in k, l, m, n; draw $k\,o$, $l\,p$, $m\,q$, and $n\,r$, perpendicular to $I'\,N'$. Set the height of the front part of the kirb upon the perpendicular A B; draw $B\,v^2$, cutting the perpendiculars in o, p, q, r; draw $A\,v'$; make A E equal to the horizontal diſtance of the inclined part on the top, from the neareſt point of concourſe of the lower edge of the riſer, and the lower edge of the outſide of the kirb; then the point 1 being the diſtance of the vaniſhing point v' from the eye, draw $E\,s$ tending to 1, meeting $A\,v'$ at s; draw $k\,v'$ and $s\,v^2$, meeting $k\,v'$ at t; make E F equal to the whole height of the kirb; draw $s\,u$ parallel to E F, or perpendicular to $I'\,N'$; draw $F\,u$ tending to the point 1; draw $u\,v^2$; draw $t\,v$ perpendicular to $I'\,N'$, meeting $u\,v^2$ in v; draw $v\,v'$; make A K equal to the horizontal breadth of the kirb; draw $K\,w$ tending to 1, cutting $A\,v'$ at w; draw $w\,x$, tending to v^2, cutting $k\,v'$ at x; draw $x\,y$ perpendicular to I N, cutting $v\,v'$ at y; and $k\,o\,v\,y\,x\,k$ will form the hither end of the neareſt kirb. The ſection of the hither ſide of the remote kirb is completed as in the third example; having the tops $o\,p$, $q\,r$, of the vertical faces of the front of the kirb, the inclined ſurfaces may be formed by the vaniſhing point v^3; and terminated by drawing the perpendicular $v\,t$ to meet $o\,v$, tending to v^3 at v, then drawing $v\,v^2$. The horizontal parts at the top are found by drawing lines to v', and another line to v^2.

Example 6.

Fig. 4. N° 1. ſhews the repreſentation of a ſtair with circular ſteps. The principle of the method is in finding the repreſentations of ſeveral vertical ſections, all paſſing through the axis of a conic ſurface, which would touch the noſings of the ſteps, then drawing a curve through all the correſponding points of each reſpective noſing, will form the repreſentation of the whole ſeries. The ſections may very eaſily be obtained without the uſe of the vaniſhing points, by repreſenting the heights of each ſtep upon the cone, and ſetting the heights upon each interſecting line of the plane of each ſection, then joining the lines from all the points in each interſecting line of heights to the reſpective point in the axis; then the line D C, on the ſection N° 2, being drawn to touch the noſings; then A E and A B being produced to meet D C in D and C; with the radius A C, N° 2, deſcribe an arc of a circle A B C D E, N° 1, ſo as to meet the two laſt planes which terminate the ſides; find the repreſentations a, b, c, d, e, then the axis $f\,f$ of the cone being found, draw the lines $a\,f'$, $b\,f'$, $c\,f'$, $d\,f'$, $e\,f'$; theſe lines will repreſent the ſides of the cone in each ſection, and conſequently will repreſent the lines touching the noſings; then the points where theſe lines are cut by the lines drawn from the ſeveral points in each line of heights, to the correſponding points in the axis, gives the points in the noſings of each ſection; the points of concourſe for the internal angles will be found, by drawing a perpendicular from each point of repreſentation of the noſings, to the next line, which repreſents a line in the plane of the vertical ſection, and in the plane of the tread; the diſtance between the foot of the perpendicular and the next lower point repreſenting the noſings, repreſents the breadth of the ſtep in the ſection. This, if the plane of the ſection F A be produced ſo as to meet the picture in G H; ſet the heights of the ſteps on G H, draw lines from the points G and H, and alſo from the intermediate diviſions to the correſponding points in $f\,f'$, gives the points a, i, k, l, in the line $a\,f$, repreſenting the ſlant ſide of the cone in that ſection; then drawing the perpendiculars, $i\,m$, $k\,n$, $l\,o$, repreſent the ſections of the riſers, and $i\,n$, $k\,o$, repreſent the heads. The points a, b, c, d, e, of the curve repreſenting the correſponding points A, B, C, D, E, of the interſection of lines in the curved ſurface of the cone with the horizontal plane, will be found by the directing point D.

Fig. 6. ſhews the method of repreſenting ſeveral lines, drawn to a common point of concourſe, without finding the vaniſhing points of theſe lines. The method is as follows: find c the repreſentation of the point of concourſe C; continue all the lines which terminate in C to the interſecting line A B; join all the points in A B to the point c, and theſe radiations will be the indefinite repreſentations of the other original lines which radiate from C; but if any of theſe lines ſhould prove to be inacceſſible, draw F H parallel to $C\,c$, cutting A B in F; let $C\,c$ cut A B in D; make F L equal to D C, F E equal to $D\,c$; join L E; let the inacceſſible lines meet A F in G and H; draw G I and H K parallel to L E, to meet A B in I and K; make $F\,g$ and $F\,h$ equal to F I and F K; draw $h\,c$ and $g\,c$, then $h\,c$ and $g\,c$ will repreſent H C and G C.

Example 7. *Plate* VIII.

Fig. 1. N° 1. ſhews the elevation of a cornice, N° 2. the plan, which is a ſquare. To find the repreſentation of the ſaid cornice, with the one ſeries of its vertical planes parallel, and the other perpendicular, to the picture.

Let Y F be the interſecting line of the top plane, parallel to the ſides A B and D C of the plan, $V'\,L'$ the vaniſhing line, S Q the diſtance, and C' the centre of the picture; therefore S will be the prime director, or ſtation point. The vertical plane of each diagonal is produced to meet the interſection at H and F; then drawing the interſecting lines H I and F G of theſe planes, ſet the height of the members downwards upon each vertical interſection; then the indefinite repreſentations of lines in each diagonal plane parallel to the original plane, being found, draw lines to the ſtation point S, each to cut its reſpective line, will give the repreſentation of the points in each mitre, and, joining the correſponding points, will give the repreſentations of the lines of concourſe, or thoſe which form the arraſes and internal quoins. The repreſentation of the points in one of the mitres on the front part being found, the other will eaſily be determined, by drawing parallels to the interſecting line from the points aſcertained, and croſſing theſe parallels by lines drawn to the directing point from the reſpective points of the mitre, to be aſcertained on the plan N° 2; draw indefinite repreſentations from the points repreſenting the middle mitre towards the centre of the picture; alſo draw lines from F G, the interſection of the diagonal plane, through the mitres which terminate the apparent magnitude, to the vaniſhing point on the vaniſhing line of the original plane, cutting the former lines drawn to C', and the interſections will give the points to repreſent the third mitre, which forms the other extreme boundary of the cornice.

The indefinite repreſentations of the heights of the mouldings in the plane of each diagonal, are neceſſary in order to draw the curves correctly. The vaniſhing point of the lines in the plane of the diagonal, through the extreme mitre of the cornice being out of reach, the line R T perpendicular to the vaniſhing line is taken at half the diſtance of the interſecting point F, from a line drawn perpendicular from the vaniſhing point of the lines in the plane of this diagonal. Biſect T R at K; ſet half the heights of the members downwards from K to L; then join the correſponding points in K L to thoſe of F G, will give the lines repreſenting the heights of the mouldings in the diagonal plane.

Example 8.

Fig. 2. ſhews the repreſentation of a cornice inclined to the picture. The method of finding the repreſentation of the mitres is the ſame as in the laſt example: the vaniſhing point of the repreſentations of the lines of concourſe of the mouldings which appear in one of the faces is ſuppoſed to be out of reach, therefore one-third of the diſtance of the point M from the vaniſhing point is taken, and ſet from M to m; then drawing $m\,n$ perpendicular to the vaniſhing line, ſo as to be intercepted at n by the ſaid line, make m W one-third of $m\,n$. Produce the line A B, and the other lines which are parallel thereto, to their interſecting points M, I, F, D, and deſcribe the ſection of the cornice M I F D E G H K L N. The line W O, parallel to the vaniſhing line, being ſuppoſed to correſpond to M D, draw a figure W T Q O P R S U V X, ſo that all its dimenſions may be one-third of thoſe of the ſection M I F D E G H K L N, then lines being drawn from the correſponding points of each ſimilar figure, will give the indefinite repreſentation of the lines of concourſe of the ſeveral mouldings. The remaining parts are completed by the directing point and the other vaniſhing point.

This method of deſcribing a ſection of the cornice with the picture is much preferable in point of accuracy to that of finding the repreſentation of the mitre of the angle of the object, which preſents itſelf to the eye: becauſe when the eye is in the plane of the diagonal, the points which form the diviſions of the mouldings in the mitre cannot be aſcertained; or if the eye is nearly in the plane of the diagonal, the interſections will be ſo very oblique, as to render the perſpective heights very uncertain, though the lengths of the lines repreſenting the arraſes and internal quoins may be obtained with ſufficient accuracy.

Prob. XXVI.

Given the centre C', and the diſtance of the picture, the ſeat F, and diſtance of the centre of a ſphere from the picture, and the radius of the ſphere, to find the repreſentation of the ſphere.

Method 1. *Fig.* 3.

Join FC'; draw $C'E'$ and F D perpendicular to FC', and upon contrary ſides of the ſame; make $C'E$ equal to the diſtance of the picture, and F D equal to the diſtance of the centre of the ſphere from its ſeat. On D, with the radius of the ſphere, deſcribe the circle A B G C; draw AE' and CE', tangents to the circle at A and C, cutting FC' at o and k; alſo draw DE', cutting $o\,k$ in d; biſect $o\,k$ in s; and through s draw $m\,l$ perpendicular to DE', cutting CE' and AE' at m and l, and D E at t; from t, with the diſtance $t\,m$ or $t\,l$, deſcribe the ſemicircle $m\,n\,l$; draw $s\,n$ perpendicular to $m\,l$, cutting the ſemicircle in n; through s draw $p\,q$ perpendicular to $o\,k$; make $s\,p$ and $s\,q$ each equal to $s\,n$, then $o\,k$ is the greater, and $p\,q$ the ſmaller axis of an ellipſis, which will give the repreſentation of the ſphere.

For if $C'E$ and F D be turned perpendicular to the plane of the picture, but on contrary ſides thereof, and the circle ABC' in the ſame plane with F D and FC', the point E', the line $o\,k$, the tangents CE' and AE', and the circle A B C, will be all in one plane perpendicular to the picture: then conſidering A B C as a ſection of the ſphere, E' the eye, CE' and AE' will be viſual rays cutting the picture in o and k; therefore the points o and k are the repreſentations of A and C'. Again, conſidering all the tangent rays around the ſphere to the eye at E' as forming a cone, and the picture a cutting plane, and becauſe the plane C E A is perpendicular to the picture, the line $o\,k$ will be the ſeat of the axis of the cone, and therefore $o\,k$ will be the tranſverſe axis of the ellipſis. Turning the plane of the ſemicircle $m\,n\,l$ perpendicular to D E, $m\,n\,l$ will be a ſemiſection of the cone parallel to its baſe, and $s\,n$ will be at right angles to $o\,k$, and $s\,n$ will coincide with $s\,p$; and ſince it has been demonſtrated that the ſection of a cone cut by a plane is an ellipſis, and the perſpective repreſentation is the ſection of a cone of rays made by the plane of the picture, $o\,k$ and $p\,q$ are the axes of an ellipſis, which will repreſent the ſphere according to the conditions given.

Method 2. *Fig.* 4.

Join FC'; make F D equal to the diſtance of the centre of the ſphere from its ſeat, and C G on the vaniſhing line equal to the diſtance of the eye; join D G, cutting C F at d; draw $d\,g$ parallel to I N; make F X on the interſecting line equal to the radius of the ſphere, and join XC', cutting $d\,g$ in g; then d is the centre, and $d\,g$ the radius of a ſphere, from which a cone of rays will proceed to the eye under the ſame ſuperficies, or under the ſame angle as one of a radius D A or D G, *fig.* 3, placed at the diſtance F D, from its ſeat F, beyond the picture. Therefore, with the radius $d\,g$ deſcribe the circumference $c\,n\,a$ of a circle; draw $E'a$ and $E'c$ tangents to the circle at a and c; produce $E'a$ to meet FC' at o, and let $E'c$ cut FC' in k, then $o\,k$ is the tranſverſe axis; biſect $o\,k$ in s, draw $l\,m$ perpendicular to dE', cutting $E'a$ and $E'c$ at l and m, then proceed with the remaining part of the conſtruction, as in *fig.* 3.

Prob. XXVII. *Fig.* 5.

To make a right-angled object appear under a given angle, Let AF, FB, be two ſides of a rectangular object, or rectangular priſm; it is required to be viewed under a given angle. There are two ways in which this may be conſidered, whether one ſide can be ſeen or two ſides: in either way the object appears to be viewed under a ſtraight line. The general appearance of the object is when two ſides are ſeen, and then the apparent angle under which it is viewed is ſubtended by the diagonal of the plan, or ſection of the object, parallel to the original plane. Therefore, upon the diagonal AB deſcribe the ſegment of a circle AEDCB, to contain the angle required; then the object may be viewed under the required angle, anywhere within the angle contained, by producing the two ſides of the object. The object may be viewed ſo as to ſee one ſide under the ſame angle, and the angle ſubtended by the ſame right line, ſo long as the ſeat of the eye continues on that ſide; conſequently, when the ſeat of the eye is not upon any of the vertical planes of the object, two ſides of the object will be ſeen at the ſame time.

PROB. XXVIII. *Fig.* 6.

Given the centre and diſtance of the picture, and the angle under which a right priſmatic object is to be viewed, and the poſition of the object to the picture, to determine either ſide of the object, and the ſituation of the neareſt angle, the proportions of the lineal dimenſions being ſuppoſed to be known.

Let F be the centre of the picture, IK the vaniſhing line, FE perpendicular to IK, the diſtance of the picture. Draw EA parallel to IK; draw the plan E'BCDE, ſimilar to that of the original object, in the ſame poſition to AE as the ſides of the object has to the vaniſhing line IK. Let STU, N° 2, be the angle under which the object is to be ſeen; biſect STU by the ſtraight line VT; make the angles FE'G and FE'H equal to VTS or VTU, and let the points G and H meet IK; join EB; draw LM parallel to E'B, meeting GE' and HE' in I and M; draw LN parallel to E'E, and MN parallel to BE; join E'N, and produce it to meet IK in e, then e is the point where the angle of the object will reſt on the vaniſhing line. Produce E'E and EB to I and K; draw ea parallel to FE, cutting E'K in a; draw ab parallel to IK; draw Hc parallel to FE', cutting E'K in c; join Fc, and produce it to meet ab in b; draw bd parallel to FE, cutting E'K in d, then ad is the ſide of the object.

PROB. XXIX. *Fig.* 7.

Given two parallel planes perpendicular to the original plane, the place of the eye, and the inclination of a vertical picture to the parallel planes, to find the ſituation of another vertical plane contained by the two parallel planes at right angles thereto, and alſo to the original plane, ſo that the diſtance of the lines in the picture repreſenting the vertical terminations of the contained plane ſhall be the greateſt poſſible.

Let I be the point of ſight, QE and PF the interſections of the vertical planes, which are parallel to each other; draw IQ, making an equal angle with QE or PF to the inclination of the picture, and either of the parallel planes, then QI will be the directing plane. Let FP meet QI in P; draw IB perpendicular to EQ, cutting it in B, and FP in A. Find BE a mean proportional between BQ and AP; draw EF perpendicular to BQ; join EI and FI; then taking fN parallel to IQ, as the interſection of the picture, the diſtance fe on the interſection, intercepted by two lines from E and F to the ſtation point I, will be greater than any other diſtance, cd, on the ſame interſection, terminated by two lines drawn to the ſtation point I, from the extremities of any other line DC, parallel to and on either ſide of EF, contained by EQ and FP.

Since by a known proportion in perſpective,

$$
\begin{array}{lrcllll}
 & ec & : & EC & :: & QN \times QI & : QC \times QE, \text{ or in this caſe } QE^2 \\
 & fd & : & FD & :: & PM \times PI & : PD \times PF \quad - \quad - \quad PF^2 \\
\left.\begin{array}{l}\text{but } EC = FD \\ \text{and } PM = QN\end{array}\right\} & \therefore fd & : & EC & :: & QN \times PI & : PD \times PF \quad - \quad - \quad PF^2 \\
 & \therefore ec & : & fd & :: & QI \times PF^2 & : PI \times QE^2 \\
 & & & & :: & BQ \times PF^2 & : AP \times QE^2 \\
 & & & & :: & BQ^2 \times PF^2 & : EB^2 \times QE^2 \\
 & & & & :: & BO^2(EB+AP)^2 & : EB^2(EB+PQ)^2, \text{ which is a ratio of equality.}
\end{array}
$$

The demonſtration to this problem was furniſhed by H. Warburton, eſq., F.R.S. It is uſeful in the repreſentation of windows in a ſtraight front, ſuppoſed to be continued at pleaſure, in order to aſcertain the proper gradation of the reveals, and the place on the picture of that which will be repreſented of the greateſt breadth. It is evident that when the eye is in the plane of one of the reveals, thoſe ſucceeding will continually increaſe to a certain apparent breadth; after which, they will decreaſe again *ad infinitum*, and thus terminate in a mere line, or infinitely narrow ſurface.

It may be applied to any row of parallel, ſimilar, and equal plane figures, where the correſponding ſides are in one and the ſame plane.

PROB. XXX. *Method.* 1. *Plate* IX. *Fig.* 1.

Given a point in the repreſentation of a line, the poſition of the line to the interſection, the vaniſhing line of its plane, and the centre and diſtance of the vaniſhing line, to find the indefinite repreſentation of the line, without finding the vaniſhing point, or placing the eye in its poſition, ſuppoſing there is a want of ſpace to extend it to its full diſtance.

Let A be the given point in the indefinite repreſentation, VL the vaniſhing line, and C' the centre of the picture; draw C'B perpendicular to VL, and make CB any part of the whole diſtance, as one-third; join CA, and make C'D the ſame proportional part of C'A that C'B is of the whole diſtance, that is, becauſe C'B is one-third of the whole diſtance, make C'D one-third of C'A; draw BH, making the angle C'BH equal to the angle which the original line is ſuppoſed to make with the interſection, and let BH meet VL in H; join HA, cutting DG in F; make DG equal to three times DF, and join AG; then AG will tend to the vaniſhing point, as required. The credit of this invention is due to Noble.

For it is evident that if CB be produced to E', and Ev' be drawn parallel to BH, to cut VL at v'; and if AG be produced, it will meet v'; becauſe the ſtraight line BH is drawn parallel to the ſide, Ev', of the triangle $C'Ev'$, the other two ſides, $C'E'$ and $C'v'$, will be cut proportionally; therefore $C'H$ will be a third part of $C'v'$.

Now in the ſimilar triangles ADF and $AC'H$, } $AD : AC' :: DF : C'H$

Alſo in the ſimilar triangles ADG and $AC'v'$, } $AD : AC' :: DG : C'v'$

Therefore by equality of ratios, } $DF : C'H :: DG : C'v'$

Therefore A G produced will meet the vaniſhing line V L, at the point *v*.

Prob. XXXI. *Fig.* 2.

Given two ſtraight lines, AB and CD, inclining to each other: to draw any number of lines through each of the given points E, F, G, &c. to tend to the ſame point with AB and CD.

This problem has two caſes.

Caſe 1, *fig.* 2.—When all the points are in the ſame ſtraight line.

Produce the ſtraight line EFG to cut AB in B, and CD in D; draw AC parallel to BD, cutting AB in A, and CD in C; draw A*l*, making any angle with AC, and make A*h*, A*i*, A*k*, A*l*, reſpectively equal to BE, BF, BG, BD; divide AC in the ſame proportion as A*l*, that is, join *l*C, and draw *ko*, *in*, *hm*, parallel to *l*C, cutting AC at *o*, *n*, *m*; draw *o*G, *n*F, *m*E; then E*m*, F*n*, G*o*, would meet the point of concourſe of BA and DC, as is evident from the conſtruction.

Caſe 2, *fig.* 3.—When the points E, F, G, are not in the ſame ſtraight line.

Through each of the points E, F, G, draw the ſtraight lines PQ, RS, BD, cutting the lines AB and CD in P, Q, R, S, D, B; draw A*b* at any angle with AC, and make A*b* equal to the greateſt, BD of the parallel lines, and join *b*C; from A*b* cut off A*n* equal to BG; draw *ng* parallel to *b*C, cutting AC at *g*; join *g*G. Again, from the point A, with the radius SR, deſcribe an arc, cutting *b*C at *i*; join *i*A; from A*i* cut off A*m* equal to SF; draw *m*F parallel to *b*C, cutting AC in *f*, and join *f*F; find *e*E in like manner; then AB, *g*G, *f*F, *e*E, will have the ſame point of concourſe, if produced.

Method 2. *Caſe* 1. *Fig.* 4.

Draw *hm* parallel to BD, and produce BA to *h*; make *hm* equal to BD, and on *hm* ſet *hl*, *hk*, *hi*, reſpectively equal to BG, BF, BE; join *m*C, and produce it to meet AB in S; then join *l*S, *k*S, *i*S, cutting CA in *g*, *f*, *e*; laſtly, join *e*E, *f*F, *g*G; then E*e*, F*f*, G*g*, will have the ſame point of concourſe with BA and DC.

Caſe 2. *Fig.* 5.

Draw T*b* parallel to BD, and produce BA to T; make T*b* equal to BD; join *b*C, and produce *b*C to meet BA in S; draw *ml*, *nk*, *oi*, to meet C*b* in *l*, *k*, *i*; through the points *l*, *k*, *i*, draw *lt*, *ku*, *iv*, cutting AT at *t*, *u*, *v*; make *vr* equal to YG, *uq* equal to XF, and *tp* equal to WE; [draw *p*S, *q*S, *r*S, cutting CA at *e*, *f*, *g*; join *g*G, *f*F; *e*E, then will E*e*, F*f*, G*g*, have the ſame point of concourſe with BA and DC.

Method 3, *for both caſes.* *Fig.* 6.

When two lines, DE and DF, meeting in D, have each an inacceſſible point of concourſe with a third line, VL, draw DC, making any angle with VL, cutting VL in C. In DE take any point E, and draw EA parallel to DC, cutting VL in A; alſo in DF take any point F, and draw FB parallel to DC, cutting VL in B; divide each of the lines DC, EA, and FB, into an equal number of equal parts; then if DE and DF repreſent any two lines in a vertical plane, any point being given in perſpective in the ſame plane, a line being drawn through the given point, ſo as to divide the correſponding part of each adjacent ſcale in the ſame proportion, will tend to the vaniſhing point on the one ſide: thus, if through the point *p*, laying a ſtraight edge upon *p*, we find that it does not cut the correſponding points of ſection in the lines DC and FB, by moving it till it divide each correſponding part, on which it falls in the ſame proportion at *g* and *h*, then *gh* will tend to the vaniſhing point of DF. In like manner, *gi* may be drawn to the correſponding point at *i* in AE, and by this means a number of lines may be drawn in the ſame way to repreſent lines in the ſame vertical planes, and each two which meet in CD to repreſent lines in a plane parallel to the original plane.

The credit of this practical invention, as well as the following one, is due to Edward Noble.

Prob. XXXII. *Fig.* 7.

Given the vaniſhing line VL with its centre, and ſuppoſing the diſtance of the eye to be known in extenſion only, admitting there is a want of room to extend it to its poſition, to determine the vaniſhing points of two or more lines inclined at given angles with the interſection.

Let VL be the vaniſhing line, F its centre; draw FE perpendicular to VL; make FE equal to $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, of the diſtance of the picture, as the ſpace may admit; through E draw GH parallel to EL; draw two lines, EA and ED, meeting VL in A and D, making an equal angle with GH to thoſe of the original lines and the interſection; on the vaniſhing line make Fv' the ſame multiple of FA that the whole diſtance FE' of the eye is of FE; in like manner, make Fv^2 the ſame multiple of FD that FE' is of FE; and v' and v^2 will be the vaniſhing points. In the preſent inſtance, FE is one-third of the true diſtance of the eye. Figure 8 is found upon ſimilar principles to figure and ſhews the ſituation of the vaniſhing points, by taking one-fourth of the diſtance of the eye; in this the angle AED is acute, the other AED, in figure 7, being a right angle. The truth of this is very eaſily ſhewn; for produce FE to E', and join $E'v'$; then, becauſe the ſides Fv' and FE' of the triangle $v'FE'$ is divided in the ſame ratio at A and E, the ſtraight line EA is parallel to $E'v'$, but the ſtraight line EA is parallel to the original; therefore $E'v'$ is alſo parallel to the original; conſequently, v' is found in the ſame place as if the parallel of the original had been drawn through the eye at E, and is therefore the vaniſhing point of the original line parallel to EA; v^2 may alſo be proved in a ſimilar manner to be the vaniſhing point of original lines parallel to ED.

Prob. XXXIII. *Fig.* 9.

To find the repreſentation of a line parallel to the original plane, in a plane perpendicular to the ſaid plane, given the ſeat of the line, and its diſtance from its ſeat, without having recourſe to the vaniſhing point, which is here ſuppoſed to be inacceſſible.

Let the ſeat of the line be AB; at any convenient diſtance draw dE' perpendicular to IN, cutting IN at E; draw the line $E'v'$ through the eye at E'', to meet the vaniſhing line in v'; draw A*d* and B*c* parallel to the interſection, cutting dE'' at *d* and *c*; draw *db* and *cg* parallel to $E''v'$, cutting the interſection in *g* and *h*;

draw gq and hm perpendicular to I N; make gn and hi equal to the height of the original line; draw lines from n and i, tending to the point v, cutting EE' at 1 and 2; draw A e and B f parallel to $E''v'$, cutting the interſection in e and f; draw the lines fr and eg, tending to the vaniſhing point v'; draw G H and rv perpendicular to I N; draw 1 s and 2 w parallel to V L, cutting rv at s, and G H at w; join sw, which will tend to its proper vaniſhing point, as required. In the ſame manner, the repreſentations r G, tx, uy, v H, &c. of any ſeries of parallel lines to the original plane in a vertical plane inſiſting upon A B, may be found.

PROB. XXXIV. *Fig.* 10.

To find the repreſentation of a line parallel to the original plane, and in a vertical plane, the vaniſhing points being inacceſſible as before, given the ſeats of the extremities of the ichnography of the line, the diſtance of each extremity from its ſeat, and the centre and diſtance of the picture.

Let A and G be the ſeats of the extremities of the ichnography. We ſhall here ſuppoſe the diſtance of the picture to exceed the limit of the vaniſhing line: in ſuch caſes, take one-half, one-third, or one-fourth, &c. of the diſtance of the picture, and take the like part of the diſtance of each extremity of the ichnography. In this caſe, let C' be the centre of the picture, and $C'D$ one-fourth of the true diſtance; make A I and G K one-fourth of the diſtance of the reſpective extremity of the ichnography of the line from the ſeats A and G; draw AC' and $C'G$; draw I D, cutting A C at E; and KD, cutting $C'G$ at G'; join EG', which is the repreſentation of the ichnography of the line; draw A B and E F, $G'H$ and G D, perpendicular to I N; make A B and G D each equal to the height of the original line; join BC', cutting E F at F; and DC', cutting G H at H; draw H F, which will be the repreſentation of the line required. In this manner, a ſeries of lines in a vertical plane may be found, by applying the height upon A B and G D, and joining their upper extremities to the centre C'; then joining the correſponding points of ſection will give the ſeries of lines required.

PROB. XXXV.

To find the repreſentation of a right priſmatic object, ſo that the original may appear under a given angle, and the extremes equally diſtant from the centre of the picture, given in poſition the right ſection of the object, and the vaniſhing line of the original plane, in which it is ſituated in the vaniſhing plane.

Let A B C D (*fig.* 11.) N° 2, be a ſection of the object; draw A B, N° 1, parallel to the vaniſhing line N° 2; biſect A B in D; draw C D perpendicular to A B; make the angles B A C and A B C, N° 1, each equal to half the ſupplement of the given angle; through A, N° 2, draw AE' parallel to A C, N° 1; and through C, N° 2, draw CE' parallel to B C; then it is evident that the angle $AE'C$, N° 2, is equal to the angle A C B, N° 1; therefore the object, or its right ſection A B C D, will appear to an eye at E under the angle required. Now, ſuppoſe the object to be repreſented to be a houſe, and A B C D the plan, or horizontal ſection, made by the vaniſhing plane; and let the dimenſions of the plan, for the ſake of conveniency in ſaving room, be half of thoſe of the real object. Let N° 3 be an elevation of the front to the full ſize. In N° 2, draw Ev' and $E'v^2$, cutting V L in v' and v^2. In V L make $v'1$ equal to vE', and $v^2 2$ equal v^2E'; produce the ſide A B to meet V L in e; draw Bf tending to the point E', cutting V L at f; draw $E'C'$ perpendicular to V L, cutting it in C'; and this will be a preparation for drawing the repreſentation of the object as follows.

Take any convenient line V L, N° 4, for the vaniſhing line, and place thereon double the diſtances $C'v'$, $C'2$, $C'f$, $C'1$, $C'e$, and $C'v^2$, N° 2, as ſhewn by ſmaller characters at the correſponding points; then, in N° 4, v' is the vaniſhing point for the horizontal lines of the one ſide of the object, and v^2 that for thoſe of the other ſide of the object; 1 is the dividing point for the lines tending to v', and 2 for the lines tending to v^2, and f the point through which the repreſentation of the angle of the building paſſes; through f draw yn perpendicular to V L, meeting I N in y; make yA double of fe, N° 2; draw Av', N° 4, cutting yn at o; draw A B parallel to yn; make A B equal to the height of the elevation N° 3; join Bv', cutting yn at n; then on is the repreſentation of the angular line of the object. Join 1 o, and produce it to meet I N at g; make gh equal to the length of the front, N° 3; place on gh the intermediate diviſions of the doors and windows; from the point h, from the intermediate diviſions, draw lines tending to 1, cutting ov'; from the points of ſection draw perpendiculars, which will terminate the breadths of the windows and door; from the point o draw oe, tending to the dividing point 2; make ex equal to the breadth of the building; join ov^2, and draw xq, tending to 2, cutting ov^2 at q; draw qp parallel to on; alſo draw nv^2, cutting qp at p; then $onqp$ is the repreſentation of the flank of the building; ſet the heights of the apertures on A B, and draw lines to v', which will complete the repreſentation of the openings of the windows and door, and that of the entire object. If, by ſetting the meaſures upon the baſe line, they ſhould give the interſections very oblique, produce A B to C, and draw C D parallel to V L, apply the meaſures to C D; divide C E, then drop the perpendiculars.

This is the firſt time that a rule has been ſhewn for repreſenting a right priſmatic object, ſo that the original will appear under a given angle; and to fix the object at a given diſtance, with the plane of the picture at the ſame time. This alſo gives a rule for making the length of the picture, and the diſtance of the eye from its centre in a given ratio; for A B, N° 1, being made equal to any diſtance or length, the perpendicular D C may be made in any proportion to A B. This method finds the poſition of the object, ſo as to give the moſt perfect repreſentation poſſible, for the picture in the poſition here found will be the neareſt to a ſpheric ſurface; the plane of the picture being conſidered as tanging the ſpheric ſurface at the middle of its length.

In the method hitherto uſed for finding the poſition of an object, the plan was firſt drawn; the point of view was moved on the paper until it came into what was thought an agreeable poſition for the view; then two lines were drawn to the eye from thoſe two points of the object which would form the greateſt angle; the angle of view was biſected, and a line was drawn through ſuch a point of the biſecting line as would make the picture, as might be thought, of ſufficient dimenſions. But in taking the poſition of the picture in this way, the proportion of the length of the picture to its diſtance was only gueſſed at, nor could the object be viewed under a given angle.

It muſt alſo be noticed here, that the method of finding the repreſentation, as is to be found in all previous writers on perſpective, without the geometrical plane of the object, does not give its poſition.

PROB. XXXVI. *Plate* X. *Fig.* 1.

To find the repreſentation of a rectangular ſolid, by making

ing the centre of the picture the only dividing point for both ſides of the object.

Let the object propoſed to be repreſented be a houſe, *fig.* 1; N° 1, the elevation; N° 2, the ground plan: let N° 3, for want of room, be a reduced plan to one-third of the dimenſions of N° 1 and N° 2, ſhewing the preparation neceſſary for the perſpective repreſentation: beſides what was ſhewn in the preparation of the vaniſhing points in the preceding problem, the following will alſo be neceſſary. From the remote angular points B and D of the plan N° 3, draw B H and D I perpendicular to V′L′; and from the hither angular point A draw H I parallel to V′L′; draw any two parallel lines *a i* and *g k*, N° 5; in *a i* apply A D from *a* to *d*, and in *g k* apply A I from *g* to *e*; join *a g* and *d e*, and produce *a g* and *d e* to meet each other in *f*; upon the line *a i* place the ſcale of the building; join *i f*, cutting *g k* in *k*; divide *g k* into a ſcale in the ſame proportion to *a i*; in *g f* take any point *s*, and draw *s u* parallel to *g k*; in *a i* make *a b* equal to A B, N° 3; in *s u* make *s t* equal to H A, N° 3; join *b t*, and produce it to *m*; join alſo *m i*, cutting *s u* in *u*; divide *s u* into a ſcale of the ſame proportion with *a i*; take the triple meaſures in the vaniſhing line V′ L′, N° 3, and transfer them to the vaniſhing line V′ L′, N° 6. In N° 6, draw any line I′ N′ for an interſecting line. In N° 3, produce D A to meet V′ L′ in G, and take the triple multiple of C G, and extend it in V′ L′, N° 6; from C to G, through G, draw *g* F perpendicular to V L, cutting I′ N′ at F; ſet G *a* downwards, equal to the height of the eye; place the height of the apertures from *a*, as alſo the height of the wall upon *a g*, upwards; from the points of ſection in *a g*, draw the indefinite repreſentation of the horizontal lines of the building to the vaniſhing point v^2; draw $f\ v^2$; produce E′ C′, N° 3, to meet H I in X; in N° 6, draw C *x* perpendicular to I′ N′, meeting I′ N′ at *x*; ſet the triple meaſures of X H, N° 3, from *x* to *r*, N° 6; now as the point *r* is found, which begins with the remote extremity of the end of the houſe, take the meaſures of the end of the houſe, and reduce them from the natural to the coſinical ſcale, and repeat each half from *r* to *s*, and from *s* to *h*, N° 6; alſo take the meaſures of the length of the front and reduce them from the natural to the ſinical ſcale, and repeat them in order from *h* to *i*, from *i* to *j*, from *j* to *k*, from *k* to *l*, from *l* to *m*, from *m* to *n*, and from *n* to *o*, N° 6; draw *h* I, tending to the point C′, cutting F v^2 at I; draw I v'; draw *r* L, tending to C′, cutting I v' at L; draw *o* K, tending to C, cutting F v^2 at K; then three lines, L *w*, I *y*, and K *z*, being drawn from the points L, I, K, perpendicular to V′ L′, will give the repreſentation of the three quoins which are ſeen, *viz.* that of the hither angle, and thoſe of the two remote ones; and being cut by $f\ v^2$, gives *y z* the top of the front wall, and $y\ v'$ being drawn, gives *y w* the level of the end; then by proceeding in the ſame manner with the intermediate points, will give the vertical ſides of the windows, and the middle of the end, in order to aſcertain the ſummit of the triangle which forms the apex of the roof.

The repreſentation of the roof is thus determined; upon the interſecting line, *a g*, of the heights, make *f g* equal to the height of the roof; draw *g h*, tending to v^2, cutting the perpendicular from I at *h*; draw $h\ v'$, cutting the vertical or perpendicular line in the middle of the end at *t*, which gives the apex of the end of the roof; draw *g q* parallel to V L′; draw *t p*, tending to C′, cutting *g q* at *p*; make *p q* equal to *h o*; join $t\ v^2$ gives the repreſentation of the ridge of the roof; draw *q u*, tending to C, cutting $t\ v^2$ at *u*, gives the repreſentation of the other end of the ridge; then joining *t y*, *t w*, and *u z*, completes the repreſentation of the roof.

Prob. XXXVII. *Fig.* 2.

To put a right rectangular priſmatic object in perſpective by one dividing point only, and by uſing the ſame meaſures for both ſides of the object.

Let A B C D be the plan of the object, E′ the point of ſight, V′ L′ the vaniſhing line, as before; draw the parallels E′ E, and E G of the ſides of the object; biſect the angle E E′ G by the ſtraight line E′ *d*, cutting E G in *d*, then *d* will be the dividing point in the vaniſhing line V L.

Let the object to be drawn be a houſe, as at *fig.* 1, N^{os} 1 and 2; the plan, *fig.* 2, N° 1, being only one-third of the ſize, is uſed only for the purpoſe of aſcertaining the vaniſhing points, the dividing point, or other particulars reſpecting the inacceſſible vaniſhing point.

Draw an angle A *h* B, *fig.* 2, N° 2; make *h* A to *h* B in the ratio of G E′ to G *d*; apply the ſeveral meaſures *h i*, *i j*, *j k*, *k l*, *l m*, *m n*, and *n o*, *fig.* 1, N° 2, to *h* A, *fig.* 2, N° 2, from *h* to *i*, from *i* to *j*, from *j* to *k*, &c. Alſo at *fig.* 2, N° 3, draw another angle A *h* B, making *h* A to *h* B in the ratio of G E′ to G *d*, as before, in N° 2; upon the line *h* A make *h p*, *h q*, *h r*, equal to *h p*, *h q*, *h r*, *fig.* 1, N° 2; join A B; draw *r r′*, *q q′*, *p p′*, parallel to A B, cutting *h* B at *r′*, *q′*, *p′*. Alſo in *fig.* 2, N° 2, join A B, and draw *i i′*, *j j′*, *k k′*, &c. parallel to A B, cutting *h* B at the points *i′*, *j′*, *k′*.

Transfer the triple multiples of the ſeveral diſtances of V L, *fig.* 2, N° 1, to V L, *fig.* 2, N° 4, as ſhewn by the correſponding letters, except C E and C G.

Now becauſe the ſurface of paper in *fig.* 2, N° 2, is not ſufficient to contain the vaniſhing points, prepare *fig.* 2, N° 1, thus; draw E I and G H perpendicular to V′ L; make E I and G H equal to three-thirds of C′ E, the diſtance of the picture; join I E′ and H E′.

In N° 4. *fig.* 2, draw C′ E′ perpendicular to V′ L′, and make C′ E, N° 4, equal to C′ E, N° 1; upon the vaniſhing line V L, make C′ E″ equal to C′ E, N° 1; and C′ G equal to C G, N° 1; draw E″ I and G H perpendicular to V′ L′, making E″ I and G H equal to E I and G H, N° 1; join E′ I and E′ H, which will tend to the vaniſhing points.

Let the dimenſions in *fig.* 1, N° 1, be applied in No. 4, *fig.* 2, to C *c*, C *d*, &c. in altitude upon the corner from C upwards and downwards; then draw lines tending to the vaniſhing points, as ſhewn in the preceding problems; draw any convenient line, P Q, parallel to V′ L′; continue the corner line of the building to meet P Q in *h*; make *h i*, *h j*, *h k*, &c. alſo *h p*, *h q*, *h r*, equal to *h i′*, *h j′*, *h k′*, &c. *fig.* 2, N° 2, and *h p′*, *h q′*, *h r′*, N° 3; then C′ *d* being the triple multiple of C *d*, N° 1, the point *d* will be the dividing point; draw *h* R and *h* S tending to the vaniſhing points; from the ſeveral points *i*, *j*, *k*, &c. and *p*, *q*, *r*, draw lines tending to *d′*, to cut *h* R and *h* S; from the point of ſection draw lines perpendicular to V′ L′, which will give the corners of the building and the ſides of the windows. Let us now ſuppoſe the walls completed with their apertures.

Now C *g* being the height of the roof upon the corner of the building from the vaniſhing line, and the height of the left-hand corner being at *w*, draw *g v* and *w y*, tending to the vaniſhing point v^2; through *g* draw *u t* parallel to V L; make *g u* equal to *h o*; make *g t* and *u x* equal to the half of *h′ r′*, N° 3; draw *x y* and *t v*, tending to the dividing point *d*, gives the points *y* and *v* for the extremities of the ridge, the points *y* and *v* being joined to the wall heads completes the roof.

This method is entirely new, and perhaps is the eaſieſt method of practice that has ever been deviſed.

Prob. XXXVIII. *Fig.* 3.

To find the repreſentation of a hipped truncated roof, ſuppoſing the dimenſions of the walls to be the ſame as in *fig.* 2, N° 4.

Let v' and v^2 be the vaniſhing points, of which v' is inacceſſible, and let P be the dividing point, found as that of *fig.* 2, N° 4, the poſitions of the other points being taken from *fig.* 2, N° 1. Draw $I'' N''$ the interſecting line of the truncated part of the roof, that is, draw $I'' N''$ parallel to $V' L'$, equal to the height of the top of the roof from the level of the eye; make $g k$ the proportional meaſure of the breadth of the inclined part of the roof; that is; the real meaſure being applied to the ſcale b A, *fig.* 2, N° 2, or *fig.* 2, N° 3, and reduced to the ſcale b B, gives the proportional meaſure. The other meaſures upon $I'' N''$ are all ſuppoſed to be reduced in the ſame manner, and are conſequently in the ſame ratio as the real meaſures; $g h$ is the proportional meaſure of the ſides of the truncated part parallel to the front, and $g i$ the proportional meaſure of the end of the ſaid part; draw $k l$, tending to the dividing point P, cutting $g v^2$ at l; draw $l n$, tending to the vaniſhing point v'; draw g P, cutting $l n$ at m; draw $m o$, tending to the vaniſhing point v^2; draw $i o$, tending to the dividing point P, cutting $m o$ at o; alſo draw $h n$, tending to the dividing point P, cutting $l n$ at n; then the lines $m n$ and $m o$ repreſent the two viſible parts of the truncated plane of the roof; join $n y$, $m f$, and $o r$ will complete the repreſentation of the roof. This is evident, ſince the line $l n$ repreſents the front line of the truncated part; and becauſe that P is the vaniſhing point of the diagonal, the line $g m$ is in the plane of the diagonal, and therefore the point m is properly aſcertained.

Or a truncated hip roof may be thus repreſented: let g, *fig.* 4, be the height of the roof at the middle corner, as before; draw $g q$, tending to the vaniſhing point v', upon the left, and $g v$, tending to the vaniſhing point, upon the right; make $g h$ and $g l$ equal to the breadth of the inclined part; make $h i$ equal to the ſide of the truncated plane parallel, and next to the front, and make $l m$ equal to the breadth of the truncated plane; draw $l t$, $m u$, tending to the dividing point P, cutting $g v$ at t and u; draw $t s$ and $u x$, tending to the vaniſhing point on the left; draw $h o$ and $i p$, tending to the dividing point P, cutting $g q$ at o and p; draw $o x$ and $p s$, tending to the vaniſhing point on the right, cutting $t s$ at s, and $o x$ at r and x; then $r s$ and $r x$ will be the two ſides of the truncated flat; then joining $s y$, $r f$, and $x w$, will complete the whole repreſentaion of the roof.

It is ſomewhat ſtrange that the baſe line, or interſection of the plane on which the objects are placed, is the only interſection that is to be found in treatiſes of perſpective; but if the interſection of each plane above the eye were uſed, inſtead of deſcribing every parallel plane upon the baſe, much leſs confuſion would enſue, and much greater accuracy would be acquired. As the angles become leſs obtuſe, that is to ſay, they approach the right angle by becoming more acute, all the indefinite repreſentations would be cut more at right angles, and, therefore, the interſections would be leſs oblique. In order to comprehend clearly the perſpective repreſentation of polygons, it will be neceſſary to attend to their geometrical conſtruction. An equilateral polygon may be conſtructed according to ſeveral methods; but the moſt eligible for the purpoſe of perſpective is the following.

Prob. XXXIX. *Figs.* 1, 2, 3, 4, 5, 6.

The angle made by the two ſides of a regular polygon being given, to conſtruct the polygon according to a given ſide.

From the angular point cut off the two ſides to their determinate length: then to obtain each ſucceſſive ſide, proceed each time as in the following operation.

From the extremity of one ſide, which is not the angular point, draw a line parallel to the other ſide; from the extremity of the other ſide draw a line, making a given angle with that ſide equal to the angle of the ſides of the polygon, and let the line laſt drawn meet the line parallel to the middle line; and three ſides of the polygon will be thus determined. Proceed in the ſame manner with the two ſides forming the laſt angle, and a fourth ſide will be obtained, and thus ſucceſſively till the whole figure is incloſed.

From this geometrical deſcription it appears, that if the vaniſhing points of the ſides of a polygon are found, the whole may be conſtructed perſpectively.

Prob. XL.

To find the perſpective repreſentation of a polygon, given a ſimilar figure to the polygon to be conſtructed, and the length of the ſides.

Find the vaniſhing point of each of the ſides, and the repreſentation of the two ſides neareſt to the interſecting line.

Then repeat the following operations in finding each ſucceſſive ſide. From the extremity of one of the repreſentations of the two ſides, which is not the angular point, draw a line to the vaniſhing point of the other ſide; then draw a line from the extremity of the other ſide, which is not the angular point, to the vaniſhing point of the next ſucceeding ſide, and the point of interſection of the two lines thus drawn will terminate the third ſide.

Then if the polygon be a trigon the thing is done, but if it conſiſt of more ſides the ſame operation muſt be repeated for each.

If one of the vaniſhing points of one of the ſides be inacceſſible, repeat the operations round in the ſame order, until one end of the inacceſſible ſide is found; then repeat the operations in the contrary order, until the other end of the inacceſſible line is found; then join the two points, which will complete the perſpective repreſentation of the polygon.

With regard to finding the vaniſhing points. If the polygon has an even number of ſides, there will be only vaniſhing points for half the number of ſides; but if the number of ſides be odd, every ſide will have a vaniſhing point; ſhould the number of ſides be even, each radial may be marked with the digits 1, 2, 3, &c. then marked again with the ſame digits added to half the number of ſides of the polygon. Thus, if the figure be a hexagon, as A B C D E F A, *fig.* 2, N° 1; the figure, N° 2, having all its radials parallel, has its radials numbered 1, 2, 3, and again 4, 5, 6, becauſe the three lines continue the ſucceeding numbers. This is alſo manifeſted in *fig.* 4, N^{os} 1 and 2. In N° 2, the radials are numbered 1, 2, 3, 4, then 5, 6, 7, 8, repeated upon the ſame lines, and thus every radial gives the vaniſhing points of two ſides, as is indicated by the numbers. But if the number of ſides of the polygon be odd, the numbers are repeated upon every ſecond radial, then again upon the intermediate radials, beginning with that which lies between the firſt and ſecond, as *figs.* 1, 3, and 5, plainly ſhew.

Fig. 6. ſhews the repreſentation of a hexagon upon the foregoing principles; the ſides $e f$ and $e k$ are firſt found by the vaniſhing points v^{1+4} and v^{3+6}, which are the firſt and laſt ſides of the polygon, then drawing $k g$ to the vaniſhing point v^{1+4} of the ſide $e f$, and from f drawing $f g$ to the next vaniſhing point v^{2+5} in ſucceſſion, gives the next ſide $f g$; $g b$ is found in the ſame manner.

Fig. 7. is another example of the principle; where the number of ſides are even, the figure repreſented is an octagon. It will be obſerved in this as well as in *fig.* 6, that every vaniſhing point ſerves for two oppoſite ſides, ſo that in every half number of ſides in going round from any ſide, the laſt will have the ſame vaniſhing point again as that ſide; or in any number of adjoining ſides which conſiſt of one more than half the number of ſides in the whole polygon, the firſt and laſt of theſe ſides will have the ſame vaniſhing point; and thus in the hexagon the vaniſhing points v^1, v^2, v^3, are reſpectively the vaniſhing points of the oppoſite ſides, which in order would be v^4, v^5, v^6, and are therefore marked v^{1+4}, v^{2+5}, v^{3+6}. The ſame is to be underſtood of *fig.* 7.

PROB. XLI. *Fig.* 8.

Given the centre and diſtance of the picture, the interſecting and vaniſhing lines of a plane perpendicular to the picture, and the inſiſting line A B of a plane perpendicular to the original plane inclined to the interſection, to find the interſecting and vaniſhing lines of the inſiſting plane.

If A B do not meet the interſection I′ N′, produce it till it meet in B; draw E′ C parallel to A B, cutting the vaniſhing line V L in C; through C draw V″ L″ perpendicular to V′ L′, and V″ L″ will be the vaniſhing line; alſo through B draw I″ N″, and I″ N″ will be the interſecting line of the plane.

For the angle C′ C E is equal to the angle I B A; then when theſe angles are raiſed perpendicular to the plane of the picture, and on contrary ſides of it, the planes whoſe interſections are I″ N″ and V″ L″ will be parallel to each other, and therefore their interſections I″ N″ and V″ L″ are alſo parallel to each other.

PROB. XLII. *Fig.* 9.

Given the interſecting and vaniſhing lines of an original plane, the ſeat of a line at a given angle with the interſection, the inclination of the incumbent line and the poſition of the eye in reſpect of the vaniſhing line, to find the vaniſhing point of the line whoſe ſeat is given.

Let A B be the ſeat of the line given; through E′, the place of the eye, draw E D parallel to AB, cutting V″ L″ in D′; through D draw V″ L″ perpendicular to V′ L′; make D E equal to D E′; and make the angle D E F equal to the inclination of the line to the original plane, the leg E F cutting V″ L″ at F; then F is the vaniſhing point required.

Or take any point H in E′ D, and draw H K parallel to V″ L″; make E′ H to H K as radius to the tangent of inclination of the line to the original plane; join E K, and produce it to meet V″ L″ in F. For draw D G and H I perpendicular to A B, and make H I equal to H K; join E′ I, and produce it to G; then E′ H : E′ D :: HI : D G, alſo E H : E D :: H K or H I : D F; therefore D F is equal to D G, conſequently F is the point required.

PROB. XLIII. *Fig.* 10.

Given the vaniſhing line, its centre and diſtance, and the interſecting line of an original plane perpendicular to the picture; and the inſiſting line of a plane inclined to the original plane, and to the interſection at a given angle, to find the vaniſhing line of the incumbent plane, its centre, and diſtance, and alſo its interſecting line.

Let A C be the inſiſting line of the incumbent plane; produce A C to meet the interſection I′ N′ in *e*; through E′, the point of ſight, draw E′ v', cutting the vaniſhing line V′ L′ at v'; alſo, through E′ draw E′ v^2 perpendicular to E v', cutting the vaniſhing line V′ L′ at v^2; through v^2 draw V″ L″ perpendicular to I′ N′. In E′ v^2 take any point *g*, and draw *g h* parallel to V″ L″; make E′*g* to *g h* as radius to the tangents of the plane's inclination to the original line; that is, ſuppoſe A B C, N° 2, to be the inclination of the plane, take B A equal to E *g*, N° 1; draw A C perpendicular to B A, cutting B C in C; then make *g h*, N° 1, equal A C, N° 2; then in N° 1, join E *h*, which produce to meet V″ L″ at v^3; join v^3 and v', and $v' v^3$ will be the vaniſhing line of the plane; through the point E in I′ N′, draw I‴ N‴, and I‴ N‴ is the interſecting line; from C′, the centre of the picture, draw C′ *k* perpendicular to $v' v^3$, cutting it in *i*; draw C′ *f* parallel to $v' v^3$; make C′ *f* equal to C′ E′, and join *i f*; and laſtly, make *i k* equal to *i f*; then *i* is the centre, and *i k* the diſtance, of the vaniſhing line required.

PROB. XLIV. *Fig.* 11.

Given the centre and diſtance of the picture, and the ſeats and diſtances of two points of an original line on the picture, to find the indefinite repreſentation of the line.

Let C′ be the centre of the picture, C and D the ſeats of the two points; join C D; draw C A and D B perpendicular to C D; make C A equal to the diſtance of the point, whoſe ſeat is C, and D B equal to the diſtance of the point, whoſe ſeat is D; join A B; produce A B and C D to meet each other in F; draw C′ *v* parallel to C F; and C′ E′ perpendicular to C′ *v*; make C′ E′ equal to the diſtance of the picture; draw E′ *v* parallel to A F, and join *v* F, and *v* F is the indefinite repreſentation required.

PROB. XLV. *Fig.* 12.

Given the interſecting and vaniſhing lines of an original plane perpendicular to the picture, the poſition of the eye in reſpect of the vaniſhing line, and the ſeats of two points of a line, and their diſtances, to find the indefinite repreſentation of the line.

Let A and B be the ſeats of the two points, V′ L′ the vaniſhing line, and I′ N′ the interſecting line of the original plane, and E′ the place of the eye; join A B, and produce it to meet the interſection I′ N′ at *e*; draw B D and A C perpendicular to A *e*; make B D equal to the height of the point, whoſe ſeat is B, and A C equal to the height of the point, whoſe ſeat is A; draw *e f* perpendicular to A *e*; join C D, and produce it to *f*; draw *e g* perpendicular to I′ N′; make *e g* equal to *e f*; through E draw E′ v' parallel to A B, cutting V′ L′ at v'; from V′ L′ cut off *v* 1 equal to v' E′; make the angle v' 1 v^2 equal to the angle which the line A B makes with C D; and through v' draw V″ L″ perpendicular to I′ N′, cutting 1 v^2 at v^2; join $v^2 g$, and $v^2 g$ is the indefinite repreſentation required.

PROB. XLVI. *Fig.* 13.

Given the centre and diſtance of the picture, the interſecting line of an original plane, and its inclination to the picture, to find the vaniſhing line, its centre, and diſtance of the original plane.

Let A B be the interſecting line of the original plane, C the centre of the picture. Through C draw *e f* perpendicular to A B; draw C D perpendicular to *e f*; make C D equal to the diſtance of the picture; and make the angle C D E equal to the complement of the inclination of the original plane to the picture; through *e* draw V′ L′ parallel to A B; then V′ L′ will be the vaniſhing line, *e* its centre, and D *e* its diſtance, as required.

PROB. XLVII. *Fig.* 14.

Given the centre and diſtance of the picture, and the vaniſhing line of a plane, to find the vaniſhing point of lines perpendicular to that plane.

Let C' be the centre of the picture, $V'L'$ the vaniſhing line of the plane. Through C' draw $C''L''$ perpendicular to $V'L'$, cutting $V'L'$ at C''; draw $C'E$ perpendicular to $C''L''$, and make $C'E$ equal to the diſtance of the picture; join $C''E$, and make the angle $C''Ev^2$ a right angle, and let Ev^2 meet $C''L''$ in v^2; then v^2 is the vaniſhing point required.

Prob. XLVIII. *Fig.* 14.

Given the centre and diſtance of the picture, the vaniſhing line of a plane, and the vaniſhing point of the common interſection of the plane, whoſe vaniſhing line is given, and another plane at right angles, to find the vaniſhing point of the other planes. Let v' be the vaniſhing point of the common interſection.

Find v^2, the vaniſhing point of lines, perpendicular to the plane, whoſe vaniſhing line is $V'L'$, and join v^2v', which is the vaniſhing line required.

This is eaſily conceived, by ſuppoſing the triangle $C''Ev^2$ perpendicular to the plane of the picture upon the line $C''v^2$.

Prob. XLIX. *Fig.* 14.

Given the centre and diſtance of the picture, and the vaniſhing point of parallel lines, to find the vaniſhing line of planes perpendicular to the lines, whoſe vaniſhing point is given.

Let C' be the centre of the picture, v^2 the vaniſhing point of the parallel lines; join v^2C', and produce v^2C' to C''; draw $C'E$ perpendicular to v^2C'; make $C'E$ equal to the diſtance of the picture; join v^2E; draw EC'' perpendicular to Ev^2; through C draw $V'L$ perpendicular to v^2C'', and $V'L$ is the vaniſhing line required.

Prob. L. *Fig.* 15.

Given the centre and diſtance of the picture, the vaniſhing line of one of the planes of a rectangular priſm, and the vaniſhing point of the common interſection of that plane and the plane of the adjoining ſide, to find the vaniſhing lines of the other two ſides, their centres, and diſtance.

Let C be the centre of the picture, $V'L'$ the vaniſhing line of the plane of one ſide, v the vaniſhing point of the common interſection of that ſide with the next adjoining ſide.

Find the vaniſhing line $V''L''$, of parallel planes perpendicular to parallel lines, whoſe vaniſhing point is v' by the laſt problem. Produce $v'C$ to E'', cutting $V''L''$ at C''; make $C''E''$ equal to $C''E$; draw CE' perpendicular to $V'L'$; let v'' be the interſection of the vaniſhing lines $V'L'$ and $V''L''$, and conſequently the vaniſhing point of the interſection of two adjoining ſides; from v'', with the radius $v''E''$, deſcribe an arc, cutting CE' at E; join $E'v'$, $E'v''$, $E''v''$; make the angle $v''E'v'''$ a right angle, and let v''' cut $V''L''$ at v'''; join $v'v'''$ for the vaniſhing line $L'''V'''$; draw CE''' perpendicular to $V'''L''$, cutting $V'''L'''$ at C'''; from v', with the radius $v'E'$, deſcribe an arc, cutting CE''' at E'''; join $E'''v'$ and $E'''v'''$; then $V'L'$, $V''L''$, $V'''L'''$, are the vaniſhing lines, C', C'', C''', their reſpective centres, and CE', CE'', and $C'''E'''$, their reſpective diſtances; which might have been otherwiſe found by drawing right-angled triangles, making the diſtances of the centre of the picture, and the centre of the vaniſhing line, the baſes, and the perpendicular at the centre of the picture equal to the diſtance, as ſhewn by the dotted triangles.

Prob. LI. *Figs.* 16 and 17.

Given the common interſection of two planes, the ſeat of a line in one of them, and the inclination of the line to the ſame plane, to find the ſeat of the line in the other plane, and its inclination to the ſame.

Let $I'N'$ be the common interſection of the two planes, AB the ſeat of the line; let AB meet the interſection $I'N$ at A; make the angle BAC equal to the inclination of the line; draw BC perpendicular to AB, cutting AC in C. This problem may be divided into two caſes; one when the two planes are at right angles to each other, and the other when they ſtand oblique. In the former caſe, (ſee *fig.* 16.), draw Be perpendicular to $I'N'$, cutting it in d; make de equal to BC, and join Ae; draw ef perpendicular to Ae; make ef equal to dB, and join fA; then Ae is the ſeat of the line, and eAf its angle of elevation on the other plane. In the latter caſe, draw Bf perpendicular to Bd; make Bf equal to BC; make the angle Bde equal to the inclination of the planes; draw fe perpendicular to de; make dg equal to de, and join gA; draw gh perpendicular to gA; make gh equal to ef, and join Ah; then gA is the ſeat of the line on the other plane, and gAh the correſponding angle of elevation.

By means of this problem, whatever lines are given in poſition to the original plane, the poſition of the ſame lines may be found to the picture, and the repreſentation may be found as in problem 16.

Prob. LII. *Fig.* 1.

Given the centre and diſtance of the picture, the vaniſhing line of a plane, and the vaniſhing point of the interſection of that plane, and another plane, and the inclination of the planes, to find the vaniſhing line of the other plane, and its centre and diſtance.

Let C' be the centre of the picture, V^2L^2 the vaniſhing line of a plane, v' the vaniſhing point of the interſection of that plane with another plane; join $C'v'$; draw $C'E$ perpendicular to $C'v'$; make $C'E'$ equal to the diſtance of the picture, and join $E'v'$; draw $C'D$ perpendicular to $v'E'$, cutting $v'E'$ at D; from $C'v'$ take $C'B$ equal to $C'D$, and let $C'E'$ cut V^2L^2 at A; produce AC to F; make the angle ABF equal to the inclination of the planes; join $v'F$, which gives the vaniſhing line V^3L^3, as required; draw $C'E^2$ perpendicular to V^2L^2, cutting it at C^2; make $v'E^2$ equal to $v'E'$, and join $v'E^2$; alſo draw $C'E^3$ perpendicular to V^3L^3, cutting V^3L^3 at C^3; make $v'E^3$ equal to $v'E'$, and join $v'E^3$.

Prob. LIII. *Figs.* 2 and 3.

Given the centre and diſtance of the picture, the repreſentation of a line, with its vaniſhing point, and the indefinite repreſentation of another, from a given point in the latter, to cut off a portion, ſo that the originals of the two repreſentations ſhall have a given ratio,

Let C' be the centre of the picture, v' the vaniſhing points of one of the lines, and v^2 the vaniſhing point of the other; join v' and v^2 by the ſtraight line V^2L^2, which will be the vaniſhing line of their plane; draw $C'E^2$ perpendicular to V^2L^2, cutting V^2L^2 at C^2; draw $C'E'$ perpendicular to $C'E^2$; make $C'E'$ equal to the diſtance of the picture, and join C^2E'; make C^2E^2 equal to C^2E'; join $v'E^2$ and v^2E^2; from $v'v^2$ take $v'1$, equal to $v'E^2$; alſo $v^2 2$, equal to v^2E^2.

This problem may be reſolved into two caſes; firſt, when the two lines meet in a point, figure 2.

Let ae be the given repreſentation, and av^2 the indefinite repreſentation, having reſpectively the vaniſhing points

v' and v^2; through a draw $c\,d$ parallel to $V^2 L^2$; join $i\,e$, which produce to c; make $a\,c$ to $a\,d$ in the original ratio required; draw d^2, cutting $a\,v^2$ at b, and c 1, cutting $a\,v'$ at e; then $a\,e$ and $a\,d$ are the repreſentations of two original lines in the ratio of $a\,e$ to $a\,b$. But if the two lines do not meet at the ſame point as in figure 3; let $e\,d$ be the repreſentation given, v' its vaniſhing point, and $a\,v^2$ the indefinite repreſentation of the other; through the extremity a, draw $I^2 N^2$; join 1 c and 1 d, which produce to meet $I^2 N^2$ at f and g; from a take $a\,e$ to $g\,f$, in the ratio required; join e 2, cutting $a\,v^2$ at v; then the original of $a\,b$ will have to the original of $c\,d$ the ratio required.

Prob. LIV. *Fig.* 4.

Given the centre and diſtance of the picture, the ſeat and diſtance of any point from the picture, and the vaniſhing points of ſeveral lines diverging from that point, to draw the indefinite repreſentations, and to cut a portion from each; ſo that the original of the repreſentations may be in a given ratio to each other, and to the diſtance of the point whoſe ſeat is given.

Let C' be the centre of the picture, v', v^2, v^3, the vaniſhing points, and s the ſeat of the point of concourſe; now as any two vaniſhing points may be the vaniſhing points of two lines in the ſame plane, therefore join $C'\,v'$, and $C'\,v'$ will be the vaniſhing line of a plane, in which are the original lines, whoſe vaniſhing points are C' and v'; draw $C'\,E'$ perpendicular to $C'\,v'$; make $C'\,E'$ equal to the diſtance of the picture, and join $E'\,v'$; from $C'\,v'$ take $C'\,d$ equal to $C'\,E'$; draw s D parallel to $C'\,v'$; make s D equal to the diſtance of the point of concourſe from the picture; join D d and $s\,C'$, cutting each other at a, the repreſentation of the point of concourſe from the picture; join D d and $s\,C'$, cutting each other at a, the repreſentation of the point of concourſe; join $a\,v'$, $a\,v^2$, $a\,v^3$, alſo join $v'\,v^2$, $v^2\,v^3$, then $v'\,v^2$ will be the vaniſhing line of a plane, in which are the original lines, whoſe vaniſhing points are v' and v^2, and $v^2\,v^3$ will be the vaniſhing line of a plane, in which are the original lines, whoſe vaniſh-points are v^2 and v^3; draw $C'\,E^2$ perpendicular to $v'\,v^2$, cutting $v'\,v^2$ at C^2; from v', with the radius $v'\,E'$, deſcribe an arc, cutting $C'\,E^2$ at E^2; join $v'\,E^2$ and $v^2\,E^2$; draw a J parallel to s D, and join D C', cutting a J at J; draw a K parallel to $v'\,v^2$; find a K, ſo that a J may be to a K as the diſtance of the point of concourſe is to the original length to be taken from $a\,v'$; from $v'\,v^2$ take v' 1 equal to $v'\,E^2$; draw K 1, cutting $a\,v'$ at l. In like manner draw $C'\,E^3$ perpendicular to $v^2\,v^3$, cutting $v^2\,v^3$ at C^3; from v^2, with the radius $v^2\,E^2$, deſcribe an arc, cutting $C'\,E^3$ at E^3; join v^2 E; from v^3, with the diſtance $v^2\,E^2$, deſcribe an arc, cutting C' E at E^3; join $v^3\,E^3$; from v^2, with the diſtance $v^3\,E^3$, deſcribe an arc, cutting $V^3 L^3$ at 2; draw a M parallel to $V^3 L^3$; make a M ſuch that a K may be to a M as the original of a L is to the original of the diſtance to be taken from $a\,v^2$; draw M^2, cutting $a\,v^2$ at n; find the point 3 in the vaniſhing line $V^3 L^2$, by making v^3 3 equal to $v^3\,E^3$; produce M a to O; find the diſtance a O, by making a M to a O, as the original of $a\,n$ to the original to be taken from $a\,v^3$; draw O 3, cutting $a\,v^3$ at p; then will the originals of $a\,s$, $a\,l$, $a\,n$, and $a\,p$, have the ratio to each other, as a J, a K, a M, and a O, as was required.

By this means the repreſentation of a ſolid angle may be found, or the ſides of a pyramid may be determined; and, conſequently, if one of the ſolid angles of a parallelepipedon is found, and the lengths of the lines that form the ſaid angle, the whole ſolid may be completed, by drawing lines to the vaniſhing point of the ſide at right angles. When two or more indefinite repreſentations have the ſame vaniſhing line, they are in courſe found as uſual. A diſtance may be cut off from any indefinite repreſentation, which has its vaniſhing point that of the interſection of two original planes by the point of diſtance laid upon either vaniſhing line.

Prob. LV. *Fig.* 5.

Given the centre and diſtance of the picture, the interſecting and vaniſhing lines of a plane perpendicular to the picture, the ſide of a rectangle in the original plane, and the inclination of the plane of the rectangle to the original plane, and the diſtance of the neareſt point to the interſecting line, to find the repreſentation of the rectangle.

Let $V'\,L'$ be the vaniſhing line, $I'\,N'$ the interſecting line of a plane perpendicular to the picture, C' the centre, and C' E the diſtance put in poſition as uſual; and let A D be the ſide of the rectangle on the original plane, e the ſeat of the neareſt point A, and A e its diſtance; find the repreſentation a of the point A, and then of the ſtraight line A D; and let $E'\,v^2$ be the parallel of A D; draw $E'\,v'$ perpendicular to $E'\,v^2$, and let $E'\,v'$ meet the vaniſhing line $V'\,L'$ in v'; through v' draw $V^2 L^2$ perpendicular to $V'\,L'$; find the point 1 in $v'\,v^2$, by making v' 1 equal to $v'\,E'$; make the angle v' 1 v^3 equal to the inclination of the plane to the original plane; join $v^3\,v^2$, that is, $V\,L^3$, which will be the vaniſhing line of the plane incumbent on the original plane; draw $C'\,E^2\,V^3\,L^3$ perpendicular to $V^3 L^3$, cutting $v^2\,v^3$ at C^2; from v^2, with the radius $v^2\,E'$, deſcribe an arc, cutting $C'\,E^2$ at E^2; or upon $V^3 L^3$, as a diameter, deſcribe a ſemicircle, cutting $C'\,E^2$ at E^2; then C^2 is the centre, and $C^2\,E^2$ the diſtance of the vaniſhing line $V^3 L^3$, and v^2, v^3 the vaniſhing points of the ſides; make the rectangle E^2 M N O ſimilar to the original figure, and alike ſituated; draw the diagonal $E^2\,v'$, and produce it to meet the vaniſhing line $v^2\,v^3$ at v'; join v' and a, which give the indefinite diagonal; draw $d\,v^3$, cutting $a\,v$ at c; draw $c\,v^2$; produce $v^2\,c$ to b, and join $a\,v^3$, cutting $v^2\,c$ at b, then $a\,b\,c\,d$ is the repreſentation required.

Prob. LVI. *Fig.* 6.

Given the centre and diſtance of the picture, to find the repreſentation of a rectangle in a ſecondary plane, with an angle reſting on the primitive or original plane; given alſo the interſection of the ſecondary and original planes, and their inclination, together with the ſeat and diſtance of the reſting point.

Find m, the repreſentation of the reſting point, by means of its ſeat and diſtance, and the centre C' and diſtance $C'\,E'$ of the picture; draw $E'\,v'$ the parallel of the interſection, cutting $V'\,L'$ at v'; draw $E'\,C^2$ perpendicular to $v'\,E'$, cutting $V'\,L'$ in C^2; on $V'\,L'$ make C^2 1 equal to $C^2\,E'$; through C^2 draw $V^2 L^2$ perpendicular to $V'\,L'$; make the angle C^2 1 v^3 equal to the inclination of the ſecondary plane to the primitive or original plane; let 1 v^3 meet $V^2 L^2$ in v^3; through v' and v^3 draw $V^3 L^3$, which is the vaniſhing line of the inclined plane required to be repreſented; find its centre C^3 and diſtance $C^3\,E^3$; join $v'\,E^3$; make the angle $v'\,E^3\,v^2$ equal to the angle which one of the ſides of the object makes with the interſection of its plane and the primitive; let $E^3\,v^2$ meet the vaniſhing line $V^3 L^3$ in v^2; alſo make the angle $v^2\,E^3\,v^4$ equal to the angle of the original figure next to the interſection of its plane with the original plane; and let $E^3\,v^4$ meet $V^3 L^3$ at v^4; then the repreſentation $m\,n\,o\,p$ may be completed as in the laſt problem, *fig.* 5. Or proceed thus; bring the diſtance of the eye upon the vaniſhing line $V^3 L^3$ from each of the vaniſhing points; then 2 and 4 are the dividing points;

join v', and the repreſentation *m* of the neareſt corner; produce $v' m$ to *i*; through *i* draw $I^3 N^3$ parallel to $V^3 L^3$, and $I^3 N^3$ will be the interſection of the inclined plane and the picture; through the points 2 and *m* draw *m d*, cutting the interſection in *d*; make *de* equal to the original of the ſide *m p*; draw *e* 2, cutting $m v^2$ at *p*; alſo draw 4 *m*, and produce it to meet $I^3 N^3$ at *b*; make *b c* equal to the original of the ſide *m n*; draw *c* 4, cutting $m v^4$ at *n*; draw $n v^2$ and $p v^4$, cutting each other at *o*; then *m n o p* is the repreſentation, as before.

PROB. LVII. *Fig.* 7.

To find the repreſentation of the portion of a rectangular priſm, cut by a plane ſo that two of the parallel faces will be equal trapezoids, the other two parallel faces being equal rectangles, the ſolid being formed like a pent-houſe; given the centre and diſtance of the picture as uſual, the baſe of the priſm on the original plane, the picture and the arraſes of the object being perpendicular to the original plane.

Let A B C D be the baſe of the ſolid; find its repreſentation *m n o* as uſual, as alſo the vertical planes of the ſolids *n o b a* and *m n a d*; on the vaniſhing line $V' L'$ make v^2 2 equal $v^2 E'$; through v^2 draw $V^2 L^2$ perpendicular to $V' L'$; make the angle v^2 2 v^5 equal to the inclination of the terminating plane, and let 2 v^5 meet $V^2 L^2$ in v^5, which will be the vaniſhing point of the two inclined ſides, and v^4 will be the vaniſhing point of the two level ſides; the plane *a b c d*, being drawn according to the reſpective vaniſhing points, will complete the repreſentation of the ſolid. The repreſentation of the top might have been obtained without raiſing the vertical ſides from the baſe; thus, draw A S perpendicular to $V' L'$, cutting $I' N'$ in E; make E S equal to the height of the arras or quoin upon A; draw S A parallel to $V' L'$; make S A equal E A; then S is the ſeat of the top of the arras on the picture, and S A its diſtance from the picture; find *a* the repreſentation of the apex of the ſolid angle, having the centre and diſtance of the picture, and the ſeat S and diſtance S A of the original of the point A; then the vaniſhing line $V^3 L^3$ being found as before, produce B A to meet $I' N'$ at F; draw F G perpendicular to $I' N'$; make F G equal to the height of the front plane, and the point G will be a point in the interſection of the inclined plane with the picture; therefore draw the line $I^3 N^3$ parallel to $V^3 L^3$, and $I^3 N^3$ will be the interſection of the inclined plane; find the centre C^3, and diſtance $C^3 E^2$ of the vaniſhing line $V^3 L^3$; join $E^2 v^5$ and $E^2 v^4$; on the vaniſhing line $V^3 L^3$ make v^5 5 equal to $v^5 E^2$, and v^4 4 equal to $v^4 E^2$; then D Q being perpendicular to A D, and the angle D A Q equal to the inclination of the plane, A B will be the length of the ſide parallel to the baſe, and A Q that of the ſide inclined thereto; through 5, and the point *a*, draw 5 *a*, which produce to meet $I^3 N^3$ at *e*; in $I^3 N^3$ take *e f* equal to A Q; join *f* 5, cutting $a v^5$ at *d*. In like manner join 4 *a*, which produce to meet $I^3 N^3$ at *g*; make *g h* equal to A B, and join *h* 4, cutting $a v^4$ at *b*; draw $b v^5$ and $d v^4$, cutting each other at *c*, and *a b c d* is the repreſentation of the upper ſurface, as before

Or, inſtead of applying the full dimenſions upon the interſecting line, draw $S Q'$ and $a G'$ parallel to $V' L'$; in $V' L'$ produced, take any point D'; make $A' B'$ equal to A B, $A' Q'$ equal to A Q; draw a line through *a* parallel to $V^3 L^3$; join $A' D'$, $B' D'$, and $Q' D'$, cutting $a G'$ at E', F', G'; then apply $E' F'$ and $E' G'$ from *a*, upon the line paſſing through *a*, parallel to $V^3 L^3$; then cut off *a b* and *a d* by means of the points 4 and 5, as before.

PROB. LVIII. *fig.* 8.

To find the repreſentation of a rectangular priſm, ſituated with its faces inclined to the original plane, and to the picture laying upon one of its arraſes on the original plane; given the ſeat and diſtance of the neareſt point of concourſe of a ſolid angle, the inclination of the arras of the ſolid in the original plane to the picture, and the inclination of one of the ſides to the horizon, and the centre and diſtance of the picture.

Draw the horizontal line $V' C^2$ and $C' E'$ perpendicular thereto; draw $E' A$ parallel to $V' C^4$; make the angle $A E' C^2$ equal to the inclination of the arras to the picture.

Find the point *a*, the repreſentation of the neareſt angle, by means of the centre and diſtance of the picture, and the ſeat and diſtance of the neareſt point of concourſe of the ſides.

Through C^2 draw $V^2 L^2$ perpendicular to $V' E^2$; now as the ſolid lays upon one of its arraſes, two of its planes will be perpendicular to the horizon, and conſequently will have their vaniſhing line perpendicular to the vaniſhing line of the horizon; therefore $V^2 L^2$ will be the vaniſhing line of the arraſes in theſe perpendicular planes.

Draw $C^2 E^2$ perpendicular to $V^2 L^2$, and make $C^2 E^2$ equal to $C^2 E'$. Through E^2 draw G H parallel to $V^2 L^2$; make the angles $G E^2 v^3$ and $H E^2 v^4$ equal to the inclination of the planes to the horizon, then v^3 and v^4 will be the vaniſhing point of the arraſes, which terminate the ends that are perpendicular to the horizon.

Find v^2 the vaniſhing point of original lines, perpendicular to original planes, whoſe vaniſhing line is $V^2 L^2$.

Cut off *a b*, *a d*, and *a f*, as in problem 54, *fig.* 4; then lines being drawn to the reſpective vaniſhing points will complete the ſolid.

N° 1 ſhews the method of reducing the proportions according to what was ſhewn in the laſt problem, by applying the meaſures at once to the neareſt angle.

PROB. LIX. *Fig.* 9.

To find the repreſentation of a rectangular ſolid; given the centre and diſtance of the picture, the inclination of one of the faces of the ſolid to the picture; which have the neareſt point of concourſe, and the ſeat and diſtance of the neareſt point of concourſe.

Find $V^2 L^2$ the vaniſhing line of the plane of the two planes of the ſolid, whoſe inclination is given; alſo the centre C^2, and the diſtance $C^2 E^2$ of the vaniſhing line.

Draw G H parallel to $V^2 L^2$; make the angles $G E^2 v'$ and $H E^2 v^3$ equal to the angles which the arraſes make, with a line parallel to the picture at their point of concourſe in the ſame plane, and $v' v^3$ in $V^2 L^2$ will be the vaniſhing points of the arraſes of the two ſides, whoſe inclinations are given.

Find the vaniſhing point v^4 of original lines perpendicular to planes which have $V^2 L^2$ for their vaniſhing line.

Find *f* the repreſentation of the neareſt point of concourſe of three arraſes.

From each of the indefinite repreſentations cut off the different ſides, and the ſolid will be completed, as in the laſt example.

PROB. LX. *Fig.* 10.

The centre and diſtance of the picture, and the interſection of an original plane, making a given angle with the picture, being given, to find the repreſentation of a wedge, with the point of concourſe of three of the arraſes in the picture, the baſe of the object being in the plane whoſe interſection is given, three of the ſides of the ſolid perpendicular to the original plane.

Let $I^2 N^2$ be the interſection of the original plane, *a* the point of concourſe of the neareſt angle in the interſection $I^2 N^2$.

Find the vaniſhing line, $V^2 L^2$, of the original plane, whoſe interſection is $I^2 N^2$, as alſo its centre C^2, and diſtance $C^2 E^2$.

Find the vaniſhing point, v', of the interſection of the inclined ſide of the wedge, with the original plane, and draw the indefinite repreſentation $a v'$.

Find the vaniſhing point, v^2, of the other ſide; the vaniſhing points, v', v^2, being in the vaniſhing line $V^2 L^2$.

Find the vaniſhing point, v^3, of original lines, perpendicular to original planes, which have $V^2 L^2$ for their vaniſhing line.

Join the vaniſhing points v^3 and v', and produce $v^3 v'$ to v^4.

Find the centre C^4, and diſtance $C^4 E^4$, of the vaniſhing line $v^3 v'$, that is of $V^4 L^4$; join $v' E^4$.

On the radials $E^4 v'$ and $E^4 v^3$, make $E^4 G$ and $E^4 F$ in the ratio of the ſides, which have $V^4 L^4$ for their vaniſhing line; join GF; draw $E^4 v^4$ parallel to GF, and v^4 will be the vaniſhing point of the two inclined arraſes.

Find the repreſentations, *ab* and *ae*, of the hither ſides of the baſe. Join $a v^4$ and $b v^4$; join $v^2 e$, which produce to meet the indefinite repreſentation $a v^4$ in *d*; join $d v^3$, cutting $b v^4$ at *c*, which completes the entire ſolid.

By joining $v^2 v^4$, $V^3 L^3$ will be the vaniſhing line of the inclined plane *abcd*; and by finding the centre C^3, and diſtance $C^3 E^3$, and joining $E^3 v^4$ and $E^3 v^2$, the original proportion of the inclined plane may be found, by drawing the diagonal *ac*, and producing it to meet the vaniſhing line $V^3 L^3$ at v^5, and joining $v^5 E^3$; then the rectangle $KLME^3$, whoſe other ſides meet the radial $v^5 E^3$ in L, is the original of the inclined plane: and thus any figure may be drawn in the original plane, whoſe vaniſhing line is $V^3 L^3$.

The principles of light and ſhade will be treated under the article SHADOWS.

The writers on perſpective are very numerous. The following, (ſome of whom have been already mentioned in the brief hiſtory of the ſcience at the commencement of this article,) are the principal, with the dates of their performances, as near as can be aſcertained.

Guido Ubaldus, 1600, Latin, folio; Bernard Lamy, 1701, 8vo.; s'Graveſande, 1711, 8vo., tranſlated into Engliſh by Stone, 1724; Marolois, Vredeman Frieſe, the Jeſuit, 4to.; Pozzo, folio. The Jeſuit was tranſlated into Engliſh by E. Chambers, 1726. Ozanam's Mathematics contain alſo a treatiſe on Perſpective. Theſe are all foreign works. The following liſt contains all, or nearly all, the Engliſh authors, or their works, that have written on perſpective.

Humphry Ditton, 1712, 8vo.; Moxon, folio; Brook Taylor, two treatiſes, one in 1715, and the other in 1719, both 8vo.; Langley, 1730, 4to.; Oakley's Magazine of Architecture, Perſpective, and Sculpture, 1730, folio; Halfpenny, 1731; Hamilton, 1738, folio; Dr. Brook Taylor's Method of Perſpective, by Kirby, 1754, letter-preſs, 4to., and plates, folio; Sirigatti by Ware, 1754, folio; Kirby's Parallel ſuppreſſed; Kirby's Perſpective of Architecture, 1760, large folio; Highmore, 1763, 4to.; Fournier, 1764, 4to.; Cowley's Moveable Schemes for illuſtrating the Principles of Perſpective, 1765, 4to.; Ferguſon, 1765, 8vo.; Ware's Complete Body of Architecture contains a treatiſe on Perſpective, 1768, folio; Prieſtley, 1770, 8vo.; Edward Noble, 1771, 8vo.; Thomas Malton, 1775, folio; **Bradberry**; Shiraton in his Cabinet and Upholſterer's Drawing-Book, 4to.; Wood of Edinburgh, 1797, 8vo.; the Painter's Maulſtick by James Malton, 1800, 4to.; Douglas, 1805, letter-preſs, 8vo., and plates, folio; Edwards, 1806, 4to.; Thomas Noble, ſecond edition, 1809, 4to.; Wood's Lectures, London, ſecond edition, 1809, 4to.; W. Daniel, 1810, ſmall 8vo. for children; a thin quarto without the name of the author, the title being "A new Treatiſe on Perſpective, founded on the ſimpleſt Principles, containing univerſal Rules for drawing the Repreſentation of any Object on a vertical Plane," 1810, thin 4to.; D. Creſſwell, A.M., 1811, 8vo; Milne in his Elements of Architecture, 1812, 4to.; and Mr. Hayter, 1813, 8vo. Beſides the above authors and treatiſes are Muller, Martin, and Emerſon, who have written octavo treatiſes in their mathematical courſes. A thin quarto was written by Bardwell, a painter. The Artiſts' Repoſitory, publiſhed by C. Taylor, Hatton Garden, contains alſo an article on perſpective.

But of all the above works, or authors' works, Dr. Brook Taylor's is the moſt celebrated, on account of the univerſality of his principles in their application to planes and objects. For though vaniſhing points in every poſition were known to Guido Ubaldus, and s'Graveſande not only underſtood the uſe of vaniſhing points, but the uſe of directors alſo in the repreſentation of a point, anterior to the appearance of any thing publiſhed by Brook Taylor; but Brook Taylor has extended his theory not only to vaniſhing points, but to the vaniſhing lines of planes in every ſituation, which, when once aſcertained, the repreſentation of an object is found by the ſame means in each plane, and conſequently with the ſame facility. Hamilton ſeems to be the firſt writer who introduced the practice of ſetting the radial, or parallel of the original line from the vaniſhing point, upon the vaniſhing line, and the original line from the interſecting point upon the interſecting line, in order to aſcertain the repreſentation of any point, or any part or parts of the original line, and to find the originals from the repreſentations given. (See problems 8 and 9, book ii. ſect. 2, of his Stereography, and the following corollaries from problem 8.) This author is the firſt who has applied the harmonical diviſion of lines to perſpective. Noble's Perſpective contains ſeveral inventions: his methods of drawing indefinite repreſentations to inacceſſible vaniſhing points, both by ſcales and other means, are new. Thomas Malton's treatiſe on this ſubject is an able performance. His theory is well arranged, and demonſtrated with true geometrical ſpirit. The choice of his examples in the component parts of architecture, before uniting the whole into a complete edifice, are excellent.

The works on perſpective of the following gentlemen, among the authors already enumerated, are performed ſtrictly upon the principles of Dr. Brook Taylor: Hamilton, Kirby, Highmore, Fournier, Prieſtley, Noble, Thomas Malton, J. Wood, Edwards, J. G. Wood, Creſſwell, A.M.

Though Mr. James Malton pretends to unite the principles of Dr. Brook Taylor with thoſe of Vignola and Sirigatti, he might have referred them with more propriety to s'Graveſande's invention of directors, as the uſe of the ſtation point, which is only a directing point, can be more eaſily explained upon the principles of the directing line, director, and directing point, than by any mechanical notion; ſo that the methods which he uſes may be referred entirely to the principles of Dr. Brook Taylor. In the method uſed in James Malton's Perſpective, every point of an object in the original plane is found in the picture, by a line drawn between the interſecting and vaniſhing point, or drawn from ſome point already found, and the vaniſhing point, and another line drawn by the directing point and the director: for when the director of an original line coincides with the interſection of the vertical plane, the repreſentations directed will be perpendicular to the interſection, or to the vaniſhing line; therefore, lines thus drawn in the picture will fall in the ſame ſtraight lines with original lines parallel to the picture, and to the vertical plane, inſiſting upon the remote extremities of the lines drawn to the directing point. This, therefore, admits of the plan of the object either being connected with the picture, or ſeparated from it, as conveniency may require. This circumſtance has even been overlooked in the more excellent treatiſe of the father of the gentleman, upon whoſe work the remarks are now made.

It is ſomething remarkable, that in Brook Taylor's Perſpective, he no where directs the radial to be placed upon the vaniſhing line, except in problem 10, inverſe perſpective, notwithſtanding the very near affinity ſhewn in problems 3, and 4, which one would have thought might have led to that application; particularly, conſidering the great uſe which Kirby, Highmore, Fournier, Prieſtley, E. Noble, Thomas Malton, J. Wood, Edwards, and others of inferior note, have made of it, in repreſenting original meaſures without the uſe of the plan. It is to be obſerved, that in Brook Taylor's Perſpective, when he finds the repreſentation of an original figure without the plan, he firſt finds the repreſentation of a ſide of the figure; then the repreſentation of a line, whoſe original will make an angle of the figure with the original ſide of the projection given; then determines the proportion of the laſt line, found by ſuppoſing the two ſides to be joined by a third line, making a triangle; then finds the vaniſhing point of the third ſide. He then proceeds with another ſide, if more than three, in the ſame manner; ſo that he ſuppoſes the original figure divided into triangles, by drawing diagonals, and conſtructs angles at the eye, equal to thoſe which he ſuppoſes the originals to have; then finds the vaniſhing points of the ſides, and of the diagonals; and, by drawing the ſucceſſive lines to the reſpective vaniſhing points, completes the whole repreſentation. Or, he finds the projection of each triangle, if more than one, in the ſucceſſion which they adjoin each other, until the whole repreſentation is completed. Now, by placing the length of the radials upon the vaniſhing line, the originals may be repreſented, without ſuppoſing the figure to be reſolved into triangles. But what is ſtill more to be wondered at, in reſpect to Brook Taylor, in problem 10, of the edition 1719, the interſection of a plane, its vaniſhing line, with the centre and diſtance of the vaniſhing line, are given, to find only the length of the original of a projection given, which is a problem in inverſe perſpective; he abſolutely ſets the length of the radial on the vaniſhing line: and had he done ſo, in finding the repreſentations of original figures, he would have been the ſole inventor of the practice, without the uſe of the ground plan, or the figure to be repreſented being placed in its true ſituation.

Perspective is alſo uſed for a kind of picture or painting, frequently ſeen in gardens: and at the ends of galleries; deſigned expreſsly to deceive the ſight by repreſenting the continuation of an alley, a building, landſcape, or the like

Perspective, *Aerial*, is ſometimes uſed as a general denomination for that which more reſtrictedly is called aerial perſpective, or the art of giving a due diminution or degradation to the ſtrength of light, ſhade, and colours of objects; according to their different diſtances, the quantity of light which falls upon them, and the medium through which they are ſeen; the *chiaro-ſcuro*, or *clair-obſcure*, which conſiſts in expreſſing the different degrees of light, ſhade, and colour of bodies, ariſing from their own ſhape, and the poſition of their parts with reſpect to the eye and neighbouring objects, whereby their light or colours are affected; and *keeping*, which is the obſervance of a due proportion in the general light and colouring of the whole picture; ſo that no light or colour in one part may be too bright or ſtrong for another. A painter who would ſucceed in aerial perſpective, ought carefully to ſtudy the effects which diſtance, or different degrees or colours of light have on each particular original colour, to know how its hue or ſtrength is changed in the ſeveral circumſtances that occur, and to repreſent it accordingly. As all objects in a picture take their meaſures in proportion to thoſe placed in the front, ſo in aerial perſpective, the ſtrength of light, and the brightneſs of the colours of objects cloſe to the picture, muſt ſerve as a meaſure, with reſpect to which all the ſame colours at ſeveral diſtances muſt have a proportional degradation in like circumſtances.

Perspective, *Alley in*. See Alley.

Perspective, *Architecture in*. See Architecture.

Perspective, *Bird's eye view in*, is that which ſuppoſes the eye to be placed above any building, &c. as in the air, at a conſiderable diſtance from it: this is applied in drawing the repreſentations of fortification, when it is neceſſary not only to exhibit one view as ſeen from the ground, but ſo much of the ſeveral buildings as the eye can poſſibly take in at one time from any ſituation. In order to this, we muſt ſuppoſe the eye to be removed a conſiderable height above the ground, and to be placed as it were in the air, ſo as to look down into the building like a bird that is flying. In repreſentations of this kind, the higher the horizontal line is placed, the more of the fortification will be ſeen, and *vice verſâ*.

Perspective, *Diagonal*. See Opera *Glaſs*.

Perspective, *Graphical*. See Graphical.

Perspective *Machine*, is a machine by which any perſon may delineate the true perſpective figure of objects, without the help of the rules of this art. Mr. Ferguſon has deſcribed a machine of this kind, the invention of which he aſcribes to Dr. Bevis. The plane of this inſtrument, *Plate* XXIV. *Miſcellany*, exhibited in *fig.* 1, and *fig.* 2, is a repreſentation of it when made uſe of in drawing diſtant objects in perſpective. *a b e f* (*fig.* 1) is an oblong ſquare board, repreſented by A B E F in *fig.* 2; *x* and *y* (X and Y) are two hinges on which the part *c l d* (C L D) is moveable. This part conſiſts of two arches or portions of circles *c l m* (C L M) and *d n l* (D N L), joined together at the top *l* (L), and at bottom to the croſs bar *d c* (D C), to which one part of each hinge is fixed, and the other part to a flat board, half the length of the board *a b e f* (A B E F), and glued to its uppermoſt ſide. The centre of the arch *c m l* is at *d*, and the centre of the arch *d n l* is at *c*.

On the outer ſide of the arch *d n l* is a ſliding-piece *n*, (much like the nut of the quadrant of altitude belonging to a common globe,) which may be moved to any part of the arch between *d* and *l*: and there is ſuch another ſlider, *o*, on the arch *c m l*, which may be ſet to any part between *c* and *l*. A thread *c p n* (C P N) is ſtretched tight from the centre *c* (C) to the ſlider *n* (N), and ſuch another thread is ſtretched from the centre *d* (D) to the ſlider *o* (O); the ends of the threads being faſtened to theſe centres and ſliders.

Now it is plain, that by moving theſe ſliders on their reſpective arches, the interſection *p* (P) of the threads may be brought to any point of the open ſpace within the arches. In the groove *k* (K) is a ſtraight ſliding bar *i* (I), which may be drawn farther out, or puſhed farther in, at pleaſure.

To the outer end of this bar I (*fig.* 2.) is fixed the upright piece H Z, in which is a groove for receiving the ſliding-piece Q. In this ſlider is a ſmall hole *r* for the eye to look through in uſing the machine: and there is a long ſlit in H Z, to let the hole *r* be ſeen through when the eye is placed behind it at any height of the hole above the level of the bar I.

In delineating a perſpective repreſentation, *e. gr.* of the houſe, *q s r p*, a great way off, place the machine on a ſteady table, with the end E F of the horizontal board, A B E F, toward the houſe, ſo that when the Gothic-like arch D L C is ſet upright, the middle part of the open ſpace (about P) within it may be even with the houſe when you place your eye on Z, and look at the houſe through the ſmall hole *r*. Then fix the corners of a ſquare piece of paper with four wafers on the ſurface of that half of the horizontal board which is neareſt the houſe; and all is ready for drawing.

Set the arch upright, as in the figure; which it will be when it comes to the perpendicular ſide *t* of the upright piece *s t*, fixed to the horizontal board behind D. Then place your eye at Z, and look through the hole *r* at any point of the houſe, as *q*, and move the ſliders N and O till you bring the interſection of the threads at P directly between your eye and the point *q*; then put down the arch flat upon the paper on the board, as at S T, and the interſection of the threads will be at W. Mark the point W on the paper with the dot of a black lead pencil, and ſet the arch upright again, as before: then look through the hole *r*, and move the ſliders N and O till the interſection of the threads comes between your eye and any other point of the houſe, as *p*: then put down the arch again to the paper, and make a pencil mark thereon at the interſection of the threads, and draw a line from that mark to the former one at W; which line will be a true perſpective repreſentation of the corner *p q* of the houſe.

Proceed in the ſame manner, by bringing the interſection of the threads ſucceſſively between your eye and the other points of the outlines of the houſe, as *r*, *s*, &c. and put down the arch to mark the like points on the paper at the interſection of the threads: then connect theſe points by ſtraight lines, which will be the perſpective outlines of the houſe. In like manner find the points of the corners of the door and windows, top of the houſe, chimnies, &c. and draw the finiſhing lines from point to point: then ſhade the whole, making the lights and ſhades as you ſee them on the houſe itſelf, and you will have a true perſpective figure of it. Great care muſt be taken, during the whole time, that the poſition of the machine be not ſhifted on the table; and to prevent ſuch an inconvenience, the table ſhould be very ſtrong and ſteady, and the machine fixed to it, either by ſcrews or clamps.

In the ſame way, a landſcape, or any number of objects within the field of a view through the arch, may be delineated, by finding a ſufficient number of perſpective points on the paper, and connecting them by ſtraight or curved lines as they appear to the eye.

The arch ought to be at leaſt a foot wide at bottom, that the eye at Z may have a large field of view through it; and the eye ſhould then be, at leaſt, 10½ inches from the interſection of the threads at P when the arch is ſet upright. For if it be nearer, the boundaries of view at the ſides near the foot of the arch will ſubtend an angle at Z of more than ſixty degrees, which will not only ſtrain the eye, but will alſo cauſe the outermoſt parts of the drawing to have a diſagreeable appearance. To avoid this, it will be proper to draw back the ſliding bar I, till Z be 14½ inches diſtant from P; and then the whole field of view, through the foot-wide arch, will not ſubtend an angle to the eye at Z of more than forty-five degrees; which will give a more eaſy and pleaſant view, not only of all the objects themſelves, but alſo of their repreſentations on the paper whereon they are delineated. So that, whatever the width of the arch be, the diſtance of the eye from it ſhould be in this proportion: as 12 is to the width of the arch, ſo is 14½ to the diſtance of the eye (at Z) from it.

If a pane of glaſs, laid over with gum water, be fixed into the arch, and ſet upright when dry, a perſon who looks through the hole *r* may delineate the objects upon the glaſs which he ſees at a diſtance through and beyond it, and then transfer the delineation to a paper put upon the glaſs. Ferguſon's Perſpective, chap. iii.

Mr. Kirby has alſo contrived and deſcribed an inſtrument that will be uſeful in taking extenſive views, &c. The ruler A B (*fig.* 3.) is 19 inches long, and is graduated into 19 equal parts; it has a dove-tail groove on its upper edge to receive the perpendicular ruler G, which has one end fitted to it, ſo as to ſlide very eaſily; this ruler is 14 inches long, and is divided into 14 equal parts, and upon the back ſide of it F is a line drawn exactly in the middle, to which is fixed a ſilken line with a ſmall plummet at the end. The ruler A B is fixed by two ſcrews *a*, *c*, to two pieces of thin braſs; and theſe pieces of braſs are fixed at the other ends by two ſcrews *d*, *e*, to a ſtronger piece of braſs *b f*, which goes cloſe to the ruler A B, and has a joint at X turning upon a ſcrew: below this joint is a piece of round braſs about ſix inches long, which goes into a hole made in the top of the ſtaff, and may be raiſed higher or lower, by means of a ſcrew *S*: C D E repreſents part of this ſtaff, the whole length of which is about three feet, and at the bottom is a rank ſcrew made of iron and fixed to the ſtaff. H I is a wire 22 inches long, with a ſcrew at *h* to go into the hole *b*; the piece of braſs wire bent into the form *i k*, is fixed to the wire H I by the ſcrew *k*; and the part *i* goes into the hole *f* in the braſs-piece *b f*. The ſmall wire K L is about 12 inches long, and flatted at K, at which place is a little hole above one-eighth of an inch in diameter; this wire K L is fitted to the holes *l*, *m*, *n*, *o*, which are made in the larger wire H I, and it may be placed higher or lower by means of a ſmall ſcrew. This inſtrument is uſed in the following manner: fix a paper upon a drawing board, as in *fig.* 4, and divide the paper lengthways into 19 equal parts, and perpendicularly into 14 equal parts; making theſe diviſions greater or ſmaller according to your deſign. Then take the ſtaff, and fix it ſtrongly in the ground by means of a ſcrew at bottom, and at a convenient diſtance from the proſpect which you intend to take. After this, put the inſtrument together as in *fig.* 5, and fix the ruler A B exactly horizontal by means of the plummet on the perpendicular ruler and the braſs joint X; then fix the wire K L, ſo as to have the eye-hole exactly level with the horizon or equal to the height of the eye, and take care to have the greateſt diſtance of the eye-hole from the ruler equal to the whole length of the longeſt ruler A B, and never leſs than the diſtance *h l*. Having thus fixed the inſtrument, proceed to make the drawing; look through the eye-hole, and then move the perpendicular ruler in the groove, till you get one edge exactly againſt ſome principal object; then will the parts upon the ruler ſhew how high the object is from the bottom of the ruler, *i. e.* from the bottom of the picture, and you will alſo know its apparent height ; therefore transfer this to the paper in thoſe ſquares which correſpond with the diviſions upon the rulers. For the breadth of objects, move the perpendicular ruler ſo as to be even with the ſides of an object, and the diviſions upon the lower ruler will ſhew their apparent breadths. After the ſame manner, get the places and apparent ſizes of as many principal objects as are neceſſary for aſſiſting you, in completing the whole drawing, which may be done by this method with great exactneſs. When the drawing is finiſhed, the inſtrument may be taken to pieces and put into a box, which may ſerve as a drawing board ; the top M may be ſcrewed into the ſtaff, which will ſerve as a walking-ſtick, and the ſtool to fit on may be made very portable : ſo that every part of this apparatus may be carried by one perſon without any inconvenience. Kirby, ubi ſupra, b. ii. p. 65, &c.

PERSPECTIVE, *Military*, is that wherein the eye is ſuppoſed to be very remote from the table or plane. See *Bird's Eye View*, in PERSPECTIVE.

PERSPECTIVE, *Scenographic*. See SCENOGRAPHY.

PERSPECTIVE *of Shadows*. See SHADOW.

PERSPECTIVE, *Specular*, is that which repreſents the objects, in conical, ſpherical, or other mirrors, erect and clear, whereas on other planes they appear confuſed and irregular. See MIRROR and ANAMORPHOSIS.

PERSPICUITY, PERSPICUITAS, in *Rhetoric*, is a principal excellence of ſtyle, to which all the ornaments and beauties of ſpeech ought to give way : as it is neceſſary to render a diſcourſe intelligible, and forms one of the conſtituent parts of elegance. "Prima eſt eloquentiæ virtus perſpicuitas," ſays Quintilian, lib. viii. cap. 2. There are three different ways in which perſpicuity in a compoſition may be violated ; *viz.* by obſcurity, ambiguity, and unintelligible expreſſion. The common ſources of obſcurity are ſome defect in the expreſſion, ariſing from ellipſes in language, the affectation of conciſeneſs, or rapidity of thought in writers, or a bad choice of words ; a bad arrangement of the words, ſo that the conſtruction is not ſufficiently clear ; the uſe of the ſame word in different ſenſes in the ſame ſentence, an uncertain reference in pronouns and relatives : too complicated or artificial a ſtructure of the ſentence, ſo that the ſenſe is too long ſuſpended by parentheſis ; the injudicious introduction of technical words and phraſes; and, laſtly, very long ſentences. Ambiguity may be occaſioned either by uſing ſome expreſſion which is equivocal, or by ranging the words in ſuch an order that the conſtruction is rendered equivocal. The laſt fault proceeds either from great confuſion of thought, which is commonly accompanied with intricacy of expreſſion, or from affectation of excellence in the diction, evidenced by the injudicious uſe of figures, or from a total want of meaning. In theſe ſeveral ways, a ſpeaker may expreſs himſelf obſcurely, and ſo convey his meaning imperfectly to the mind of the hearer ; or expreſs himſelf ambiguouſly, and ſo, along with his own, convey a meaning entirely different ; or expreſs himſelf unintelligibly, and ſo convey no meaning at all. Dr. Campbell in his "Philoſophy of Rhetoric," vol. ii. book 2, chap. 6. has well exemplified and expoſed theſe offences againſt perſpicuity. It is juſtly obſerved by Quintilian, ubi ſupra, that by perſpicuity, care is taken, not that the hearer *may* underſtand, if he will ; but that he *muſt* underſtand, whether he will or not. See STYLE

PERSPIRATION, in *Phyſiology*, the office of the ſkin, by which it forms and diſcharges various matters, principally fluids, from the blood ; or the matters themſelves ſo diſcharged. It is diſtinguiſhed into *ſenſible* and *inſenſible*, according as it conſiſts of fluids recognizable by the ſenſes, or of ſuch as eſcape our obſervation. See INTEGUMENTS.

PERSPIRATION *of Plants*, in *Vegetable Phyſiology*, takes place chiefly from the ſurface of their leaves. In order to collect the liquor perſpired, it is only neceſſary to introduce a branch of the plant into any ſufficiently capacious glaſs veſſel ; when the fluid which exudes will trickle down the ſides of the glaſs, in great abundance, eſpecially if the experiment be made in ſun-ſhine. The liquor thus obtained is of a clear watery nature, ſcarcely diſtinguiſhable to our ſenſes, or to our chemical enquiries, from the ſap of the ſame plant, whatever it may be, procured by wounding its branches before the foliage expands. This, which may be termed the inſenſible perſpiration of plants, becomes in ſome caſes ſenſible ; as when it runs down, like a ſlight ſhower, from Willow or Poplar trees, in hot ſunny weather; or when it collects in drops on the leaves of Plantain trees in a ſtove. Hales and others have made experiments to aſcertain the quantity of inſenſible perſpiration in various plants. The great annual Sun-flower was found to perſpire about ſeventeen times as much as the ordinary inſenſible perſpiration of the human ſkin. The Cornelian Cherry, *Cornus maſcula*, is ſaid to diſcharge, in twenty-four hours, as much fluid as is equal to twice the weight of the whole ſhrub. Succulent leaves perſpire much ſlower than others, though they abſorb in a far more rapid proportion.

This watery perſpiration is the only excrementitious diſcharge of the vegetable body. The ſap being carried up into the leaves, where it is acted upon by air and light, for the moſt important purpoſes, yields thoſe various and highly curious ſecretions, which, being carried down into the bark, afford matter for the increaſe of the tree, as well as for the manifeſtation of its various qualities. The great bulk of the ſap which remains, as it does not return to the root, like the blood of animals to their heart, can be diſpoſed of no otherwiſe than by a copious evaporation. Dr. Darwin was of opinion that this watery perſpiration rendered a further ſervice to the plant, by being acted upon by light, ſo as to give out oxygen, which was immediately abſorbed by the air-veſſels. But this hypotheſis is inadmiſſible on many accounts, nor need we here repeat that which is adopted under the article LEAF.

The ſenſible perſpiration of many plants is of a far different nature from the above watery evaporation, and is to be conſidered as an actual ſecretion. Such are the mucilaginous exudation found on the leaves of the Lime-tree, *Tilia europæa*; the ſaccharine matter perceptible on Orange trees, hops, beech, and other plants, which is one kind of honey-dew, and either owing to ſome injury to their roots, or to the ſudden influence of a cold, or otherwiſe noxious, atmoſphere. The *Ciſtus* genus, and many other ſhrubs of warm countries, afford a reſinous exudation from their leaves and young twigs. The Fraxinella, *Dictamnus albus*, is very remarkable for a highly inflammable vapour, which in hot ſtill weather iſſues from, and hovers around, the plant, exploding on the approach of a lighted taper. Manna is ſaid to have been ſcraped from the leaves of *Fraxinus Ornus*, though uſually procured only from the ſap of that tree. A kind of wax may in like manner be obtained, as ſome report, from the leaves of Roſemary. A copious glutinous perſpiration is obſervable on young leaves of many kinds, as the Cherry, Plum, various Poplars, and abundance of aromatic herbs. *Pelargonium inquinans* is ſingular for its exudation of a ſoft oily matter, that ſtains the fingers with a red or vermilion-like tinge.

PERSTAIN, in *Geography*, a town of Bohemia, in the circle of Boleſlaw ; 14 miles N.W. of Jung-Buntzel.

PERSUR, a town of Hindooſtan, in Allahabad; 10 miles E.N.E. of Gazypour.

PERSWAR, a town of Hindooſtan, in the circar of Gurrah; 15 miles S. of Mahur.

PERTABGUR, a fort of Hindooſtan; 30 miles N.E. of Allahabad. N. lat. 25° 58′. E. long. 82° 23′.

PERTABPOUR, a town of Hindooſtan, in Oude; 52 miles N.E. of Manickpour.—Alſo, a town of Hindooſtan, in Bengal; 15 miles N.W. of Midnapour. N. lat. 22° 35′. E. long. 87° 10′.

PERTELS, a town of Auſtria; ſix miles N. of Bohmiſh Waidhofen.

PERTH, a royal borough, and the county town of Perthſhire, Scotland, is ſituated in the middle of a verdant plain, on the weſtern bank of the river Tay, at the diſtance of forty miles and a half N. by W. from Edinburgh. This plain is divided by the town into two parts, called the north and South inches, or iſlands, each of which meaſures about a mile and a half in circumference, and both are appropriated for the benefit and amuſement of the inhabitants of the place.

Perth is a town of very high antiquity, and is generally allowed to have owed its origin to the celebrated Roman general Agricola, who penetrated into this part of the country about the year 70. He is ſaid to have fixed on this ſpot as the ſcite, originally of a winter camp, and afterwards of a colonial town, from the reſemblance its ſcenery bears to that in the vicinity of ancient Rome. So ſtriking is the ſimilitude, indeed, that the Roman ſoldiers when they firſt ſaw the river Tay, and the adjacent plain, are recorded to have exclaimed with one conſent, "Ecce Tiber! Ecce Campus Martius! Behold the Tiber! Behold the field of Mars." Hence the Tay was called New Tiber, by the Italians for many centuries; and Fordun, a Scottiſh hiſtorian gives the name of Tyber-Mere, to an extenſive moor which lies weſt from the town. An aqueduct, ſaid to have been conſtructed here by Agricola, is ſtill in exiſtence, and ſupplies the mills and wells with water. In ancient times when the town was fortified, it alſo ſupplied the ditches, by which the latter was ſurrounded.

Of the hiſtory of Perth during its Roman occupation, and for ſeveral centuries after the retreat of that people from Britain, nothing certain is known. Neither is it recorded at what period it became a chartered town. Alexander Necham, an Engliſh writer, who read lectures on hiſtory at Paris in 1180, deſcribed Perth as a place of great opulence. In 1210, according to the Scottiſh hiſtorians, it was ſtrongly fortified by king William, who alſo renewed its former charters, and granted it many additional privileges. At that time Perth was reckoned the capital city of Scotland, and even at the preſent day it ranks inferior only to Edinburgh and Glaſgow. Between the years 1201 and 1459, no fewer than fourteen great national councils were held here. During the ſame period, Perth was alſo the uſual reſidence of the Scottiſh monarch, and conſequently of the nobility, many of whoſe ancient manſions ſtill adorn its ſtreets. It was then likewiſe, as it is ſtill, an extenſive commercial town. Fordun informs us, that the merchants of Perth viſited, in their own ſhips, the Hanſe towns; and it is a part of the eulogium conferred on Alexander III., who died in 1286, that he deviſed ſucceſsful meaſures for ſecuring the trading ſhips of that nation againſt pirates, and againſt being detained on ſlight pretences in any foreign port. "In conſequence of the care which he exerciſed about the trade of the kingdom, which, for ſome years during his minority had been on the decline, multitudes of ſhips ſoon came from divers regions loaded with goods of various kinds to be exchanged for the commodities of this country."

The German merchants, or Flemings, alſo early frequented the port of Perth with mercantile views; and many individuals of that nation converſant in the linen and woollen manufactures, and in ſtaining of cloth, appear to have fixed their abode in the town, and to have been received as burgeſſes. King William, however, following the example of his grandfather king David, put the foreign merchants of Perth under great reſtrictions; and to prevent the ſettlement of foreign manufacturers there, granted in his charter already mentioned, that the burgeſſes might have a merchant guild of their own, "fullers and weavers excepted."

Edward I., of England, added greatly to the importance of Perth, by increaſing the ſtrength of its fortifications, and making it the reſidence of his deputies. King Robert Bruce conceiving its occupation to be of ſignal importance to his cauſe, attacked this town in 1306, but was repulſed by the earl of Pembroke, who ſallied out, and defeated the king at Methven. In 1311, however, Bruce renewed the attack, and after an obſtinate ſiege of ſix weeks, ſucceeded in ſtorming the fortifications, which he levelled with the ground. After the battle of Duplin, theſe were re-edified by Edward Baliol, but were ſoon again razed by the patriotic Scots. In 1335 king Edward III. took poſſeſſion of Perth, and reſided in it for a conſiderable period. According to the Engliſh hiſtorians, John, earl of Cornwall, brother to that monarch, died here in Oct. 1336; but they omit a ſingular circumſtance mentioned by Fordun, which is, that he received his mortal wound from the king's own hand. In 1339 Perth ſtood a long ſiege againſt the regent Robert, but was taken by draining the ditch. In 1437 king James I. of Scotland was murdered at the Black Friars monaſtery, by Robert Graham, who wounded him in twenty-eight different places, and the queen twice, during the ſcuffle between them. At this period the town walls ſeem to have been in a ſtate of demolition; as we find them repaired, at a very conſiderable expence, by king James II., from whoſe reign nothing of a political nature worthy of notice occurs on record, till the year 1600, when the earl of Gowrie's houſe here was the ſcene of one of the moſt problematical events in Scottiſh hiſtory. We allude to the execution of what is commonly deſignated the "Gowrie conſpiracy," by John Ruthven, the then earl, and his brother Alexander. Theſe two young men, according to the ſtory publiſhed by the court, having prevailed upon king James I. to viſit Perth, (on the pretence of ſhewing him a ſuſpicious perſon whom they had apprehended,) attempted to murder him, but were foiled in the attempt, and both ſlain by his majeſty's attendants Upon this, the inhabitants of the town aſſembled round the houſe, threatening revenge upon the royal party, and it was with conſiderable difficulty they were prevailed on to diſperſe.

After the battle of Tibbermoor, in 1644, Perth was ſeized by the marquis of Montroſe; and in 1651 it was taken by Cromwell, and fortified with a citadel on the South inch, capable of containing a garriſon of five hundred men. In 1715 the earl of Marr, at the head of a detachment of the rebels, obtained poſſeſſion of it, and occupied it as a place of arms, till after the battle of Dunblane, on Sheriffmuir, when they were diſlodged by the duke of Argyle, and compelled to retreat further to the north, with the Pretender. The ſame party likewiſe held this town in 1745, when prince Charles was proclaimed king, and new magiſtrates were appointed. The modern proſperity of Perth may be dated from this period; for being the centre of the rebellion, it was the reſort of all the diſaffected from the north, during a conſiderable length of time. Thus its ancient activity was in ſome degree revived. The march and reſidence of the contending armies produced a market here for all ſorts of goods; capital was gained by induſtrious perſons; and advantage taken of its favourable ſituation to render it a place of trade. Hence it has been remarked that Perth is a ſingular inſtance of a town that owes its proſperity in a great meaſure to the calamities attendant on rebellion and civil war. Since that turbulent period it has increaſed nearly one half in extent and population.

Perth, in its municipal capacity, is a royal borough, and joins with Dundee, Forfar, Cupar of Fife, and St. Andrew's, in ſending one member to parliament. It is governed by a provoſt, three bailies, a dean of guild, a treaſurer, and nineteen counſellors, moſt of whom are elected from the incorporated trades. The funds of the corporation are very conſiderable, and of late years have been expended with great judgment in various improvements. Perth being the county town, the ſheriff's-court meets here; and the lords of juſticiary hold a court here every ſix months, when they go on their circuits. The provoſts have been ſheriffs within the town ſince the time of king Robert III. They bear alſo the office of coroner, which office however is never exerciſed in Scotland.

This town, conſidered in reference to its buildings, is one of the handſomeſt in Scotland. It occupies a ſcite which might, indeed without impropriety, be ſelected as the ſeat of government, and the emporium of commerce. The Tay, which is navigable up to the quays at common tides for ſloops and ſmall craft, and in ſpring tides for veſſels of large burden, admits of great extenſion of trade. This river flows here in a direction nearly north and ſouth; but at a ſhort diſtance below Perth it turns to the weſtward, and is loſt behind the hill of Kinnoul. Over it is a handſome bridge of ten arches, which coſt about 25,000*l.* It is 906 feet 9 inches in length, and 22 in breadth, with the parapets. The piers are founded ten feet beneath the bed of the river, upon oaken and beechen piles. The architect of this magnificent ſtructure was Mr. Smeaton. It connects Perth with Kinnoul, which is a borough of barony under the ſuperiority of the nobleman who holds that title.

The two chief ſtreets in Perth are called the High ſtreet and South ſtreet, both of which run from eaſt to weſt, and are nearly parallel to each other. Along the ſide of the river runs another conſiderable ſtreet. The new town, which was begun in 1798, contains a circus and a terrace of very handſome appearance. This portion of Perth is ſituated on a plot of ground, where formerly ſtood the monaſtery of Black friars, in which James I. of Scotland was murdered, as has been already mentioned.

Among the public buildings are ſeveral worthy of attention. The town-houſe, which forms the eaſtern termination of High ſtreet, is a large well built ſtructure, as is likewiſe the guildhall, which ſtands about the middle of the ſame ſtreet. Several of the incorporated trades have halls, of which that of the glovers is the moſt elegant. The pariſh church, which was formerly the property of the abbey of Dumfermline, and is a large and ancient edifice, is now ſeparated into three diviſions, called the eaſt, middle, and weſt kirks; beſides there is another pariſh church, dedicated to St. Paul, a chapel of eaſe, and a variety of chapels and meeting-houſes appropriated to the public worſhip of diſſenters. St. John's church is remarkable from the circumſtance of the reformation in Scotland having firſt publicly broke out here, on the 11th of May 1550, when John Knox preached a ſermon againſt idolatry, after which the prieſt being imprudent enough to diſplay his images and relics, he was attacked by the audience, who broke the images in pieces, tore the pictures, overthrew the altars, and entirely defaced every implement of Catholic ſuperſtition in the church. This done, they proceeded to the different monaſteries in the town and its neighbourhood, and pillaged or demoliſhed the whole of them.

The chief inſtitutions in Perth of a public nature are a grammar-ſchool, an academy, and a literary and antiquarian ſociety. The grammar-ſchool has long been regarded as one of the beſt in Scotland. Many celebrated ſtateſmen and ſcholars have received the early part of their education here; and, among others, the admirable Crichton, and the late celebrated and excellent William, earl of Mansfield. The academy is of much more recent eſtabliſhment than the ſchool, having been commenced about the year 1761. It is, however, in a very flouriſhing condition, and is uſually attended by from eighty to a hundred ſtudents, who are inſtructed in various branches of learning. The literary and antiquarian ſociety was founded 16th December, 1784. Belonging to this inſtitution is a general library, beſides a large collection of rare books, original eſſays, ancient manuſcripts, coins, medals, and other ſubjects of antiquity, ſuitable to the deſign of the eſtabliſhment.

Perth at preſent is a place of very conſiderable trade. There is a conſtant intercourſe by water between Perth and London. Every four days, during the fiſhing ſeaſon, a ſmack ſails, and uſually makes the paſſage within a week. A number of merchant veſſels likewiſe frequent this port; and thoſe of heavier burden are loaded or diſcharged in the river, by means of hoys. The ſtaple manufacture of the town is linen; but the cotton trade is rapidly on the increaſe. The number of looms employed in the town and ſuburbs is eſtimated at about two thouſand. Cotton-mills, bleach-fields, and print-fields, have been eſtabliſhed in different ſituations. Leather is alſo one of the manufactured products of Perth; and great quantities of that article are made into boots, ſhoes, and gloves, for foreign conſumption. From the vicinity of the Highlands, the manufacture of doe-ſkins and buck-ſkins has long been eſtabliſhed in this town. Here is a reſpectable banking eſtabliſhment, under the firm of the Perth Bank; beſides a branch of the bank of Scotland.

Perth, according to the parliamentary returns of 1811, is divided into four pariſhes, and contains in the aggregate 4715 houſes, and 16,948 inhabitants. The markets are well ſupplied with all kinds of proviſions and luxuries. The annual fairs are eight in number, and are uſually well attended.

Of the ancient importance of Perth, while it was a royal reſidence, few traces remain; with the exception of the parliament-houſe, and ſome modernized manſions of the old nobility; ſuch as the houſes of the biſhop of Dunkeld, earl of Errol, and earl of Athol. The original fortreſs belonging to the town is now a ruin, and not even the ſcites of its monaſtic inſtitutions are diſcoverable to the eye. Gowrie-caſtle, already mentioned as the reſidence of the earls of Gowrie, is ſituated on the ſouth-eaſt ſide of the town. It was built, or, perhaps more properly ſpeaking, rebuilt, in 1520, by the counteſs of Huntly. After the forfeiture of the Gowrie eſtates, it became the property of the corporation, and was preſented in 1746, by the magiſtrates, together with the freedom of the burgh, to William, duke of Cumberland, who afterwards ſold it to the board of ordnance for the ſum of 5000*l.*; and it has ever ſince been appropriated as barracks for a company of the royal artillery. In the pleaſure-grounds attached to this houſe is a curious ſtructure, called the Monk's-Tower, the origin and former uſes of which are not correctly aſcertained. This ſtructure is of an oval figure, and meaſures internally 24 feet by 13. The roof is very lofty, and vaulted; and on the ceiling are coarſely painted the twelve ſigns of the zodiac, the heathen gods and goddeſſes, and the arms, creſt, and cyphers of the Hay family. From its ſtyle, this painting does not appear to be more ancient than the reign of Charles I; and ſome even think it has been executed by the ſame artiſt who painted the ceilings of the palace of Scoon: hence it is conjectured, that the tower has been erected for a banqueting-houſe, at that period. But others refer its origin to the 14th century, and aſſert that it obtained its appellation of Monk's-Tower from having been built at the expence of the monaſteries of Lindores, Balmerinoch, Aberbrothick, and Coupar-in-Angus; which expence, Fordun ſays, "in a manner ruined theſe monaſteries." This view of the ſubject is in ſome meaſure corroborated by Cant's Notes to the Hiſtory of Perth, in the following lines and note:

" —— The great and ſtrong Spey Towre,
And Monk's-Towre builded round a wall of power."

"The Spey Tower is gone: it was a ſtately fortreſs, and had a ſtrong priſon. The Roſſes of Craigie were governors of the fortreſs. At the reformation, Robert Roſs of Craigie delivered up the keys under a proteſtation. There remains nothing of it but a pitiful ruin, where the toll-houſe is. Monk's-Tower yet ſtands, as deſcribed in the poem, in the ſouth-eaſt corner of the garden, on the wall. It ſerves as a magazine of gunpowder for the train of artillery. The wall between this and the Spey Tower is the wall of the garden, and the foſſe without ſtill remains."

In digging the foundation of the houſe here, belonging to colonel Mercer of Aldie, the remains of an ancient Britiſh temple were diſcovered. This edifice is mentioned by Holinſhed, and by Jeffrey of Monmouth; the latter of whom ſays, it was erected by a Britiſh king, ſon to Regan, the ſecond daughter of king Lear. It was dedicated to Mars, and, as we preſume, muſt have been of later date than the Roman invaſion, as the architecture of its ruins exhibited conſiderable advancement in the building art.

The pariſh of Perth, without the town, extends about four miles in length, and three miles in breadth. The ſoil varies, but is extremely fertile, and well cultivated. The adjacent ſcenery is highly beautiful, but, owing to moſt of the eſtates here being entailed, gentlemen's ſeats are leſs numerous than otherwiſe might have been expected. The moſt remarkable houſes are the Caſtle of Balhouſie, an ancient ſeat of the earls of Kinnoul; the Caſtle of Pit-theveleſs, an ancient ſeat of the lords Oliphant; and Few-houſe, a ſeat belonging to Mr. Marſhall of Hill-Cairney. The barracks, in the immediate vicinity of the town, likewiſe deſerve to be mentioned among its ornaments. See Beauties of Scotland, 8vo. vol. iv. 1801; alſo, A Topographical Dictionary of Scotland, by N. Carliſle, F.S.A., 2 vols. 4to. 1813.

The "five articles of Perth," ſo called becauſe they were carried by the influence of the court and biſhops at a convention or aſſembly ſummoned to meet at Perth Aug. 25th, 1618, are as follow: 1. That the holy ſacrament ſhould be received kneeling. 2. That miniſters ſhould be obliged to adminiſter the ſacrament in private houſes to the ſick, if they deſired it. 3. That miniſters might baptize children privately at home, in caſes of neceſſity, only certifying it to the congregation the next Lord's day. 4. That miniſters ſhould bring ſuch children of their pariſh as could ſay their catechiſm, and repeat the Lord's prayer, creed, and ten commandments, to the biſhops, that they might confirm them and give them their bleſſing. 5. That the feſtivals of Chriſtmas, Eaſter, Whitſuntide, and the Aſcenſion of our Saviour, ſhould for the future be commemorated in the church of Scotland. The king ordered theſe articles to be publiſhed at the market-croſſes of the ſeveral boroughs, and the miniſters to read them in their pulpits; but moſt of the miniſters refuſed, as they were ſanctioned by no penalty except the king's diſpleaſure. The king, however, determining to obtain the ratification of parliament, iſſued a proclamation, commanding all miniſters who oppoſed them, and who were preparing a ſupplication againſt them, to leave the city of Edinburgh within 20 hours. The miniſters obeyed, leaving behind them a proteſtation againſt the articles, and an admonition to the members of parliament not to ratify them, as they would anſwer it in the day of judgment. The court intereſt prevailed, and the articles were ratified, contrary to the ſenſe of the kirk and nation. This meaſure occaſioned a perſecution through the kingdom, and many of the Preſbyterian miniſters were fined, impriſoned, and baniſhed by the high commiſſion. Thus far king James proceeded towards the reſtitution of epiſcopacy in Scotland; but there was ſtill wanting for the completion of the work a public liturgy, or book of common prayer. An inſurrection through the whole kingdom being apprehended, he deſiſted from enforcing this unwiſe meaſure, and left it to be finiſhed by his ſon, whoſe impoſition of it upon the kirk, without conſent of parliament or general aſſembly, ſet fire to the diſcontents of the people, which had been gathering for ſo many years.

PERTH-AMBOY, a city of America, in New Jerſey, pleaſantly ſituated in Middleſex county, at the head of Rariton bay, on a neck of land included between Rariton river and Arthur Kull Sound. Its ſcite is elevated and ſalubrious. It lies open to Sandy-hook, and has one of the beſt harbours on the continent, into which veſſels may enter in one ſide, in almoſt any weather. It is a port of entry and poſt-town; but although it is admirably ſituated for trade, and the legiſlature has given every encouragement to induce merchants to ſettle here, it is far from being in a flouriſhing ſtate. It contains about 60 houſes, and carries on a ſmall trade to the Weſt Indies; 35 miles S.W. of New York. N. lat. 40° 35′. W. long. 74° 50′.

PERTHSHIRE, one of the moſt extenſive and important counties in the northern diviſion of Scotland, is bounded on the S. by the Frith of Forth, and the counties of Stirling and Clackmannan; on the S.W. by the county of Dunbarton; on the W. and N. by Argyleſhire and Inverneſs-ſhire; on the N. by the latter county and Aberdeenſhire; on the E. by Forfarſhire; and on the S.E. by the counties of Kinroſs and Fife. Its greateſt length from E. to W., that is, from Blairgowrie to Benloi, meaſures 77 miles; and its greateſt breadth from the Forth at Culroſs on the S., to the northern extremity of Athol, is not leſs than 68 miles. According to the beſt ſurveys, its ſuperficial contents are eſtimated at 5000 ſquare miles; that is, 3,200,000 Scottiſh acres, or 4,068,640 Engliſh acres. The whole of this tract was anciently divided into the diſtricts of Athol, Breadalbane, Rannoch, Strathearn, Balquidder, Monteith, Gowrie, Perth and Stormont, which were called ſtewartries, and were placed under the hereditary juriſdiction of the great proprietors of lands. Theſe diſtinctions, however, are now aboliſhed in effect, but are nevertheleſs ſtill recognized in the common language of the inhabitants.

General Character of the County.—The ſurface of this county preſents, as might be expected from its great extent, much diverſity of appearance. It is naturally divided into two portions, called the Highland and the Lowland diſtricts. The former is of bold, mountainous character, and exhibits ſcenes of the moſt rugged and romantic magnificence, while the other is finely interſperſed with hill and vale, and diſplays all the beauties which the higheſt cultivation is capable of beſtowing. At the foot of the Grampian hills is the fertile valley of Strathmore, which is ſucceeded by the no leſs luxuriant and extenſive vale of Strathearn. The Carſe of Gowrie has long been conſidered as the pride of Scotland in point of natural productiveneſs, and is certainly inferior to no portion of Great Britain in the excellence of its agricultural ſyſtem. The territory along the Forth is likewiſe in many parts fertile and beautiful, and even the glens and declivities of the towering Grampians, and their rival Ochils, offer features of ſuperior exuberance and of partial cultivation.

Mountains.—Perthſhire is interſected by three very lofty chains of mountains; called the Grampian, the Ochil, and the Sidley or Sidlaw hills. The firſt are celebrated, and generally well known. They extend in a north-eaſtern direction, almoſt acroſs the whole of Scotland, and conſtitute what may be termed the Highland diſtrict of this county. (See GRAMPIAN *Hills*.) The Ochils bound the vale of Strathearn on the S., and ſtretch themſelves through the county of Clackmannan into that of Fife. (See OCHIL *Hills*.) The Sidley hills lie more to the N.E., and extend from the vicinity of Perth in a direction parallel to the Grampians. In all theſe ranges of hills, but particularly in the Grampian chain, are many ſummits of very great elevation. The following are among the moſt conſpicuous for ſize, and perpendicular altitude above the level of the ocean.

Elevation.	Feet.
Dunſinnan hill	1040
Kinfeat hill	1179
Demyet	1345
Tortum	1400
Birnam hill	1580
Ben Clach (Ochil)	2420
Farragon	2584
Ben Chenzie (Strathearn)	2922
Ben Vorlich	3300
Ben Doig	3550
Ben Ledi	3009
Schichallion	3564
Ben Gload	3724
Ben More	3903
Ben Lawers	4015.

Mineralogy, and Mineral Products.—Conſidering the great extent of Perthſhire, and the character of its ſurface, we might readily ſuppoſe it to afford abundant materials of intereſt to the mineralogiſt. This is accordingly the fact, in ſo far as regards ſcientific inveſtigation; but in a political, or economical point of view, the minerals of this county are not of very high importance. The rock of which the Grampians chiefly conſiſts is granite. On the ſouthern ridges, or ſkirts of theſe mountains, however, both ſlate and free-ſtone are found in abundance; but here the great ſandſtone ſtratum of Scotland terminates, in like manner as the coal field does to the ſouthward of the Ochils. Hence it may be remarked, that Perthſhire contains within itſelf the boundary between the ſandſtone and the granite, for the former is only diſcovered in ſmall patches to the north, and the latter ſeldom ſhews itſelf to the ſouth, except in the mountains of Galloway. What is curious, the ſecondary minerals on the ridges of the Grampians, ſuch as ſlate, limeſtone, and even ſandſtone, are affected in their properties by the proximity, or intermixture of the primary rocks. Thus in the pariſh of Little Dunkeld, below Murphy, is an inexhauſtible body of a very fine grained free-ſtone, which is of a light livid aſh colour, and ſo hard as to reſiſt the action of the atmoſphere for many centuries. The cathedral of Dunkeld was built of ſtones from this diſtrict, and fully corroborates the above aſſertion. In the hills of Birnam the ſlate is of a very deep blue colour, bordering on violet; and the ſame is nearly the character of the limeſtone found at Rannoch, Glenlyon, Breadalbane, and the head of Strathearn. In Monteath is alſo a quarry of the ſame mineral, reſembling marble, of a blue ground, with ſtreaks of white.

Iron-ſtone appears in ſome parts of this county, but no mines of that metal have ever been opened, except on the ſouthern ſide of the Ochils, about Culroſs, which, we may here obſerve, is the only coal diſtrict in Perthſhire. A lead mine was wrought for many years near Tyndrum, in Breadalbane, as was likewiſe one in Glenlyon, but theſe are now both abandoned. Some lead ore was alſo diſcovered about twenty years back in the mountain of Ben-Ledi. One vein on the north-eaſt ſide of the mountain was found to be extremely rich in ſilver, but its dimenſions were too ſmall to admit of its being wrought to advantage. In the hill of Birnam alſo, ſeveral pieces of lead ore have been dug up. This ore was encruſted with a white ſparry, or rather quartzoſe ſubſtance. One piece, about ſix pounds in weight, conſiſted of unmixed compact ore, of a very ſmall grain, which produced a conſiderable portion of pure lead, by mere roaſting in a blackſmith's forge. It was found at the baſe of the hill, but the fiſſures on its ſummit are frequently filled with ſimilar maſſes.

Slates are abundant in different portions of the county. The principal ſtratum commences on the borders of loch Lomond, in Dunbartonſhire, and ſeems to terminate in the vicinity of Dunkeld. Theſe ſlates are of two kinds, and called, from their colour, the blue, and the grey ſlates. The former, which are by far the moſt valuable, are plentiful in Monteath, and along the north ſide of the Ochils. Grey ſlates alſo are found in vaſt quantities in the ſame diſtricts, as well as in Strathallan and Strathearn. They conſiſt of ſand-ſtone, which may be ſplit into thin layers, frequently ſix feet ſquare, and are, ſince the introduction of blue ſlates in roofing, chiefly uſed for malt-kilns, floors, and pavement. In the pariſh of Weſter Foulis is a blue ſlate quarry of great value, but it is not wrought to any very conſiderable extent, on account of its diſtance from water carriage.

The beſt quarries for free-ſtone in Perthſhire, are thoſe in the pariſh of Tulliallan on the Forth, and on the eſtate of Milnfield, in the ſouth-eaſtern corner of the county. The former have long been held in high eſtimation; and were for many years wrought by a Dutch company. The latter, however, are ſtill ſuperior to them, and indeed may be juſtly reckoned the beſt in Scotland, if not in Great Britain. The ſtone from theſe quarries, on account of its fine quality, is commonly called Kingoody ſtone. It is of a greyiſh colour, difficult to work, and uncommonly hard and durable; ſo much ſo, indeed, that in ſeveral ſtructures built of it four or five centuries ago, ſcarcely a ſingle ſtone has yielded to the influence of the weather. The Milnfield quarries produce ſtones of all ſizes, and for every purpoſe of building. Many of the blocks raiſed exceed fifty feet in height, and ſixteen in breadth, and ſome are ſo thin as to be adapted for pavement, or for covering flat roofs.

In the vicinity of Drummond caſtle, and more eſpecially cloſe to Callender, that peculiar ſpecies of rock called breccia, or plum-pudding ſtone, is very common. It is compoſed of a vaſt variety of ſmall rounded ſtones, cemented together by a ſort of brown lava. The rounded ſtones are of different colours, and are ſo firmly united, as to form one ſolid maſs of rock, capable, when uſed as a building material, of withſtanding the action of the atmoſphere for ages. It is not, however, ſuſceptible of being ſmoothed by the chiſſel, but admits of being dreſſed with the hammer. The vein of it above Callender runs in the direction of ſouth-weſt and north-eaſt, for a diſtance of many miles through lakes and rivers, mountains and vallies, in a line parallel with the ſlates and lime-ſtone ſtrata, and at the diſtance of about a mile from each. The hill of Kinnoul, the moſt weſterly of the Sidlaw chain of mountains, is indeed a perfect mineralogical curioſity, on account both of its peculiar ſtructure and compoſition. The ſouthern ſide preſents a ſtupendous precipice of the moſt ragged rock, conſiſting of lava, in which different layers or currents are very evident. Some parts of this rock are perfectly compact; but the greater proportion of it is full of ſmall cells, reſembling thoſe in the ſlag of an iron foundery. Its colour is generally of a greyiſh tinge, approaching to lilac. When melted, it forms a vitreous ſubſtance of a dark purple hue, ſo tenacious that it could eaſily be blown into bottles. Among the ſtones at the baſe of this hill, are frequently found very fine agates, which have fallen from the precipices above, where, by the aſſiſtance of a pocket teleſcope, great numbers may be ſeen ſticking. Sulphate of barytes, rock cryſtal, and calcedony, alſo enter into the compoſition of this rock. Rhomboidal calcareous ſpar is likewiſe occaſionally diſcovered here, together with a greeniſh coloured ſteatite, or ſoap-ſtone. A ridge of the laſt mentioned rock, about four miles in length, is found in the diſtrict of Monteath; and in the neighbourhood of Culroſs are extenſive beds of fire clay.

From the intimate connection between the mineral ſprings of any county, and the ſolid mineral ſubſtances contained in its bowels, we may here mention that the moſt remarkable impregnated ſprings in Perthſhire, are thoſe of Pitkethly, which are famed for their efficacy in curing or alleviating the ſcrofula, ſcurvy, and gravel; while at the ſame time they give tone and vigour to the conſtitution. When theſe ſprings were diſcovered is unknown, as even tradition is ſilent upon the ſubject. They have, however, been much frequented for many years by patients from all parts of the country. See Pitkethly.

Rivers.—Perthſhire is moſt abundantly ſupplied with rivers, as various in their extent as they are diverſified in ſcenery, and intereſting from aſſociation with the events of hiſtory, or the ſtrains of poeſy. The principal among them are the Forth and the Tay, the former of which receives the Teath, the Allan, and the Devan, and the latter, the Earn, the Almond, the Lyon, and the Tummel, (which laſt is joined by the Garry, the Bruar, and the Tilt); alſo the Bran, and the united ſtreams of the Iſla, the Ericht, the Shee, the Eardle, and the Dean, all of which are juſtly deſerving of ſeparate notice, even in article ſo limited as the preſent. See Forth.

The *Teath* has its ſource at Benharrow, near Glenfalloch. Shortly after its riſe, it falls into loch Katharine, but iſſuing from it again at its eaſtern extremity, it forms loch Achray and loch Venachar. At Callender it is joined by the Balvay water, and meandering along by Lanrick and Downe caſtles, Blair Drummond and Ochtertyre, enters the Forth near Drip. On this river is a valuable pearl fiſhery. See Teath.

The *Allan* riſes at Gleneagles, on the northern ſide of the Ochils. Its courſe is at once circuitous and winding, and its banks, eſpecially from Dumblane to Lecropt, where it leaves Perthſhire, exhibits ſome of the moſt beautiful ſcenery of which Scotland can boaſt. Burns has made this river the theme of one of his fineſt ſongs.

The *Devon*, or *Dovan*, has its ſpring in the pariſh of Alva, whence it flows eaſtwards to the Crook of Devon, where it turns ſuddenly to the weſtward, and paſſing by Dollar, Tillicoultry, and Alva, pours its waters into the Forth, nearly oppoſite to its ſource, and only ſix miles from it, though it runs a courſe of about forty miles. This river is remarkable for ſeveral natural curioſities, called the Devil's mill, the Rumbling bridge, and the Cauldron Linn. The Devil's mill is formed by the water falling by a rapid deſcent into a baſin excavated in the rock, and thence into a cavity under ground, in paſſing through which it is ſo ſtrongly agitated by the peculiar conſtruction of the encloſing rocks, that it emits a ſound reſembling that made by the movement of a large mill. The Rumbling bridge is ſituated about 350 yards below the mill. Here the precipitous banks of the river approach ſo cloſe to each other, that an arch twenty feet ſpan is ſufficient to form the communication between them; yet the depth from the bridge to the water is upwards of eighty-ſix feet. It is called the Rumbling bridge, from the rumbling noiſe occaſioned by the water falling from rock to rock in its paſſage through this almoſt hidden dingle. The Cauldron Linn is ſituated about a mile lower, and conſiſts of two falls, not more than twenty-eight feet aſunder. The firſt is thirty-four feet in height, and not more than twelve feet broad. The ſecond fall is ſtill higher, and between them are three round cavities, having the appearance of immenſe cauldrons, in the higheſt of which the water is in conſtant agitation, as if boiling, while the ſecond is always covered with foam, and the third is uniformly calm and placid. Theſe cauldrons are of different dimenſions, the ſmalleſt being about ſixteen feet, and the largeſt twenty-two feet in diameter. When the river is low, they are ſeen to communicate by apertures formed by the force of the water, through the rocks which ſeparate them at perhaps the middle depth of the cauldron. Hence the great cauldron which communicates with the lower fall is perforated with a large opening, reſembling a window, out of which the entire body of water precipitates itſelf over the rocks with much violence, and with a very ſtriking and pictureſque effect, particularly if viewed from below, when the ſun ſhines on the riſing vapour, and tinges it with the varied colours of the rainbow.

The *Tay*, the largeſt river in Scotland, has its ſource in the weſtern extremity of Perthſhire, in the diſtrict of Breadalbane. In its current to the German ocean, it forms two large lakes, loch Dochart and loch Tay, and terminates in an eſtuary equally important as the Forth. (See Tay *River.*) The Earn, which joins the Tay, takes its riſe from a lake which bears its name near the mountain of Benvoirlich. It flows through a luxuriant tract of country, which is deſignated by the general appellation of Strathearn, and is bounded on one ſide by the Grampian, and on the others by the Ochil hills. The Almond ſprings from a glen in the Grampians, called the Narrow glen, and proceeding by Logie-Almond, Methven, and Rodgerton, diſcharges its waters into the Tay above Perth. The Lyon deſcends from glen Lyon, and runs a courſe almoſt as long as the Tay itſelf, before it loſes its name by its junction with that river. The Tummel, which enters it at Logiereat, eight miles above Dunkeld, is ſtill a longer ſtream, and is diſtinguiſhed by a lake named loch Rannoch, and by ſome of the fineſt falls to be met with in Great Britain. In its courſe it is joined by the Garry, which unites the ſtreams of the Bruar and the Tilt. All theſe rivers run with the uſual rapidity of mountain torrents, and diſplay, at different parts of their currents, ſeveral fine caſcades, and much pictureſque ſcenery. One of the falls of the Bruar is upwards of two hundred feet in perpendicular height, but is broken by projecting rocks into three diviſions, which rather heighten, however, than diminiſh the grandeur of the ſcene. On the Garry, below its junction with the rivers above-mentioned, is the celebrated paſs of Killiecrankie, near which viſcount Dundee, one of the moſt intrepid generals of James VII. defeated the forces of king William, under general Mackay, with the loſs of two thouſand men, but fell himſelf in the action.

The next river to the north-eaſt, that falls into the Tay, is the *Bran*, on the banks of which, at the diſtance of about a mile from the village of Inver, is one of the moſt enchanting ſcenes in nature. The path leading from the village is finely ornamented, and terminates in a building reſembling a ſmall temple. This ſtructure is called Oſſian's hall, or the Hermitage, but the ideas connected with either of theſe names are by no means applicable to it. In front is a veſtibule, adorned with a picture of the aged Oſſian, which being removed by ſliding into the wainſcot, the viſitor enters an interior apartment, from the windows of which the moſt ſublime and enchanting view imagination can conceive burſts upon the ſight. The two rocky ſides of the river almoſt uniting, compreſs the ſtream into a narrow compaſs, and the channel being oblique in its deſcent, the water is forced with unuſual violence over a maſs of rocks, undermined, disjointed, and fractured into a thouſand different forms. At the bottom of the fall is a deep abyſs, in which the wheeling waters ſuffer an agitation, of another kind, but ſcarcely leſs violent. The whole ſcene is finely ſhaded with trees; and to thoſe who admire the efforts of art more than the ſimplicity of nature, is greatly heightened by the reflection of emboſſed mirrors, which almoſt completely cover the ſides and ceiling of the hall. A natural cave higher up this river, is called Oſſian's cave, from a tradition that it was the occaſional retreat of the Celtic bard.

The other rivers which remain to be noticed, *viz.* the Iſla, the Ericht, the Shee, the Eardle, and the Dean, with the exception of the laſt, alſo preſent ſcenes of the moſt pictureſque deſcription, and ſcarcely inferior to thoſe we have already mentioned. On the Ericht, indeed, about two miles north from the village of Blairgowrie, is a ſcene of a peculiarly romantic character. Here, for an extent of 700 feet, both banks are 220 feet in perpendicular height, and are formed of rock, as ſmooth as if it had been chiſſelled by the hand of art, but ſhaded with a profuſion of trees, and a great variety of curious plants.

Lakes.—Perthſhire is no leſs fruitful in lakes than in rivers. Theſe are ſpread throughout every diſtrict of the county, but are moſt numerous in its weſtern diviſion. Some of them are formed by the expanded waters of the rivers, in their courſe through glens, hemmed in on all ſides by lofty hills; and others are formed ſimply by the occaſional currents which pour down the mountain declivities. The principal among them, for extent and beauty of ſcenery, are loch Rannoch, loch Tummel, loch Dochart, loch Tay, loch Earn, loch Lubnaig, loch Doine, loch Voil, loch Conar, loch Ard, loch Monteath, loch Van-a-choir, loch Achray, and loch Katharine.

Loch Rannoch is formed by the ſtreams of the Gawer and the Ericht, and is about twelve miles long, and from one to two in breadth.

Loch Tummel is ſituated below loch Rannoch, on the river which bears its name.

Loch Dochart is formed by the river Fillan, the principal branch of the Tay. It is upwards of three miles in length, and is diſtinguiſhed by very fine and romantic ſcenery, its banks being precipitous, and covered with a profuſion of trees. In this lake is one of thoſe natural curioſities, called a floating iſland, alſo a ſtationary iſland, overhung by a huge promontory, and adorned with the ruins of an ancient caſtle. The ſtream which flows out from the lower extremity of this loch is called the Dochart. It diſcharges its waters into loch Tay, one of the fineſt lakes in Scotland, extending about fifteen miles in length, and from one to two in breadth. Its banks are beautifully winding, and diverſified with wood and lawn, bold and ſloping mountains. This lake has at different times, like loch Lomond, ſuffered violent and unaccountable agitations.

Loch Earn is the ſource of the river of that name, which falls into the Tay. It is eight miles and a half in length, and one and a half in breadth. For about five miles on each ſide its banks diſplay a great profuſion of natural oak-wood, and as great a variety of beautiful ſcenery as any diſtrict of ſimilar extent in North Britain. Near each end is a ſmall iſland, evidently artificial, on one of which are ſtill ſeen the ruins of a caſtle. The mountain of Benvoirlich, at the head of this lake, is diſtinctly viſible from the caſtle of Edinburgh, and from the vicinity of Loudon caſtle, in Airſhire.

Loch Lubnaig is the loweſt lake on the river Balvaig. It is above four miles in length; but is extremely narrow, "preſenting the ſame picture with moſt of our Highland lakes, of a ſheet of water arreſted in a deep ravine, and thrown back by obſtacles from the lower extremity." Such is likewiſe the character of *loch Doine* and *loch Voil*, which are placed higher up the ſame river. In the middle of loch Lubnaig is a tremendous rock, called Craig-na-Coheilg, the "Rock of the Joint Hunting," from having been the boundary between the eſtates of two ancient chieftains, who were wont to meet here on ſporting days, and to hunt round the rock in common, after which they ſeparated, each turning towards his own property, to denote that he was at the utmoſt boundary of his poſſeſſions.

Loch Conar, or *Chon*, is ſituated near the confines of this county with Stirlingſhire, and between the ſtupendous ſummits of Ben Lomond and Ben Venue. It is nearly three miles in length, and one in breadth. In its boſom are ſeveral iſlets, which as well as the banks are clothed with trees and herbage.

Loch Ard lies to the eaſt of loch Conar, and partakes of the ſame character of ſcenery, but is larger, and more irregular in its figure.

Loch Monteath, or *Monteith*, ſituated in the diſtrict of that name, is admired as one of the fineſt lakes in Scotland. It is nearly of a circular form, and meaſures about five miles in circumference. Its banks, which are only gently elevated, are well furniſhed with trees. On the north ſide, cloſe to the water, ſtand the manſe and church of Monteath, together with an elegant mauſoleum, lately erected for the Garthmore family. But the moſt diſtinguiſhed ornaments of this lake are its two iſlands, both of which are decorated with the ruins of ancient buildings. On the larger one are the remains of a priory, founded and endowed by king David I., which diſplays ſome fine ſpecimens of "Gothic" ſculpture. The ruins on the ſmaller iſland are thoſe of the ancient reſidence of the Grahams, earls of Monteath.

Loch Van-a-choir, *loch Achray*, and *loch Katharine*, are all expanſions of the river Teath. The firſt is about four miles in length, and the ſecond ſomewhat more than one; they abound with ſalmon, trout, and pike, and exhibit at different points ſome fine and delightful views. The laſt, however, far excels the others in every reſpect, and is indeed at once among the moſt intereſting lakes any country can boaſt of; whether we conſider the alternate beauty and grandeur of its ſcenery, or the claſſic charm it has derived from the creative imagination, and deſcriptive talents of the author of "The Lady of the Lake."

Soil, Climate, and Agriculture.—Perthſhire, with reſpect to theſe ſubjects, is naturally divided into three diſtricts, which differ from each other very materially. Theſe diviſions are termed the Highland diſtrict, the Lowland diſtrict, and the diſtrict of the Carſe of Gowrie.

The Highland diſtrict, which comprehends by far the larger portion of the county, is included within, or rather formed by, the Grampian mountains. In relation to the whole extent of the Scottiſh Highlands, it conſtitutes what are uſually denominated the Central or Southern Highlands, in contradiſtinction to thoſe of Argyleſhire, or the Weſtern Highlands, and thoſe of Inverneſsſhire, or the Northern Highlands. It may alſo be regarded as the central diſtrict of the whole kingdom of Scotland, and is ſubdivided into ſmall portions, marked by glens or vallies, called Rannoch, Glenlyon, Glenlochie, Glendochart, Glenqueich, Glenſhee, the environs of loch Tay, and Strath-Tay. Throughout this vaſt tract of country, contrary to what might be ſuppoſed from its northern latitude, the elevation of its vallies, and the altitude and naked aſpect of its towering mountains, the climate is not leſs mild than in the moor-lands of Yorkſhire. Indeed, the mountains of Perthſhire may even claim an equality in temperature with thoſe of Cornwall and Devonſhire, and certainly ſurpaſs them in dryneſs of climature, excepting on the weſtern margin of the diſtrict, where the quantity of rain which falls is immenſe. The ſoil in the vallies here conſiſts in general of a brown loam, of uncommon fertility, lying on a ſound, dry gravelly, or ſandy bottom. A ſimilar ſoil prevails on the ſides of the hills to a conſiderable height, and is not unfrequently found under the black moory earth of the heaths. What is remarkable, the ſlopes of the mountains facing the north are much more productive than thoſe which poſſeſs a ſouthern expoſure. This phenomenon is accounted for, by the ſuppoſition that the ſoil ſuffers more exhauſtion on the ſouth than on the north, becauſe of the greater alternation of rain and ſnow, and of heat and cold, to which the ſurface of the former is liable, from the action of the ſun-beams, and the greater frequency of ſouthern rains. In this diſtrict few of the vallies contain large areas of free culturable land, like thoſe found in the ſouth; and even the ſcanty areas that do exiſt have required in general the aid of human induſtry to clear them of the rocks which have been torn from the impending mountains. Yet as the glens are numerous, it happens here, as in moſt parts of the Highlands where modern ſheep or cattle-farming is not prevalent, that each farm poſſeſſes its pittance of hill and dale, and its ſhare of every deſcription of land, as arable, meadow, green paſture, and moor. The arable lands have a two-fold diſtinction, the infield and outfield lands; the firſt of which, lying near the farm-yard, is kept conſtantly in tillage, and receives all the manure the poſſeſſor can collect; while the latter, conſiſting of ſuch plots at the lower parts of the vallies, are level enough to be ploughed, are kept in corn and natural ley, or weedy waſtes alternately, without the ſmalleſt aſſiſtance of manure. The wet plots in the vales are termed meadow, and kept uniformly under the ſcythe, for a ſcanty ſupply of hay. The faces of the "braes," the roots of the hills, the wood or rough ſtony waſtes of the bottoms, and a ſmall plot near the houſe, are generally appropriated to cattle in ſummer, and ſheep in winter; the ſheep and horſes being kept in ſummer "above the head dyke," upon the hill or moor lands. Theſe are laid out, or diſtributed in different ways, as chance may have determined; lying ſometimes contiguous to, or immediately above the paſture lands, and ſometimes detached from the reſt of the farm entirely. Sometimes they are appropriated to a particular farm, but are more frequently in a ſtate of commonage.

Such is the general deſcription of the Highland farms of Perthſhire; whence it may reaſonably be concluded, that the huſbandry of this diſtrict is not in a very advanced ſtate. This, however, does not ariſe from a want of knowledge, or even of induſtry, among the farmers, but from the peculiar conſtitution of ſociety in the more northern portions of our iſland. Before it can be remedied, the farms, now in general ſmall, would require to be increaſed greatly in extent, and the farmer aſſiſted with capital, ſhould he be deficient in means of his own. The pride of clanſhip among the proprietors ought to be laid aſide, and the eventual intereſts of the country ſtudied, inſtead of the miſapplied philanthropy, which conſtitutes the ruling motive for continuing the ſmall farm ſyſtem. That uſeleſs and idle race of occupiers or ſub-tenants, called acre-men or crofters, muſt likewiſe be extirpated, to facilitate the agricultural improvement of this diſtrict. For ſome further obſervation on this ſubject, ſee SCOTLAND.

The only crops raiſed here are oats, bear or bigg, flax, and potatoes, and on ſome ſpots peaſe. Wheat is never ſown. The buſineſs of the flax-harveſt, in particular, is well conducted. Indeed, in the management of that article, the Highlanders may be ſaid to excel.

The Lowland diſtrict includes all that portion of Perthſhire which lies to the ſouth of the Grampians, with the exception of the Carſe of Gowrie, to be afterwards noticed; *viz.* part of Strathmore (ſee STRATHMORE); and thoſe diſtricts of the county, the ſtreams of which flow into the Forth, or the Earn. Along the Forth, for an extent of eighteen miles from Garthmore to the bridge of Allan, the ſoil of the level lands is a deep, rich clay, of various degrees of fertility. This ſoil, however, is ſtill covered, for about four miles, by a tract of moſs from ſix to fifteen feet deep, called the *Moſs of Kincardine*, becauſe ſituated chiefly in the pariſh of that name. This moſs is ſuppoſed to have once covered the whole valley, and was well worthy the inveſtigation of the naturaliſt. By the exertions of the late lord Kaimes, however, and by the judicious liberality of its proprietors, it now rapidly diminiſhes in ſize, and will doubtleſs be entirely cleared in a few years. It is wholly let out on leaſes of thirty-eight years, in proportions of eight acres, to different tenants, who pay no rent for the firſt ſeven years, and only one or two marks Scots for the ſucceeding thirteen years, and twelve ſhillings for each cleared acre during the laſt nineteen years. The number of men ſettled on this moſs, in 1801, was 115, of women 113, boys 119, and girls 193.

In the low grounds of Strathearn, wheat is the great object of huſbandry, generally after ſummer fallow, but frequently alſo after clover ley. In the upper parts of the diſtrict, barley and oats are the principal crops. The culture of flax is univerſal over the whole diſtrict, but is not carried to a great extent in any one place. Potatoes are raiſed in vaſt quantities on the light ſoils, as are likewiſe turnips, eſpecially within the laſt ten years. Farms here vary in ſize, from 30 to 400 acres, and are for the moſt part managed upon the moſt approved ſyſtem. The greater part of this diſtrict, however, is yet uninccloſed. The manures chiefly in uſe here are lime and marle, of which laſt article there is great abundance found in the ſmall lakes, and in the land-locked bogs and moſſes.

The third agricultural diſtrict of Perthſhire, or the Carſe of Gowrie, is ſituated along the northern ſhore of the frith of Tay. It is a long, narrow plain, and extends ſixteen miles in length: it contains about 18,000 acres of extremely rich and fertile ſoil. This diſtrict, indeed, may be juſtly ſtyled the boaſt of Great Britain for natural productiveneſs, and yields to no portion of the globe in the intelligence and ſkill of its farmers. Like the Delta land of Egypt, and thoſe fertile tracts adjacent to the mouths of the Ganges, the Indus, and the Miſſiſippi, the Carſe of Gowrie has been formed in a long courſe of ages, and has grown rich by the ſpoils of the Highlands. The heavy rains which fall near the ſources of the Earn, the Tay, the Tummel, the Garry, the Iſla, and their tributary ſtreams, have waſhed down great portions of ſoil, and have laid bare the rocks of the higheſt mountains to give exuberance to the banks of the Tay. The Carſe, in fact, is evidently nothing more than what is called in other quarters ſea-mud, or ſleech, conſolidated by time and gradual depoſition. The ſubſtrata here are various, and might form a ſubject of curious and intereſting inveſtigation. The ſoils alſo differ. On the banks or braes of the Carſe, which ſlope gently with a ſouthern aſpect, the ſoil is a hazle-coloured loam, except in the higher part of the aſcent, where it is a ſharp gravelly kind. In the "Low Carſe," clay is the prevailing ſoil. Here the farms are claſſed into ſix diviſions, as nearly equal as the nature of the ground will admit, and the following rotation is that moſt generally approved of: 1ſt year, ſummer fallow,—the land dunged; 2d, wheat; 3d, peaſe, or peaſe and beans; 4th, barley, with clover and rye-graſs; 5th, clover; 6th, oats. Sometimes, however, fallow is excluded, and ſome green crop ſubſtituted. This happens almoſt univerſally on the banks or braes of the Carſe; and on the higher grounds, the raiſing of wheat is only very partial, and the third, fourth, fifth, and ſixth years are generally appropriated to hay or paſturage, the ſeventh to oats, and the eighth to barley. The climate of this diſtrict is mild, and favourable to vegetation, beyond perhaps any other in Scotland, as it is completely ſheltered, on all ſides, by lofty mountains, and by plantations of various kinds of trees. Farms are generally from 100 to 300 acres in extent, and are let on leaſes of nineteen years, at as high a rent as any field-land in Great Britain. The only artificial manure uſed is lime; for which nearly 2000*l.* is paid annually to the lime-works in Fife, or in England.

The *live ſtock* of this county conſiſts of horſes, cattle, ſheep, fowls, bees, and ſwine, except in the Highland diſtrict, where the ſow, till lately, was ſtill a more rare phenomenon than a well-cultivated farm. The horſes of this diſtrict, on the other hand, are too numerous, and almoſt wholly of the common Highland breed, as well as the cattle. The ſheep, however, have of late undergone a conſiderable change, by intermixture, and are certainly improved. In the Lowland diſtrict, and in the Carſe, the horſes are an active, middling-ſized breed; and in the latter diſtrict are many of a heavier kind, for the uſe of the plough in the lower grounds, where the ſoil is deep and heavy. Few black cattle are reared in either diſtrict, but a certain number of cows are kept by every farmer. On the Ochil hills, and in almoſt all the mountainous diſtricts, ſheep are reared in great abundance. They are moſtly of the black-faced breed.

Woods and Plantations.—In ancient times a great proportion of this county was covered with thick foreſts of oak. In the moſſes are found vaſt collections of trees, ſome of them of immenſe ſize, which have evidently been cut from their trunks by the hand of art, and as tradition reports, by the Romans, when they firſt croſſed the Forth under Agricola. The foreſt of Blackironſide, on the banks of the Earn, is particularly noted in hiſtory, as the ſcene of many of the exploits of the celebrated ſir William Wallace and his gallant followers. In the Highland diſtrict was the foreſt of Manlorn, now converted into ſheep farms, beſides other large foreſt tracts, which it is unneceſſary to particularize, as the whole of them have been in a great meaſure deſtroyed. Perthſhire, however, ſtill contains many extenſive woods, formed within the laſt fifty years, of which thoſe of the duke of Athol, in the Highlands, are by far the largeſt and moſt valuable, and abound with deer and a variety of other game. Moſt of the gentlemen's ſeats in the county are alſo ſhaded by plantations. Indeed the ſpirit of planting has gone abroad here, with a degree of energy ſeldom parallelled in any country in Europe; and will, no doubt, eventually produce the happieſt effects.

Civil and Eccleſiaſtical Diviſions and Government.—Perthſhire, like every other county in Scotland, is placed under the juriſdiction of a lord lieutenant or high ſheriff, and a ſheriff depute, who has the privilege of appointing a ſubſtitute to hold courts in his abſence. The whole is eccleſiaſtically divided into ſixty-ſeven pariſhes, of which nineteen belong to the Highlands, and forty-eight to the Lowlands. Of theſe, nineteen are included in the preſbytery of Dunkeld, twenty-one in the preſbytery of Perth, fifteen in that of Auchterarder, and eleven in that of Dunblane, all in the ſynod of Perth and Stirling. In this county are two royal boroughs, Perth and Culroſs, and a number of conſiderable towns and villages, of which the principal are, Downe, Callender, Scone, Dunblane, Comrie, Crieff, Auchterarder, Dunning, Abernethy, Dunkeld, Alyth, Cupar, Angus, Blairgowrie, and Longforgan.

Manufactures.—The grand object of manufacturing induſtry in Perthſhire is the linen trade. Great quantities of linen yarn are annually ſpun by the women, and in every village are a number of weavers, who convert the produce of their labour into cloth, a great part of which is ſold to the merchants of Perth, Dundee, and Glaſgow, in its unbleached ſtate. A large portion of it, however, is likewiſe bleached within the limits of the county, both for private uſe and for exportation. In the vicinity of Perth, and in other diſtricts, are not leſs than eight or ten different bleach fields on a large ſcale.

Antiquities and Hiſtorical Events.—Perthſhire diſplays a field of great intereſt to the antiquary, as well as to the hiſtorian. Lying north of the Roman wall it was the ſcene of many conflicts, fought in ſupport of the laſt gleam of Caledonian independence in the Lowlands. From a paſſage in Claudian, we learn, that the Earn was frequently dyed with blood.

"Scotorum cumulos flevit glacialis Jerne."

And Tacitus informs us, that at the foot of mount Grampius, Agricola encountered and overthrew the heroic Galgacus. The preciſe ſpot on which this battle took place is not certain, but a variety of conjectures have been hazarded upon the ſubject, of which the moſt probable is that which fixes it in Stormont, where a large Roman encampment is ſtill viſible, together with a numerous collection of cairns, the indubitable memorials of Caledonian ſtrife. At Ardoch is another encampment, probably the moſt perfect example of ancient caſtrametation in Great Britain, and near it are two ſmaller ones, leſs perfect in their conſtruction. There is likewiſe a Roman encampment at Ochil, which communicates with Ardoch by a raiſed road, or cauſeway. Veſtiges of a ſtrong military earthen work are alſo to be traced about two miles from Monzie; and on the hill of Dunmore is another fortification, ſaid to have been Fingal's place of reſidence, after the deſtruction of his houſe in the vale by Gara. This fort is defended by a deep ditch and rampart; and is doubled walled, each wall meaſuring twenty feet in thickneſs, and conſiſting of immenſe ſtones piled up without cement of any kind. A ſimilar fort, of ſtill larger dimenſions, is ſituated two miles eaſtward from Fienteach; and on the moor adjacent to it are numerous cairns and tumuli, one of which is aſſigned to Comhal, the father of Fingal. Near Culloquhey is a ſmall fort, called in Gaelic, Comhal Kults, *i. e.* Comhal's battle. At this place, tradition reports that Oſſian was buried, and a ſtone vault, or coffin, is ſtill viſited as his. Druidical monuments are frequent in this county; ſuch as circles, rocking ſtones, and ſingle upright ſtones, denominated "Stones of Worſhip," to which the common people yet pay no inconſiderable degree of ſuperſtitious regard. Indeed ſome remnants of the Druidical worſhip may be ſaid to linger here, as many of the Highland cuſtoms have an unqueſtioned reference to that religion. The firſt day of May, held ſacred by the worſhippers of the ſun, continues to be diſtinguiſhed by the appellation Beltan, or Baal-tein, "The Fire of Baal," and in ſome parts of the country is ſtill celebrated by feſtivals of milk and eggs. See SCOTLAND.

In the church yard of Meigle are the remains of the grand ſepulchral monument of Vanora, alſo called Vanera, Wanor, and Guinevar, the Britiſh Helena, according to Prideaux. This princeſs was the wife of Arthur, but being taken priſoner by the Scots and Picts, ſhe lived for ſome time, in miſerable captivity, on Barry-hill. Some aſſert that ſhe was one of the moſt abandoned debauchees of her ſex; and that having been torn to pieces by wild beaſts, this tomb was raiſed to perpetuate her infamy, and the manner of her death. The truth of this ſtory, however, is extremely doubtful, and has perhaps ariſen from the ſymbolic characters on the monument, moſt of which are of the monſtrous kind, and repreſent various acts of violence on the perſon of a woman. This tomb is deſcribed in Pennant's Tour, and the deſcription is accompanied by ſeveral plates. See VANORA.

Religious houſes were frequent in this county, ſome of which ſtill exhibit ſome fine ſpecimens of ancient architecture. At Culroſs are the ruins of a Ciſtertian abbey, founded in 1217 by Malcolm, earl of Fife. (See CULROSS.) And at Scone was a celebrated Auguſtine monaſtery. (See SCONE.) The cathedral of Dunblane ſtands on an eminence above the town; and part of it is kept in repair as the parochial church. (See DUNBLANE.) That of Dunkeld is one of the fineſt piles of ancient buildings in Scotland, and is now undergoing a thorough repair. It is of mixed architecture, having been erected at different periods. (See DUNKELD.) The other religious houſes in this county were the following.

Abernethy priory, founded A.D. 1273, for monks of the Auguſtine order.

Elcho nunnery, of the Ciſtercian order, date of foundation uncertain.

Inchaffray abbey, for Auguſtine canons, founded A.D. 1200.

Inch-Mahome abbey, alſo Auguſtine, date uncertain.

Perth. Ciſtercian nunnery, dedicated to St. Leonard, 1296.

Perth. Methven college church, 1433.

——. Monaſterium vallis virtutis, for Carthuſian monks, 1429.

Perth. Dominican convent, founded 1231.

——. Convent obſervan. founded 1460.

Strathfillan priory, in Breadalbane, founded by king Robert Bruce for religious of the Auguſtine order.

Loch Tay priory, likewiſe Auguſtine, founded by Alexander I., A.D. 1222.

Suggeden hoſpital on Tay, founded ante 1296.

Tullibardine college church, founded 1446. See TULLIBARDINE.

Tullilum Carmelite convent, founded A.D. 1262.

Caſtles, Palaces, &c.—Perth, Scone, and Abernethy, having been early royal reſidences, were each adorned with ſtately palaces, which are now entirely demoliſhed. Thoſe of the two firſt mentioned towns fell a prey to the fanatical fury of the reformiſts. Many caſtellated manſions, however, yet exiſt in different diſtricts of the county, and would be well worthy of deſcription, would our limits allow. The moſt remarkable among them are caſtle Campbell, Finlarig caſtle, caſtle Comrie, Doune caſtle, Ballumbri caſtle, Garth caſtle, Elcho caſtle, Kinnaird caſtle, Gowrie houſe, Murthly houſe, Kinfaun's caſtle, Macbeth's caſtle of Dunſinnan, Hunting tower, or Ruthven caſtle, Balloch caſtle, the reſidence of lord Breadalbane, Blair caſtle or Athol houſe, and Drummond caſtle. Some of theſe are in ruins, and ſome have been ſo much modernifed as to alter in a great meaſure their original appearance. Beauties of Scotland, vol. iv. Sketches of Perthſhire by the Rev. P. Graham, D.D. Edin. 1812, 2d edit. 8vo.

PERTI, GIO. ANTONIO, in *Biography*, a ſolid, grave compoſer of church muſic, *alla Paleſtrina*, was born in 1656. With his theatrical ſtyle we are unacquainted; but as he long continued to be employed, not only for the operas of Bologna, but Venice and other cities of Italy, we may reaſonably imagine that it was excellent. Paolucci has printed a good duet by this maſter, in the church ſtyle; and Padre Martini has given ſeveral admirable ſpecimens of his ſcience in his "Saggio di Contrappunto." This great harmoniſt, however, does him ſtill more honour, by calling himſelf his diſciple. Perti, before his deceaſe, muſt nearly have attained the age of 100; for his name appears as the compoſer of Atide in 1679, and, according to Quadrio, he was living in 1744.

PERTICA, in *Aſtronomy*, a ſort of comet, being the ſame with *veru*.

PERTICA, among the Romans, a long rod for beating the fruit from trees. It was likewiſe uſed for a long meaſure. See PERCH.

PERTICATA, or PARTICATA *Terræ*, in our *Old Law Books*, is the fourth part of an acre, or a piece of ground containing one perch in breadth, and forty in length. See ROOD, and PERCH.

"Continet in integra ſuperficie 40 perticas."

PERTICI, in *Biography*, a comic ſinger and admirable actor, came hither in 1748 with Larchi, another excellent comic ſinger and actor, and Guadagni for the firſt time, when he was very young, as ſerious man in a troop of burletta ſingers, brought over upon ſpeculation by ſig. Croza, whoſe calculations were ſo erroneous, that he became a bankrupt and a fugitive in a year's time.

PERTICULAS, poor ſcholars of the iſle of Man. The king granted to "L. Macguin de inſula de Man, ſcholari, quandam eleemoſynam vocatam Perticulas, ad ſuſtentationem cujuſdam pauperis ſcholaris, de inſula predicta ad exercend. ſcholas, per progenitores noſtros quondam reges Angliæ datam et conceſſam." Pat. Hen. IV.

PERTIGI, in *Geography*, a town of the iſland of Sardinia; 19 miles S.E. of Caſtello Aragoneſe.

PERTINAX, PUBLIUS HELVIUS, in *Biography*, a Roman emperor, was born in the reign of Adrian, A.D. 126.

His father was a freedman, by occupation a maker of charcoal; but notwithſtanding his humble condition, he took care to give his ſon a literary education. The young man firſt employed himſelf in teaching at a grammar-ſchool, but diſſatisfied with a ſphere that gave no hope of advancement, he entered into the army, and ſerved as a common ſoldier in Syria. He ſoon obtained conſiderable rank, and at length the government of the two Mœſias was committed to him, and afterwards that of Syria, which he held till the acceſſion of Commodus, in the year 180. Upon this event he returned to Rome, where he paſſed three years in retirement. During this period he employed himſelf in embelliſhing his native place with ſeveral elegant buildings; but he permitted his father's houſe and ſhop to remain unaltered, as a memorial of his humble origin. He was now ſent by the emperor into Britain, where the legions were in a ſtate of great diſaffection and indiſcipline. The ſoldiers would very willingly have transferred their allegiance to Pertinax, but he preſerved his fidelity inviolate, and incurred much perſonal danger in quelling the mutinous ſpirit of the troops. At length he was recalled, and appointed to the important truſt of ſuperintending the ſupply of Rome with proviſions. After this he was made proconſul of Rome, twice a conſul and governor of Rome. Pertinax was in poſſeſſion of this laſt office, when the tyranny of Commodus brought his deteſtable reign to an end; and he ſucceeded to the imperial purple, by an apparently free election. All the meaſures of his ſhort reign were directed to the public good. He found the treaſury empty, which he repleniſhed by a public ſale of all the articles of prodigal luxury which he found in the palace. He himſelf adopted a frugal and ſimple mode of living, and by it, which has been condemned as the meaneſt parſimony, he was enabled to aboliſh many oppreſſive taxes, and he ſhewed a great diſintereſtedneſs and diſregard to the accumulation of wealth, by declaring that he would accept of no legacies from perſons who left children or other lawful heirs. He diſcouraged all informations for treaſon, and adminiſtered juſtice with equal mildneſs and impartiality. Such a courſe of conduct was not likely to pleaſe thoſe who had profited from the vices of Commodus; and plots were ſoon formed to ſubvert the new government. While Pertinax was abſent at Oſtia, an attempt was made to raiſe to the throne the conſul Falco. He haſtened back and complained of the fact before the ſenate, but when that body propoſed to condemn Falco as a traitor, he declared that no ſenator ſhould ſuffer death in his reign, and diſmiſſed him in ſafety. A ſpirit of mutiny was by falſe repreſentations excited among the guards, and three hundred of them proceeded with drawn ſwords to the palace. The emperor's officers and friends ſought for ſafety by flight, but Pertinax diſdained even to conceal himſelf. He appeared before them with a firm and intrepid air, and expoſtulated with them upon their conduct, which made ſuch an impreſſion on the minds of the conſpirators, that they began to ſheath their ſwords. At this critical moment a Tungrian ſoldier threw his javelin at the emperor's breaſt, and the feeling of reſpect being thus diſſolved, the reſt ruſhed in, and diſpatched him with many wounds. When he ſaw that his fate was inevitable, he wrapt his head in his toga, and fell without a ſtruggle. This event took place on the 28th of March 193, after a reign of only three months. Electus, and ſome other of his attendants, who attempted to defend him, were alſo ſlain; his ſon and daughter only eſcaped, who happened at the time to be out of the palace. From the number of his adventures, he was called the tennis-ball of fortune, and no man experienced ſo many changes in his life, with ſo blameleſs a character. His character is highly ſpoken of by contemporary hiſtorians, and his memory was highly revered by the Roman people.

PERTISTEGNO, in *Geography*, a town of Italy, in Friuli; ſeven miles N.N.W. of Friuli.

PERTUIS, a town of France, in the department of the Vaucluſe, and chief place of a canton, in the diſtrict of Apt; 12 miles S.S.E. of Apt. The place contains 4000, and the canton 12,601 inhabitants, on a territory of $337\frac{1}{2}$ kilometres, in 14 communes.

PERTUIS *d'Antioch*, a ſtrait, or narrow part of the ſea, between the iſle of Oleron and the iſle of Ré.

PERTUIS *Breton*, a narrow ſtrait of the ſea, between the iſle of Ré and the coaſt of France.

PERTUIS *de Maumuſſon*, a ſtraight between the iſle of Oleron, and the coaſt of France, S. of the iſland, about one mile wide.

PERTURBATION *of the Planets*, &c., in *Aſtronomy*. See PLANETS, MOON, SATELLITE, and *Solar* SYSTEM.

END OF VOL. XXVI.

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